Painter (General)

NSQF LEVEL - 4

1st Year

TRADE PRACTICAL

SECTOR : CONSTRUCTION

(As per revised syllabus July 2022 - 1200 Hrs)

Directorate General of Training

DIRECTORATE GENERAL OF TRAINING
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
GOVERNMENT OF INDIA

NATIONAL INSTRUCTIONAL MEDIA INSTITUTE, CHENNAI

Post Box No. 3142, CTI Campus, Guindy, Chennai - 600 032

Sector : Construction

Duration : 2 - Years

Trades : Painter (General) - 1st Year - Trade Practical - NSQF Level - 4 (Revised 2022)

Developed & Published by

FOREWORD

The Government of India has set an ambitious target of imparting skills to 30 crores people, one out of every four Indians, by 2020 to help them secure jobs as part of the National Skills Development Policy. Industrial Training Institutes (ITIs) play a vital role in this process especially in terms of providing skilled manpower. Keeping this in mind, and for providing the current industry relevant skill training to Trainees, ITI syllabus has been recently updated with the help of Media Development Committee members of various stakeholders viz. Industries, Entrepreneurs, Academicians and representatives from ITIs.

The National Instructional Media Institute (NIMI), Chennai, has now come up with instructional material to suit the revised curriculum for **Painter (General) Trade Practical - 1st Year** in **Construction Sector under Yearly Pattern.** The NSQF Level - 4 (Revised 2022) Trade Practical will help the trainees to get an international equivalency standard where their skill proficiency and competency will be duly recognized across the globe and this will also increase the scope of recognition of prior learning. NSQF Level - 4 (Revised 2022) trainees will also get the opportunities to promote life long learning and skill development. I have no doubt that with NSQF Level - 4 (Revised 2022) the trainers and trainees of ITIs, and all stakeholders will derive maximum benefits from these Instructional Media Packages IMPs and that NIMI's effort will go a long way in improving the quality of Vocational training in the country.

The Executive Director & Staff of NIMI and members of Media Development Committee deserve appreciation for their contribution in bringing out this publication.

Jai Hind

Addl.Secretary/Director General (Training)
Ministry of Skill Development & Entrepreneurship,
Government of India.

New Delhi - 110 001

PREFACE

The National Instructional Media Institute (NIMI) was established in 1986 at Chennai by then Directorate General of Employment and Training (D.G.E & T), Ministry of Labour and Employment, (now under Directorate General of Training, Ministry of Skill Development and Entrepreneurship) Government of India, with technical assistance from the Govt. of Federal Republic of Germany. The prime objective of this Institute is to develop and provide instructional materials for various trades as per the prescribed syllabi under the Craftsman and Apprenticeship Training Schemes.

The instructional materials are created keeping in mind, the main objective of Vocational Training under NCVT/NAC in India, which is to help an individual to master skills to do a job. The instructional materials are generated in the form of Instructional Media Packages (IMPs). An IMP consists of Theory book, Practical book, Test and Assignment book, Instructor Guide, Audio Visual Aid (Wall charts and Transparencies) and other support materials.

The trade practical book consists of series of exercises to be completed by the trainees in the workshop. These exercises are designed to ensure that all the skills in the prescribed syllabus are covered. The trade theory book provides related theoretical knowledge required to enable the trainee to do a job. The test and assignments will enable the instructor to give assignments for the evaluation of the performance of a trainee. The wall charts and transparencies are unique, as they not only help the instructor to effectively present a topic but also help him to assess the trainee's understanding. The instructor guide enables the instructor to plan his schedule of instruction, plan the raw material requirements, day to day lessons and demonstrations.

IMPs also deals with the complex skills required to be developed for effective team work. Necessary care has also been taken to include important skill areas of allied trades as prescribed in the syllabus.

The availability of a complete Instructional Media Package in an institute helps both the trainer and management to impart effective training.

The IMPs are the outcome of collective efforts of the staff members of NIMI and the members of the Media Development Committees specially drawn from Public and Private sector industries, various training institutes under the Directorate General of Training (DGT), Government and Private ITIs.

NIMI would like to take this opportunity to convey sincere thanks to the Directors of Employment & Training of various State Governments, Training Departments of Industries both in the Public and Private sectors, Officers of DGT and DGT field institutes, proof readers, individual media developers and coordinators, but for whose active support NIMI would not have been able to bring out this materials.

Chennai - 600 032   **EXECUTIVE DIRECTOR**

ACKNOWLEDGEMENT

INTRODUCTION

TRADE PRACTICAL

The trade practical manual is intented to be used in workshop . It consists of a series of practical exercises to be completed by the trainees during the two years course of the **Painter (General)** Trade supplemented and supported by instructions/informations to assist in performing the exercises. These exercises are designed to ensure that all the skills in compliance with NSQF LEVEL - 4 (Revised 2022).

The manual is divided into Nine modules.

Module No	Module Name
Module 1	Safety Workshop Practice
Module 2	Free Hand Sketch Lines and Strokes
Module 3	Colours and Colour Knowledge
Module 4	Drawing and painting Instruments
Module 5	Lettering Types
Module 6	Basic Carpenter and Plumbing Work
Module 7	Basic Sheet Metal Work
Module 8	Basic Computer Operations
Module 9	Stencils - Signboard and Screen Printing

The skill training in the shop floor is planned through a series of practical exercises centred around ome practical project. However, there are few instances where the individual exercise does not form a part of project.

While developing the practical manual a sincere effort was made to prepare each exercise which will be easy to understand and carry out even by below average trainee. However the development team accept that there is a scope for further improvement. NIMI, looks forward to the suggestions from the experienced training faculty for improving the manual.

TRADE THEORY

The manual of trade theory consists of theoretical information for the Two years course of the **Painter (General)** Trade. The contents are sequenced according to the practical exercise contained in the manual on Trade practical. Attempt has been made to relate the theoretical aspects with the skill covered in each exercise to the extent possible. This co-relation is maintained to help the trainees to develop the perceptional capabilities for performing the skills.

The Trade theory has to be taught and learnt along with the corresponding exercise contained in the manual on trade practical. The indicating about the corresponding practical exercise are given in every sheet of this manual.

It will be preferable to teach/learn the trade theory connected to each exercise atleast one class before performing the related skills in the shop floor. The trade theory is to be treated as an integrated part of each exercise.

The material is not the purpose of self learning and should be considered as supplementary to class room instruction.

CONTENTS

LEARNING / ASSESSABLE OUTCOME

On completion of this book you shall be able to

S.No.	Learning Outcome	Ref. Ex.No.
1	Make different types of sketching viz., free Hand sketching of different objects, designing of different shapes, size, geometrical shapes of different objects following safety precaution.	1.1.01 - 1.2.20
2	Ability to synthesizeof free Hand sketching of Human figures, Shading, Use graph & figure enlargement.	1.2.21 - 1.2.24
3	Identify of paper, colour schemes and compose different types of colour shade Expertise in 2D design.	1.3.25 - 1.3.35
4	Create different types of realistic objects viz., bird, animals, realistic human figure with application of colour shades.	1.4.36 - 1.4.46
5	Demonstrate with colour shades different types letters (Devanagari, roman, gothic, Text writing/ lettering.) and apply them in appropriate place.	1.5.47 - 1.5.52
6	Plan and organize the work to make job as per specification applying different types of basic operation. [Basic fitting operation – marking, Chiselling, Filing, Drilling, Pipe fitting]	1.6.53 - 1.6.67
7	Manufacture simple sheet metal items as per drawing and join them by riveting. (like- Screen frame, sign board, & hanging Paintings frame)	1.7.68 - 1.7.77
8	Execute different types of Operating System and explore the working on DTP, Corel Draw, Photo shop etc.	1.8.78 - 1.8.96
9	Produce stencils involving different shapes in ornamental design, text, symbols etc. operations for different medium like papers, cards, tin, foam board, observing procedure and check for accuracy.	1.9.97 - 1.9.98
10	Produce Sign board, Name plate. prepare back ground painting, screen printing, Observe finishing, lettering proportion & evenness	1.10.99 - 1.10.111

Introduction of Painter (General) skills and work application

Objectives: At the end of this exercise you shall be able to
• **study the organisational structure**
• **identify the various trade sections**
• **introduction to painter general trade skills.**

Requirements	
Tools/Instruments	**Equipments/Machineries**
• I.T.I. Oragnisational chart - 1 No. • Staff name chart - 1 No.	• L.C.D Projector - 1 No. • Computer - 1 No. • Screen - 1 No.

PROCEDURE

Organisational structure and introduction to the institute

1 Study the organisational structure of I.T.I

2 Trade instructor should be lead the new trainee's to various section of I.T.I as per displayed in I.T.I organisation chart.

3 Trainee's will be collect the information like the designation of staff and nature of their duty in the I.T.I.

4 Identify the section of I.T.I and list the trades in your I.T.I.

5 List out the roll of your I.T.I.

6 Write the various trade name and instructor's name.

7 Locate your I.T.I showing nearest land marks like post office, Railway stations, Bus stop and their approximate distance from the I.T.I.

8 Collect the telephone numbers of the I.T.I office, nearest hospital, police station, emergency help line displayed in the notice board.

9 Note the head of the institution and his/her duty.

10 List out the medical division with a medical officer, compounder and dresser and other staffs functions in Table 1.

11 List out the general discipline to be followed with in the institute and list it in Table 2.

12 Learn and follow the rules and regulation of the institute.

13 Draw layout your I.T.I in Table 3.

Table 1

Sl.No.	Staff name	Destination	Sector	Functions
1	Ramesh	Principle	Office	Administrator
2				
3				
4				
5				
6				
7				

Table 2

Sl.No.	Rules and regulation	Discipline in the institute	Remarks
1	Obey rules and regulations	Self discipline	
2			
3			
4			
5			

Table 3

— — — — — — — —
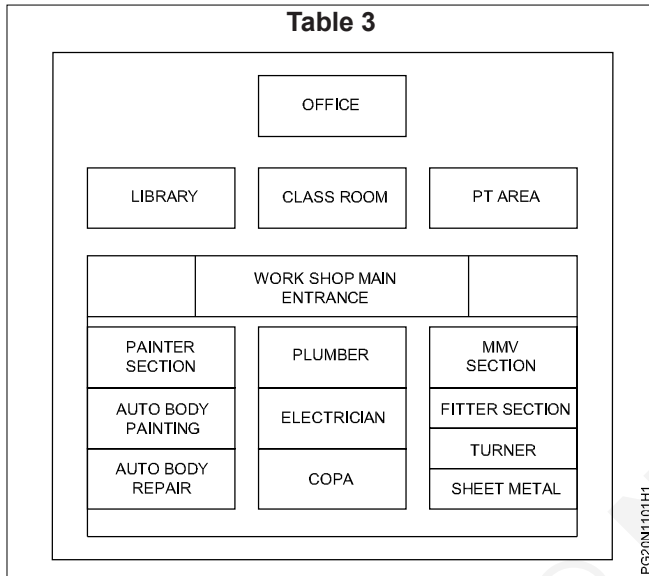
Safety attitude development and use of Personal Protective Equipment

Objectives: At the end of this exercise you shall be able to
• **identify the personal protective devices**
• **interpret the different type of PPE and its uses.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• PPE Chart	- 1 No.	• PPE Visual display unit	- 1 No.
• PPE instruction chart	- 1 No.	• PPE Set	- 1 No.

PROCEDURE

TASK 1: **Personal protective equipments (Fig 3)**

Fig 1

Note: The instructor has to be provide or arrange the different types of personal protective equipment or chart and explain how to identify and select the PPE devices suitable for the work and ask the trainees to write names in the given Table 1.

1 Read and interpret the personal protective equipments by visually on real devices or from the charts.

2 Identify and select the personal protective equipment used for suitable type of protection.

3 Learn the wearing method of PPE through vedio on screen show or your instructors guide line.

4 Write the name of the PPE to the corresponding type of protective safety equipments in Table 1.

5 Get it checked by your instructor.

Table 1

S.No.	Name of the PPE	Hazards	Type of protection
1			
2			
3			
4			
5			
6			
7			
8			
9			

TASK 2: **PPE Instruction and uses**

1 Some cleaning agents are toxic. Refer to the information about handling; use and storage of chemicals that may be hazardous, follow any recommendations made by the supplier before using it.

2 Do not use flammable cleaners or water on electrical equipment.

3 Make sure designated walkways are kept clear of any obstructions.

4 Always wear protective clothing and the appropriate safety equipment.

5 Make sure that you understand and observe all legislative and personal safety procedures when carrying out the tasks. If you are unsure of these procedures, about the procedure with demo ask your instructor to explain.

6 Study the material safety data sheet, while you use the materials for painting work.

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Practice on basic first aid to injured victim

Objectives: At the end of this exercise you shall be able to
• **prepare the victim to first aid**
• **practice Nelson's arm lift back pressure method**
• **use the schafer's method**
• **use the mouth to mouth method**
• **use the mouth to nose method**
• **cardiac arrest (CPR) cardio pulmanory method**
• **perform first aid for stopping the bleeding.**

Requirements			
Tools/Instruments		**Materials**	
• First aid kit	- 1 No.	• Cotton	- as reqd.
Equipments/Machineries		• Tinger	- as reqd.
		• Bandage	- as reqd.
• Structure	- 1 No.	• Bandage clip	- as reqd.
• Ambulance	- 1 No.		

PROCEDURE

Assumption - For easy manageability, Instructor may arrange the trainees in group and ask each group to perform one method of resuscitation.

TASK 1: **Prepare the victim to first aid (Fig 1)**

1 Loosen the tight clothing which may interfere with the victim's breathing.

2 Remove any foreign materials or false teeth from his mouth and keep the victim's mouth open.

3 Bring the victim safely to the level ground, taking necessary safety measures.

4 Start artificial respiration immediately without delay. Do not waste too much time in loosening the clothes or trying to open the tightly closed mouth.

5 Avoid violent operations to prevent injury to the internal parts of the victim.

6 Send the victim to doctor immediately by ambulance.
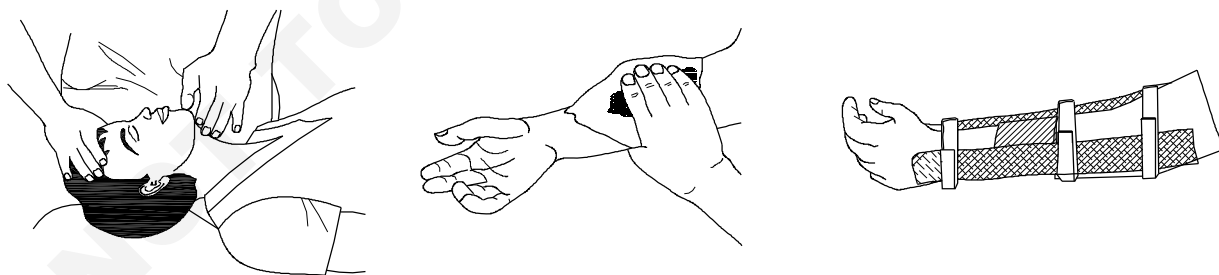
Fig 1

TASK 2: **Resuscitate the victim by Nelson's arm - Lift back pressure method**

Nelson's arm-lift back pressure method must not be used in case there are injuries to the chest and belly.

1 Place the victim prone (that is face down) with his arms folded with the palms one over the other and the head resting on his cheek over the palms. Kneel on one or both knees near the victim's hand. Place your hands

on the victim's back beyond the line of the armpits, with your fingers spread outwards and downwards, thumbs just touching each other as in Fig 1.

2 Gently rock forward keeping your arms straight until they are nearly vertical, and steadily pressing the victim's back as shown in Fig 2 to force the air out of the victim's lungs.

Fig 1
HEAD RESTING ON CHEEK OVER THE PALMS
HANDS ON THE BACK BEYOND LINE OF ARM PIT
ARMS FOLDED

Fig 2
ARMS STRAIGHT AND NEARLY VERTICAL
BACK PRESSED

Fig 3
HANDS DOWNWARDS
GRASP THE UPPER ARMS JUST ABOVE THE ELBOWS.

Fig 4
ARMS PULLED
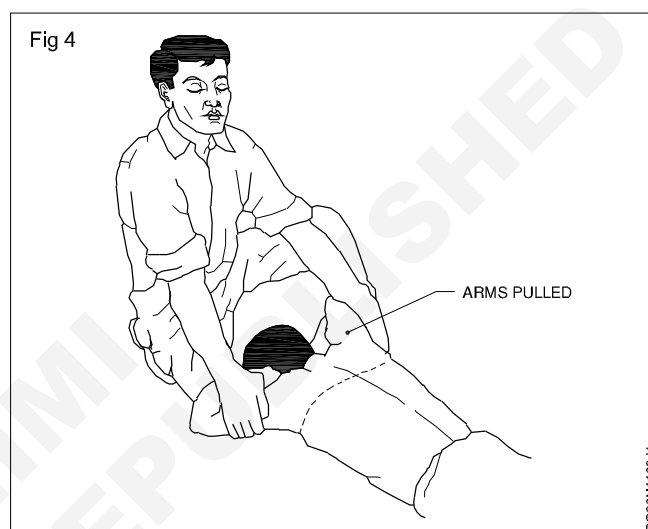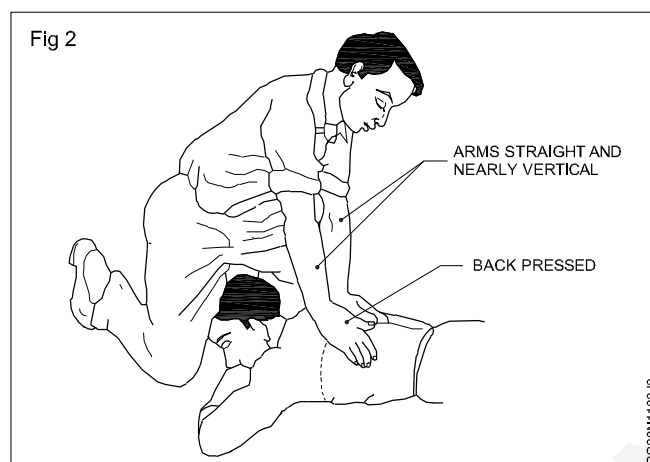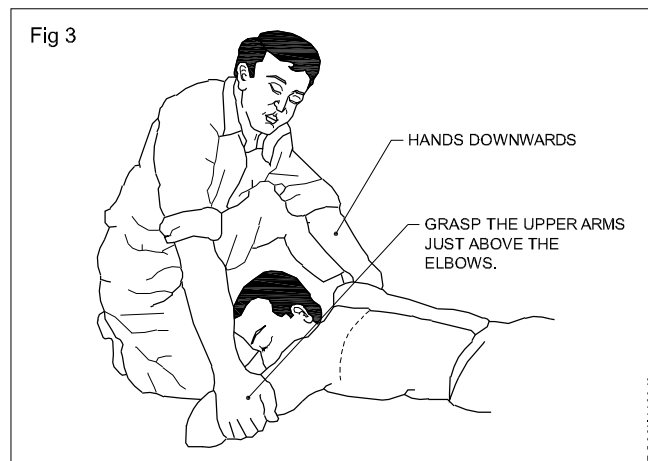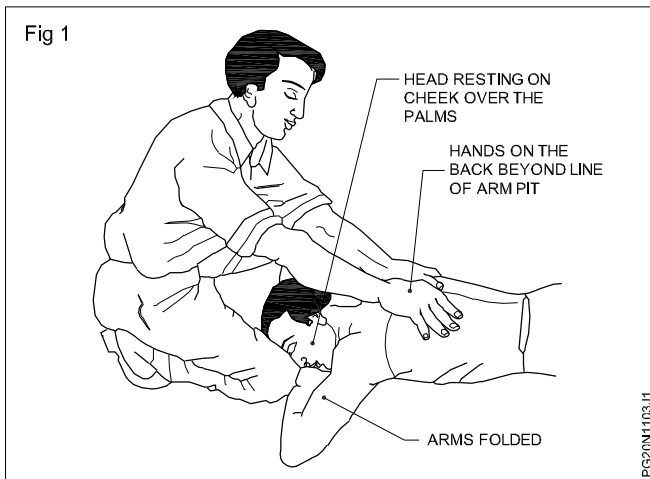
3   Synchronise the above movement of rocking backwards with your hands sliding downwards along the victim's arms, and grasp his upper arm just above the elbows as shown in Fig 3. Continue to rock backwards.

4   As you rock back, gently raise and pull the victim's arms towards you as shown in Fig 4 until you feel tension in his shoulders. To complete the cycle, lower the victim's arms and move your hands up to the initial position.

5   Continue artificial respiration till the victim begins to breathe naturally. Please note, in some cases, it may take hours.

6   When the victim revives, keep the victim warm with a blanket, wrapped up with hot water bottles or warm bricks; stimulate circulation by stroking the insides of the arms and legs towards the heart.

7   Keep him in the lying down position and do not let him exert himself.

Do not give him any stimulant until he is fully conscious.

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TASK 3: **Resuscitate the victim by Schafer's method**

Do not use this method in case of injuries to victim on the chest and belly.

1   Lay the victim on his belly, one arm extended direct forward, the other arm bent at the elbow and with the face turned sideward and resting on the hand or forearm as shown in Fig 1.

2   Kneel astride the victim, so that his thighs are between your knees and with your fingers and thumbs positioned as in Fig 1.

Fig 1
THUMB ALONG FINGERS
LITTLE FINGER ALONG LOWEST RIB
MOUTH AND NOSE OPEN
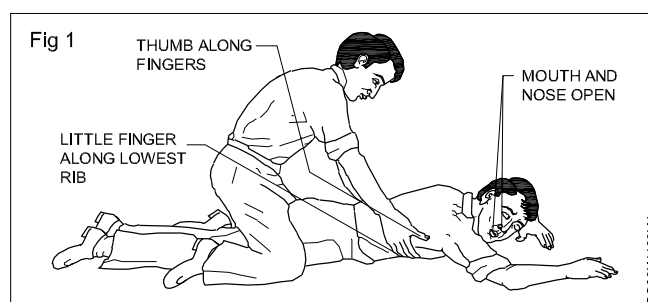
3 With the arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the lower ribs of the victim to force the air out of the victim's lungs as shown in Fig 2.

Fig 2

ELBOWS STRAIGHT THIGHS AND ARMS PERPENDICULAR TO THE GROUND

WEIGHT OF THE BODY ON PALM OF THE HAND
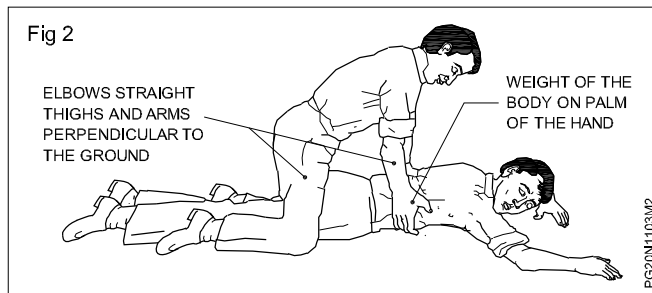
4 Now swing backward immediately removing all the pressure from the victim's body as shown in Fig 3, thereby, allowing the lungs to fill with air.

Fig 3
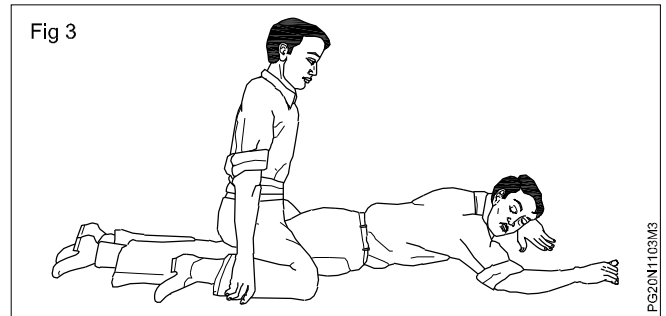
5 After two seconds, swing forward again and repeat the cycle twelve to fifteen times a minute.

6 Continue artificial respiration till the victim begins to breathe naturally.

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TASK 4: **Resuscitate the victim by mouth-to-mouth method**

1 Lay the victim flat on his back and place a roll of clothing under his shoulders to ensure that his head is thrown well back. (Fig 1)

Fig 1
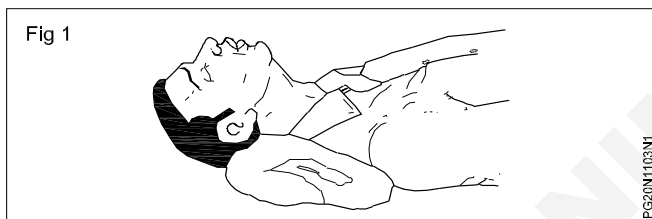
2 Tilt the victim's head back so that the chin points straight upward. (Fig 2)

Fig 2
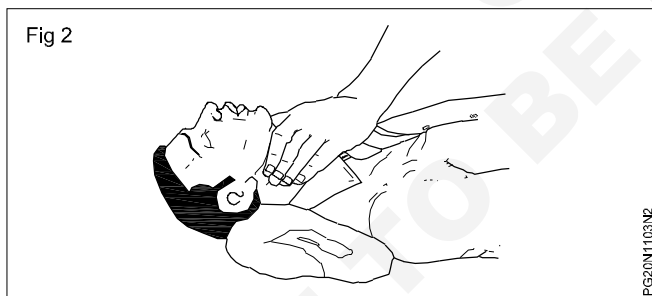
3 Grasp the victim's jaw as shown in Fig 3, and raise it upward until the lower teeth are higher than the upper teeth; or place fingers on both sides of the jaw near the ear lobes and pull upward. Maintain the jaw position throughout the artificial respiration to prevent the tongue from blocking the air passage.

4 Take a deep breath and place your mouth over the victim's mouth as shown in Fig 4 making airtight contact. Pinch the victim's nose shut with the thumb and forefinger. If you dislike direct contact, place a porous cloth between your mouth and the victim's. For an infant, place your mouth over his mouth and nose.

Fig 3

CHIN STRAIGHT UPWARDS

LOWER TEETH ARE HIGHER THAN UPPER TEETH

HEAD BACK

Fig 4

AIRTIGHT CONTACT OF TWO MOUTHS

NOSE PINCHED
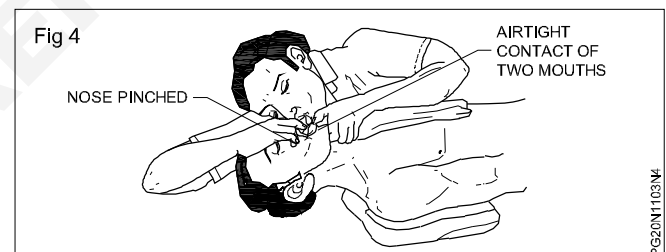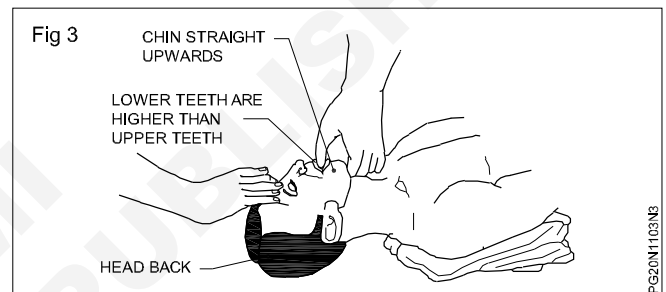
5 Blow into the victim's mouth (gently in the case of an infant) until his chest rises. Remove your mouth and release the hold on the nose, to let him exhale, turning your head to hear the rushing out of air. The first 8 to 10 breathings should be as rapid as the victim responds, thereafter the rate should be slowed to about 12 times a minute (20 times for an infant).

If air cannot be blown in, check the position of the victim's head and jaw and recheck the mouth for obstructions, then try again more forcefully. If the chest still does not rise, turn the victim's face down and strike his back sharply to dislodge obstructions.

Sometimes air enters the victim's stomach as evidenced by a swelling stomach. Expel the air by gently pressing the stomach during the exhalation period.

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TASK 5: **Resuscitate the victim by Mouth-to-Nose method**

> **Use this method when the victim's mouth will not open, or has a blockage you cannot clear.**

1   Use the fingers of one hand to keep the victim's lips firmly shut, seal your lips around the victim's nostrils and breathe into him. Check to see if the victim's chest is rising and falling. (Fig 1)

2   Repeat this exercise at the rate of 10 - 15 times per minute till the victim responds.

3   Continue this exercise till the arrival of the doctor.

Fig 1

— — — — — — — — —

TASK 6: **Resuscitate a victim who is under cardiac arrest (CPR) cardio pulmanory**

> **In cases where the heart has stopped beating, you must act immediately.**

1   Check quickly whether the victim is under cardiac arrest.

> **Cardiac arrest could be ascertained by the absence of the cardiac pulse in the neck (Fig 1), blue colour around lips and widely dilated pupil of the eyes.**

Fig 1
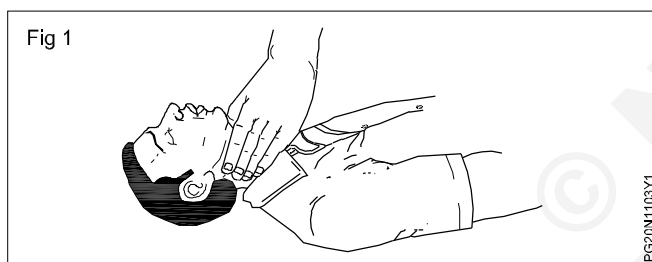
2   Lay the victim on his back on a firm surface.

3   Kneel alongside facing the chest and locate the lower part of the breastbone. (Fig 2)

Fig 2
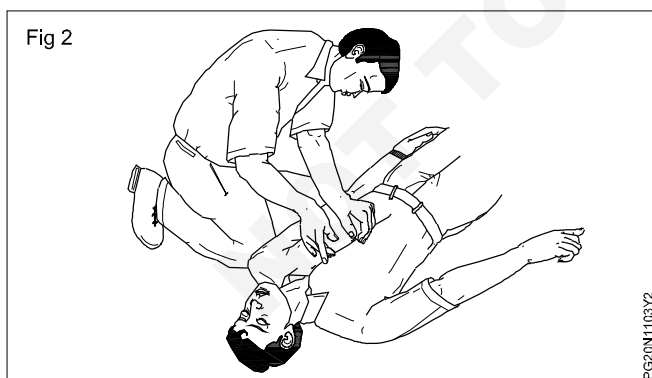
4   Place the palm of one hand on the centre of the lower part of the breastbone, keeping your fingers off the ribs. Cover the palm with your other hand and lock your fingers together as shown in Fig 3.

Fig 3

5   Keeping your arms straight, press sharply down on the lower part of the breastbone; then release the pressure. (Fig 4)

Fig 4
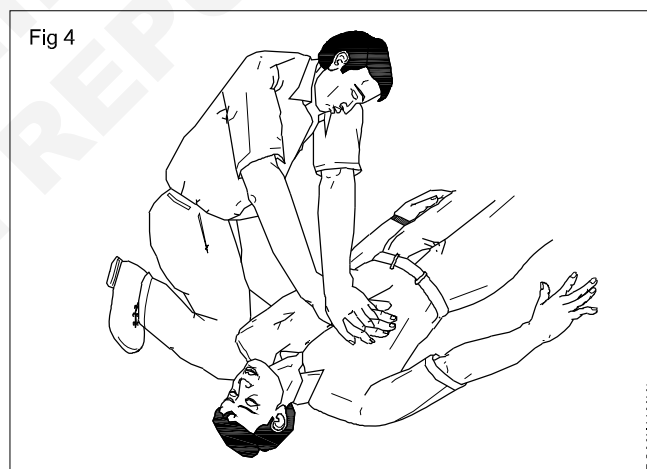
6   Repeat step 5, fifteen times at the rate of atleast once per second.

7   Check the cardiac pulse. (Fig 5)

8   Move back to the victim's mouth to give two breaths (mouth-to-mouth resuscitation). (Fig 6)

9   Continue with another 15 compressions of the heart followed by a further two breaths of mouth-to-mouth resuscitation, and so on, check the pulse at frequent intervals.

10 As soon as the heartbeat returns, stop the compressions immediately but continue with mouth-to-mouth resuscitation until natural breathing is fully restored.

Fig 5
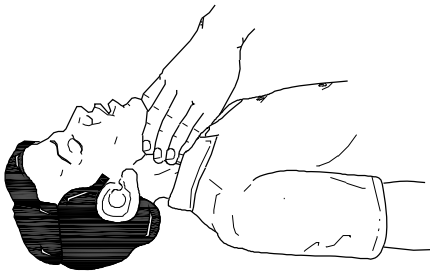
Fig 6

11 Place the victim in the recovery position as shown in Fig 7. Keep him warm and get medical help quickly.
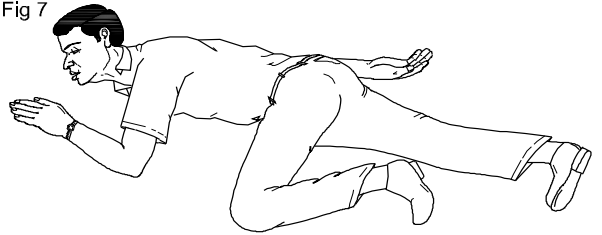
Fig 7

Other steps

1 Send ward for a doctor immediately.

2 Keep the victim warm with a blanket, wrapped up with hot water bottles or warm bricks; stimulate circulation by stroking the insides of the arms and legs towards the heart.

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TASK 7: **Treatment for bleeding victim**

1 Determine the location of the bleeding.

2 Elevate the injuried area above the heart if possible.

3 Apply direct pressure to the bleeding area with sterile cloth.

4 Keep the pressure on for 5 seconds.

5 Check to see if the bleeding has stopped if not apply further pressure for 15 minutes.

6 Clean the wound.

7 Bandage the wound with pad of soft material (Fig 1).

8 Advice vitim to take treatment from doctor.

Fig 1
DRESSING CLOTH
PAD

— — — — — — — —
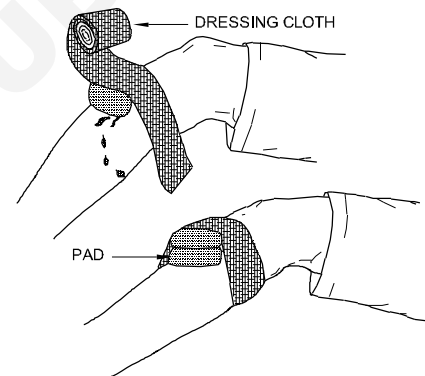
Safe disposal of paint shop waste materials

Objectives: At the end of this exercise you shall be able to
• **identify and segregate the waste material of paint shop**
• **store the waste materials in separate dust bins**
• **safe disposal of paint shop waste materials.**

Requirements			
Tools/Instruments		• Air compressor	- 1 No.
		• Paint material bin	- 1 No.
• Paint manual	- 1 No.	• Paint spray gun	- 1 No.
Equipments/Machineries		**Materials**	
• Paint dust bin	- 1 No.	• Cotton waste	- as reqd.
• Cotton waste dust bin	- 1 No.	• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Disposal of waste materials from the paint shop**

1 Collect all the waste materials in paint shop.

2 Collect the chips by hand shovel with help of brush.

3 Clean the floor if oil or paint is spill.

> **Do not handle the chip by bare hand there may be different metal chips. So separate the chip according to metal.**

4 Identify and segregate the different waste like cotton waste. metal chips, all chemical waste and electrical waste etc. (Fig 1) separately and label them.

5 Segregate saleable, non saleable, organic and non organic materials also.

6 Store the each category similarly of metal chip in separate bins.

> **Each bin have respective label.**

7 Collect all the saleable material metal and non - metal separately and keep it's respective bins.

8 Collect all the non - saleable materials like cotton waste, paper waste, wooden pieces etc. and keep it's respective bin.

9 Check the non - saleable material work (organic) and send it for disposal by burning after getting approval.

10 Check the saleable material and segregate like Aluminium, Copper, Iron, Screws, nuts and other items separately and send to stores for disposal by auction (or) as per recommended procedure with approval.

11 Record the segregated waste material and fill in the Table 1.

12 Arrange at least 3 trollies with wheel for disposal and stick the lable an each trolly as "Cotton Waste", "Metal chips" and "others" (Fig 2)

13 Put the cotton waste in cotton trolley and similarly put the metal chips waste and others in corresponding trolleys.

14 Keep another 4 bins to collect saleable scarp. non saleable scrap, organic waste and non-organic waste and label them. (Fig 3)

Fig 1
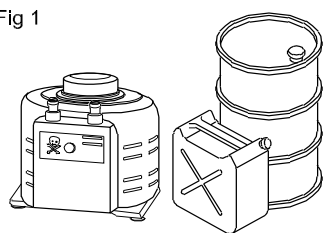
OIL, CHEMICAL & SOLVENT   COTTON WASTE   METAL CHIPS   ELECTRICAL WASTE
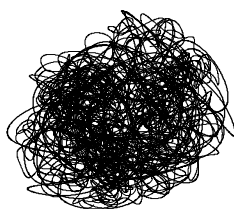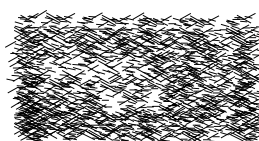
Table 1

SI.No.	Name of the waste material	Quantity	Saleable or non Saleable
1			
2			
3			
4			
5			
6			

Fig 2
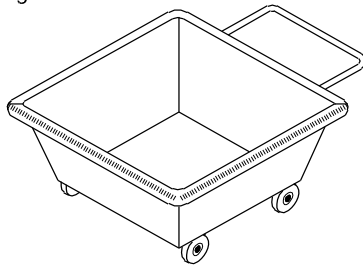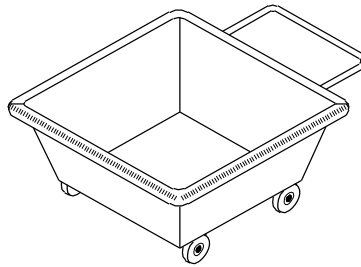
COTTON   METAL CHIPS   OTHERS
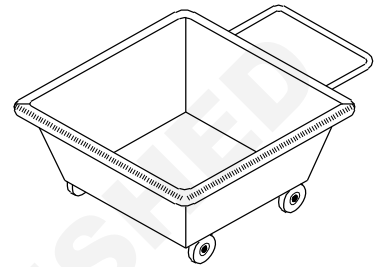
Fig 3

Saleable Material Metal Scrap	Non Saleable Non-Metal Scrap	Waste Material Organic	Waste Material Non-Organic
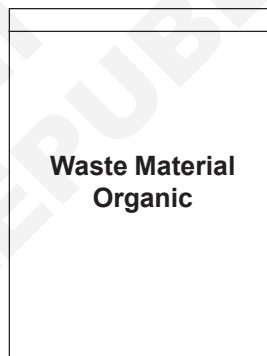
— — — — — — — —

Practice to identify the hazard and non hazard and avoidance of hazard

Objectives: At the end of this exercise you shall be able to
• **identify the hazards in the paint shop**
• **identify the non hazards in the paint shop**
• **use the method of hazards avoid in paint shop.**

Requirements				
Equipments/Machineries		**Materials**		
• Fire fighting equipments	- 1 No.	• Paint materials	- as reqd.	
• Fire bucket sand	- 2 Nos.	• Cotton waste	- as reqd.	
• Fire hook	- 2 Nos.	• Thinner oil	- as reqd.	
• Water bucket	- 2 Nos.	• Soap oil	- as reqd.	

PROCEDURE

TASK 1: **Identify the hazards in the paint shop**

1 The painter general trade trainer should be explain the type of hazards may be happen in paint shop.

2 Paint dust effect the human breathing and lung of the human body.

3 Paint dust particles deposit on finished painted parts.

4 Paint and oil items easily flammable due to mis handling of paint materials.

5 Oil and paint spillage may because for slippage in the shop floor.

6 Write the name of hazard materials in Table 1.

Table 1

S.No.	Hazard materials name	Qty
1	Poor housekeeping area	
2	Nacked electrical wire	
3	Electrical short circuit	
4	Smoking near hazard materials	
5	Paint near smoking area	
6	Oil and paint spillage	

— — — — — — — —

TASK 2: **Identify the non-hazard materials**

1 Instructor shoule be show demo on sample non hazard materials used in the paint shop floor.

2 Trainees identify the non-hazard materials in the paint shop.

3 Write the names of non-hazard materials in Table 2.

Table 2

S.No.	Non-hazard materials	Qty

— — — — — — — —

TASK 3: **Avoiding method of hazards**

1 Follow the instructions of painting work in the shop floor.

2 Use the PPE during painting work.

3 Clean the shop floor and painting tools and equipment's before and after work.

4 Use the 5s methods in your paint shop.

5 Write the method of shop hazard avoidance in your log note book.

6 Note down the physical hazards can get in paint in Table 3.

Table 3

S.No.	Physical hazards	Cause for hazards
1	Eye irritation	Paint mist
2	Fore throat	Paint mist/dust
3	Cough	
4	Runny nose	
5	Fatigue	

Practice on use of fire fighting equipments and fire extinguishers

Objectives: At the end of this exercise you shall be able to
• **practice on operation of fire extinguishers**
• **practice on use of fire fighting equipments.**

Requirements			
Tools/Instruments			
• Seal cutter	- 1 No.	• Fire hook	- as reqd.
Equipments/Machineries		**Materials**	
• Fire extinguishers	- as reqd.	• Water	- as reqd.
• Fire bucket sand	- as reqd.	• Sand	- as reqd.
• Fire water bucket	- as reqd.	• Blanket	- as reqd.
• Fire beater	- as reqd.	• First aid kit	- as reqd.

PROCEDURE

TASK 1: **Practice on operation of fire extinguisher**

General procedure to be adopted in the event of fire.

1   Raise an alarm. Follow the method written below for giving an alarm signals when fire breaks out.

 - by raising your voice and shouting Fire! Fire! to call the attention of others.

 - running towards fire alarm/bell to actuate it.

 - other means.

2   On receipt of the alarm signal.

 - stop working and put "OFF" electrical power supply

3   If you are not involved in fighting the fire.

 - leave calmly using the emergency exit.

 - evacuate the premises.

 - assemble at a safe place along with the others.

 - check if anyone has gone to inform about the fire break to the concerned authority.

 - close the doors and windows, but do not lock or bolt.

4   If you are involved in fire fighting.

 - take instructions/give instructions for an organised way of fire fighting.

 - follow the instructions, and obey, the safety rules.

 - assess the class of fire.

 - send the people for sufficient assistance and inform to the fire brigade.

 - locate locally available suitable materials to put out the fire.

 - judge the magnitude of the fire, ensure emergency exit paths are clear of obstructions and then attempt to evacuate. (Remove explosive materials, substances that can serve as a ready fuel for fire within the vicinity of the fire break)

 - fight out the fire with assistance to put it out, by naming the person responsible for each activity.

5   Report the fire accident and the measures taken to put out the fire, to the authorities concerned and then analyze and identify the type of fire as per Table 1.

> **Reporting all fires however small helps in the investigation of the cause of the fire. It helps to prevent the same kind of accident occurring again.**
>
> **Note: Perform this exercise with the support of fire service station.**
>
> **Assume the fire is 'B' type (flammable liquefiable solids)**

6   Select CO_2 (carbon dioxide) fire extinguisher.

7   Locate and pick up CO_2 fire extinguisher. Check for its expiry date.

8   Break the seal. (Fig 1)

9   Pull the safety pin from the handle. (pin located at the top of the fire extinguisher) (Fig 2)

Fig 1
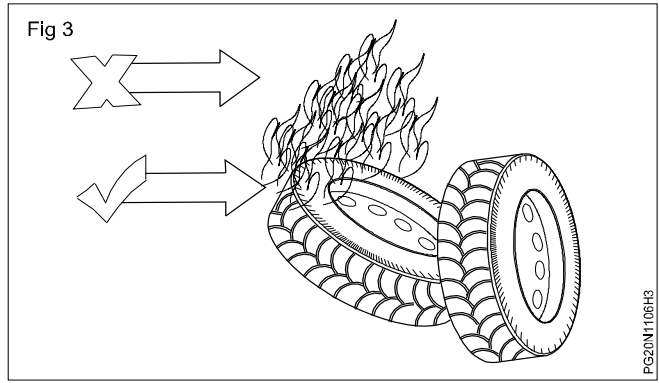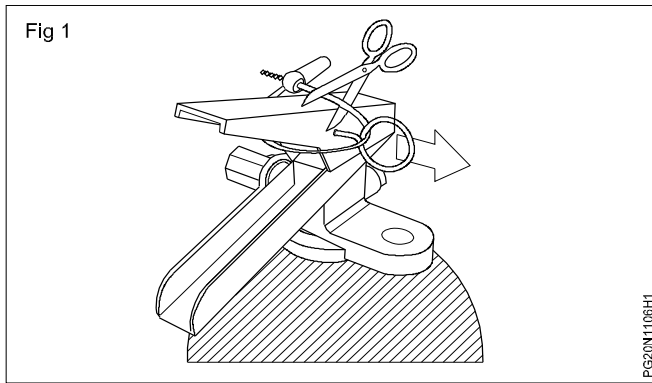
Table1

Type of fire	Materials/Items associated with	Figure
Class 'A'	Wood, paper, cloth, solid material	
Class 'B'	Oil based fire (grease, gasoline, Oil) & Liquefiable solids	
Class 'C'	Gas and liquefied gases	
Class 'D'	Metals and electrical equipment	

Fig 2
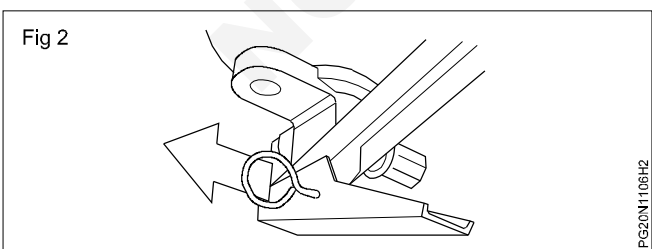
10 Aim the extinguisher nozzle or hose at the base of the fire. (this will remove the source of fuel fire) (Fig 3)

Fig 3

11 Squeeze the handle lever slowly to discharge the chemical agent (Fig 4)

Fig 4
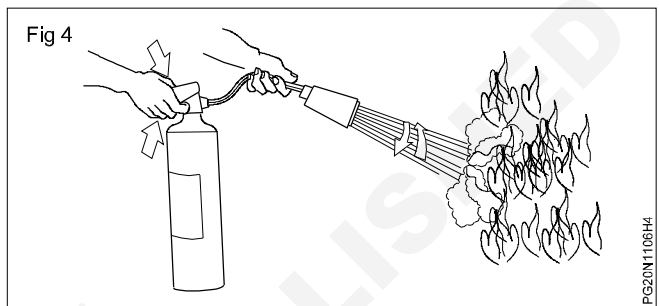
12 Sweep side to side approximately 15 cm over the fuel fire until the fire is put off.

> **Fire extinguishers are manufactured for use from the distance.**

Caution

1 While putting off fire, the fire may flare up.

2 Do not be panic so long as it put off promptly

3 If the fire doesn't respond well after you have used up the fire extinguisher move away yourself away from the fire point.

4 Do not attempt to put out a fire where it is emitting toxic smoke, leave it to the professionals.

5 Remember that your life is more important than properly. So don't place yourself or others at risk.

> **In order to remember the simple operation of fire extinguisher.**
>
> **Remember.**
>
> **P.A.S.S. This will help to use fire extinguisher.**
>
> **P for pull.**
>
> **A for aim.**
>
> **S for squeeze.**
>
> **S for sweep.**

— — — — — — — —

TASK 2: **List out the fire service station equipment and practice to use the equipment**

S. No.	Equipment Name	Purpose	Remarks
1	Fire Extinguishers	Put off fire	
2	Fire Hook		
3	Fire Bucket		
4	Sand		
5	Fire Service vehicle		

— — — — — — — —

Practice on identification of safety signs

Objectives: At the end of this exercise you shall be able to
• **identify the information sign**
• **identify the warning signs**
• **identify the cautionary signs.**

Requirements	
Tools/Instruments	**Equipments/Machineries**
• Safety sign chart	• Safety sign audio and vedio

PROCEDURE

Identification of safety signs

Instructor should be provide various safety signs chart and explain their meaning. Ask the trainee to identify the sign and record in Table 1.

1 Identify the information, warning and cautionary signs from the chart. (Fig 1)

2 Record the name of the safety sign Table 1.

3 Mention the meaning and description of the safety sign in Table 1.

4 Write the information of each sign in your log note.

5 Get it checked by your instructor.

Table 1

Fig. No.	Basic Categories/ Safety sign	Meaning - description
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Fig. No.	Basic Categories/ Safety sign	Meaning - description
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Fig 1

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30

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— — — — — — — —

Practice to identify the importance of painter trade training

Objectives: At the end of this exercise you shall be able to
• **observe the importance of the painter trade training.**

Requirements	
Tools/Instruments	**• Paint viscosity cup** — 1 No.
• Trade training manual — 1 No.	**Materials**
• Paint colour wheel — 1 No.	• Cotton waste — as reqd.
Equipments/Machineries	• Paint — as reqd.
	• Thinner — as reqd.
• Air compressor — 1 No.	• Emmery paper — as reqd.
• Paint spray gun — 1 No.	• Soap oil — as reqd.

PROCEDURE

Importance of painter trade training

1 Note the tools in the paint shop.

2 Note the precautions to be observed while working with paint.

3 Note the nature of painter (general) work.

4 Note the painters job opportunity in our country.

5 Note the global demand for painter general.

> **Instructor should be brief about the roll of painter and job opportunity in India and foreign countries.**

6 Note the training on different types of painting work.

7 Ask the trainee's to write the name of painting tools in Table 1.

8 Ask to write the job opportunities in Table 2.

9 Ask the trainee's to write the type of painting works in Table 3.

10 Get it checked by the instructor.

Table 1

Sl.No.	Tools and equipments	Use of tools

Table 2

Sl.No.	Tyepe of job opportunities	Remark

Table 3

Sl.No.	Type of painting work	Remark
1	Building painting	
2	Screen printing	
3	Art drawing	
4	Photoshop editing	
5	Name board writing	
6	Advertisement board and vehicle painting	

Practice on use the safety precautions in painting work

Objective: At the end of this exercise you shall be able to
• **use the safety precaution in painting work.**

Requirements

Tools/Instruments

• Paint manual	- 1 No.

Equipments/Machineries

• PPE for painter	- 1 Set.
• Paint spray gun	- 1 No.
• Air compressor	- 1 No.

Materials

• Paint	- as reqd.
• Thinner	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

Painting work - Safety precautions

1 Good housekeeping is essential to safe operations in paint shop.

2 Use the painting at proper location.

3 Use the paint spray both.

4 Provide an adequate ventilation in paint shop.

5 Eliminate the fire hazards.

6 Taking a personal health safe guards.

7 Storing the paint materials safely.

8 Maintain the painting equipment properly.

9 Use protective eye wear.

10 Don't wear the wrist watch during painting work.

11 Use a face shield.

12 Use the dust mask.

13 Wear a fitted respirator with organic vapour cartridge.

14 Maintain the proper paint spray gun distance.

15 Maintain the proper paint gun air pressure.

16 Use proper viscosity paint to spray.

17 Wear the simple apron while in painting work.

18 Write down the safety precautions need to adopt on painting work in Table 1.

Table 1

Sl.No.	Safety precaution	Protect from the hazards
1	Face shield	Paint mist
2	Apron	
3	Air plug	
4	Respirator with organic vapour cartridge	
5	Goggles	
6	Rubber boot	
7	Hand gloves	

— — — — — — — —

Painting related motivational talk

Objective: At the end of this exercise you shall be able to
• **listen the motivational talk of experts.**

Requirements	
Tools/Instruments	**Equipments/Machineries**
• Paint manual - 1 No.	• Audio & Video equipment

## PROCEDURE

Motivational talk by expert in a class room

1   Trainer introduce the painting expert to the trainee's in the smart class room.

2   Welcome address by the trainer.

3   Expert introduce himself to trainees.

4   Trainee's introduce their self to the expert.

5   Expert start the motivational talk about painter trade importance and job opportunity in global wide. Expert will give brief lecture in following topics.

6   Self-employment opportunity.

7   Important role of I.T.I. in India.

8   Skill development training and its important to industry development.

9   Difference between industrial painter and painter general paint work.

10 Painting work with love.

11 Safety precaution while painting work.

12 Use of painting work and global demand for the painter.

13 Painter and painting tools.(Fig 1)

14 Draw different types of line practice and its importance.

15 Different types of drawing pencil and it's usage.

16 Different type of painting brushes and its need.

17 Drawing and colouring methods.

18 Definition of sketch and need of sketching.

19 Human body structures of male and female.

20 Colours and colour knowledge, colour shade, tone, blinders.

21 Primary, secondary, tertiary colours.

22 Colour wheel and different types of colour scheme.

23 Drawing instruments and its usage.

24 Drawing paper and its uses and care.

25 Different types of painting knife and its usage.

26 Lettering methods and lettering types.

27 Stencils uses, care and cleaning of tencils.

28 Different types of sign boards.

29 Graph making and enlargement.

30 Screen printing explanation and selection of cloth, instruments, chemicals fitting exposing.

31 Photoshop and coreldraw use in painter general trade.
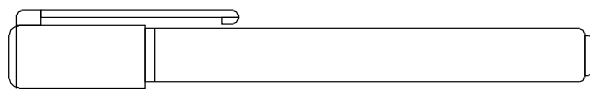
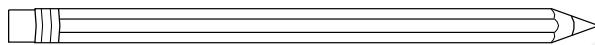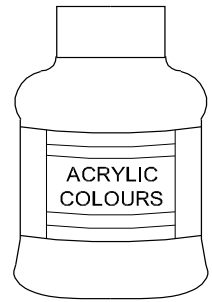32 Paint and ink use in painting and printing work.
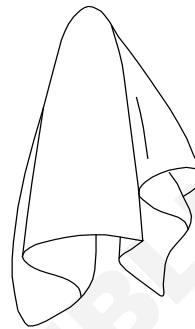
Fig 1

TOOTHBRUSH

BRUSHES

POSTER
COLOURS
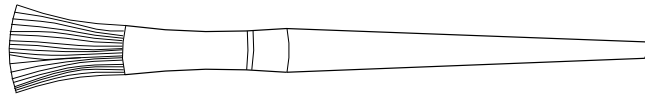
ACRYLIC
COLOURS

SKETCH PENS

PENCILS
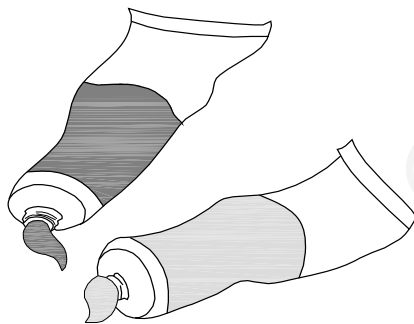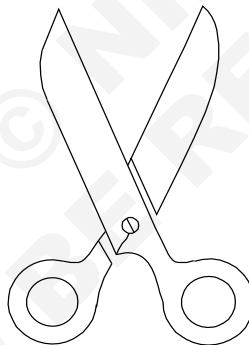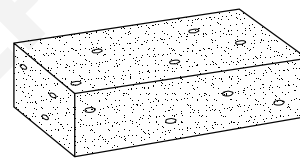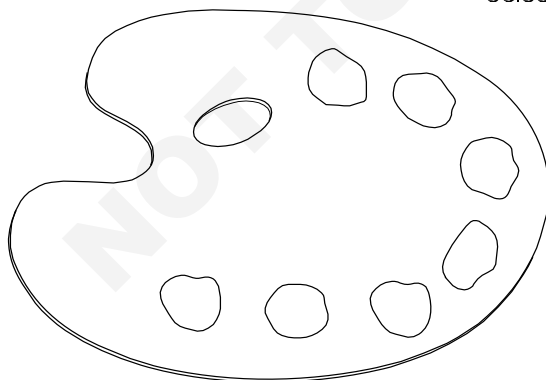
COTTON RAG
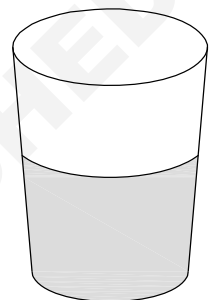
WATER
CUP

TUBE
COLOURS

SCISSORS

SPONGE

GLUE

PALETTE

PAPERS

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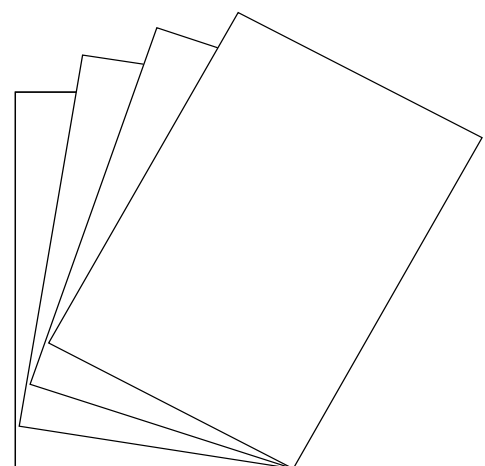
Paint shop maintenance and 5's' taining

**Objective:** At the end of this exercise you shall be able to
• **carryout the maintenance of tools and equipment.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.

Equipments/Machineries

• Air compressor	- 1 No.
• Vacuum cleaner	- 1 No.
• Paint spray gun	- 1 No.

Materials

• Cleaning solvent	- as reqd.
• Washing powder	- as reqd.
• Cotton waste	- as reqd.
• Brush	- as reqd.

PROCEDURE

Maintenance of tools and equipment's

1 **Clean hand tools:** Keep your hand tools in good condition and ready for paint work. Apply oil on the metal tools to prevent rust and corrosion while store the tool in store.

2 **Clean floor jacks:** Wipe off any oil or grease on the floor jack and check for fluid leaks, if you find fluid level is low, top up the hydraulic fluid. Apply a few drops of lubricating oil to the post of the safety stands.

3 **Stands electrical power tools cleaning:** Keep power tools clean by brushing off any dust and wiping off excess oil or grease with a clean rag. Inspect the electrical cables for dirt, oil or grease and for any chafing or exposed wires.

4 **Clean power tools:** Apply a few drops of oil into the inlet of your power tools every day. If it need regular lubrication of the internal parts to prevent wear.

5 **Clean the paint spray gun:** Clean the paint spray gun and its hose with suitable cleaning solvent which is not damage the parts. Clean the paint brushes with cleaning solvent and pack it with dust free storage.

6 **Cleaning the paint shop floor:** Clean the paint shop floor with recommended cleaning solvent and make it dust free paint shop.

7 **5's' training:** 5's' training expects every trainees to participate in it. It becomes a basic for continuous important paint shop activities.

   - Storing out the materials and tools in paint shop. (Figs 1 & 2)

   - Systematically arrange the materials and tools in your paint shop.

UNORGANIZED PAINTSHOP

Fig 1

ORGANIZED PAINTSHOP

Fig 2
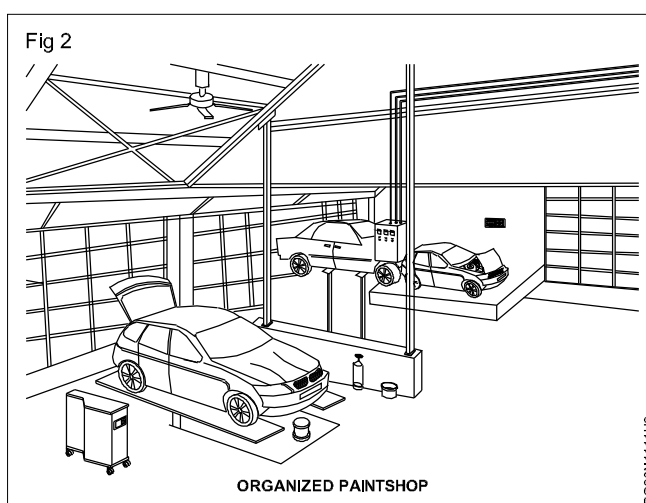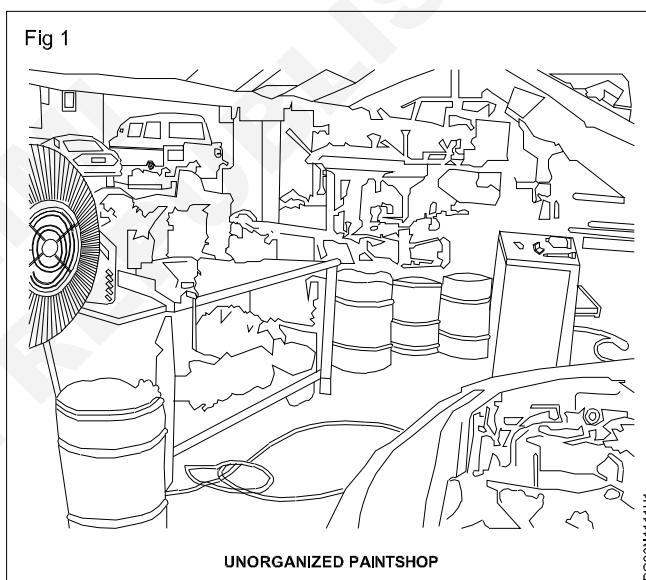
- Clean the paint shop and painting tools before and after the painting work.

- Standardised your work in every step of painting.

- Always maintain the self-discipline in every step of working in paint shop.

- Write the benefits of 5's' training in the Table 1.

Table 1

Sl.No.	Benefits of 5's'	Steps
1		
2		
3		
4		

— — — — — — — —

Practice on draw different sketches and hand writing practice

Objectives: At the end of this exercise you shall be able to
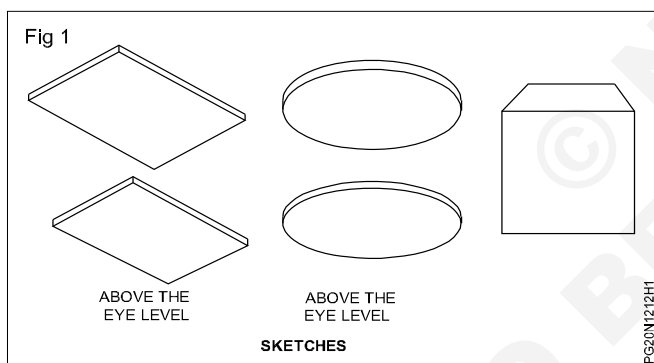• **draw the different sketches**
• **write the different hand writing letters.**

Requirements		
Tools/Instruments		**Materials**
• Trainee's tool kit	- 1 No.	• Colour paint - as reqd.
• Paint brushes set	- 1 No.	• Pencil - as reqd.
Equipments/Machineries		• Drawing paper - as reqd.
		• Eraser - as reqd.
• Air compressor	- 1 No.	• Soap oil - as reqd.
• Paint spray gun	- 1 No.	

PROCEDURE

TASK 1: **Draw the different type of sketches**

1 Draw the different type of above the eye level sketches as following sample sketches. (Fig 1)

Fig 1

ABOVE THE EYE LEVEL   ABOVE THE EYE LEVEL

SKETCHES

2 Draw the different types of eye level sketches as following sample sketches. (Fig 2)

Fig 2

EYE LEVEL   EYE LEVEL

3 Draw the different types of below eye level sketches as a following sample sketches. (Fig 3)

Fig 3

BELOW THE EYE LEVEL   BELOW THE EYE LEVEL

— — — — — — — —
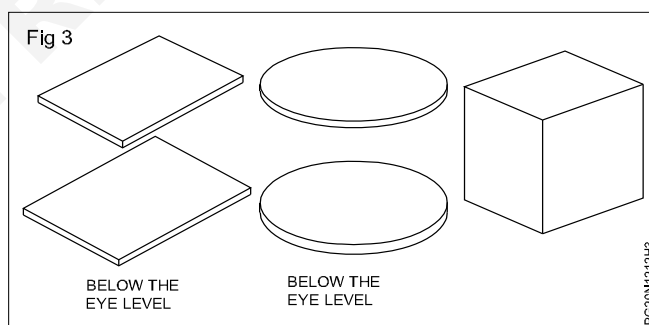
TASK 2: **Different types of hand writing**

1 Practice to write the following letters. (Figs 1 to 8)

Fig 2

2 Practice the hand writing in different language.

Fig 3

अ	आ	इ	ई	उ	ऊ
ओ	ए	ऋ	ऐ	औ	

Fig 1

A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z

a b c d e f g h i j
k l m n o p q r s t
u v w x y z
1 2 3 4 5 6 7 8 9 0

PG20N1212J1

Fig 4

**ABCDEFGHIJKL
MNOPQRSTU
VWXYZ
1234567890**

PG20N1212J4

Fig 5

*ABCDEFGHIJKL
MNOPQRSTU
VWXYZ*

PG20N1212J5

Fig 6

*ABCDEFGHIJKL
MNOPQRSTU
VWXYZ*

PG20N1212J6

Fig 7

𝕬𝕭𝕮𝕯𝕰𝕱𝕲𝕳𝕴𝕵𝕶𝕷
𝕸𝕹𝕺𝕻𝕼𝕽𝕾𝕿𝖀
𝖁𝖂𝖃𝖄𝖅

PG20N1212J7

Fig 8

**ABCDEFGHIJKL
MNOPQRSTU
VWXYZ**

PG20N1212J8

— — — — — — — —

Practice to identify the cleaning and painting tools and equipments

Objectives: At the end of this exercise you shall be able to
• **identify the painting tools**
• **identify the painting equipment**
• **identify the cleaning of painting equipments.**

Requirements		
Tools/Instruments		
• Trainee's tool kit	- 1 No.	• Vacuum cleaner - 1 No.
• Painting tool kit	- 1 Set.	**Materials**
Equipments/Machineries		• Cleaning solvent - as reqd.
• Air compressor	- 1 No.	• Baniyan cloth - as reqd.
• Paint spray gun	- 1 No.	• Paint in colours - as reqd.

PROCEDURE

TASK 1: **Identify the following painting tools and equipments in your paint shop (Fig 1)**

1 Identify the wall cleaning tools.

2 Identify the painter's tape.

3 Identify the different types of brushes.

Fig 1

4 Identify the paint rollers and paint spray gun.

5 Identify the drop cloths.

6 Identify the paint bucket.

7 Identify paint roller tray.

8 Identify the paint brush cleaner.

9 Identify the paint roller extension pole.

10 Identify the paint sturdy ladders.

11 Identify the paint touch up tool.

12 Identify the paint premixed spackling for wall repairs.

13 Identify the air compressor and vacuum cleaner.

14 Identify the putty knife and taping knife for wall repair.

15 Identify the fiber mesh tape for wall repair.

16 Identify the flexible sanding sponges for wall repair.

17 Identify the paint key.

18 Identify the plastic tube to cover a wall roller.

19 Identify the plastic tray liners.

20 Identify the paint pads.

21 Identify the handle sander with sponge.

22 Identify the professional drawing pencils.

23 Identify the professional sketching of drawing art tool kit with manual.

24 Identify the traditions peacock dry wall hand sander

25 Identify the cart furniture lifter and mover tool set.

26 Identify the paint spray gun.

27 Identify the scriber

28 Identify the hand grinder. (Fig 2)

Fig 2
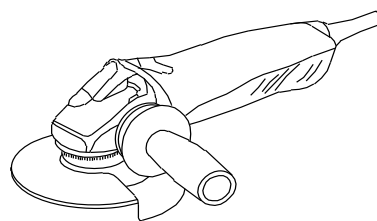
29 Identify the sanding machine. (Fig 3)

Fig 3
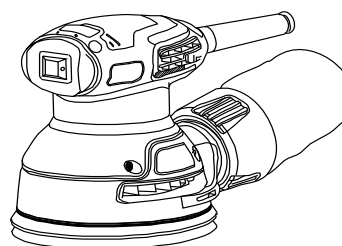
30 Identify the chipper
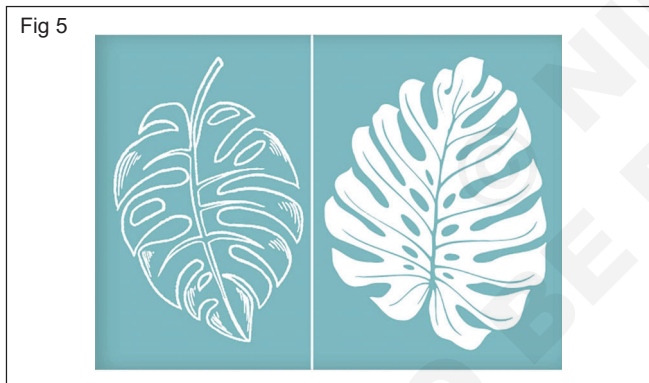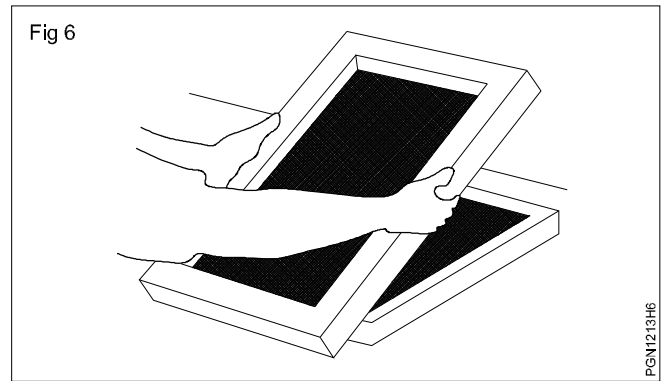
31 Identify the wooden scale

32 Identify the drawing sheets

33 Identify the viscosity cup. (Fig 4)

Fig 4

34 Identify the stencil screen. (Fig 5)
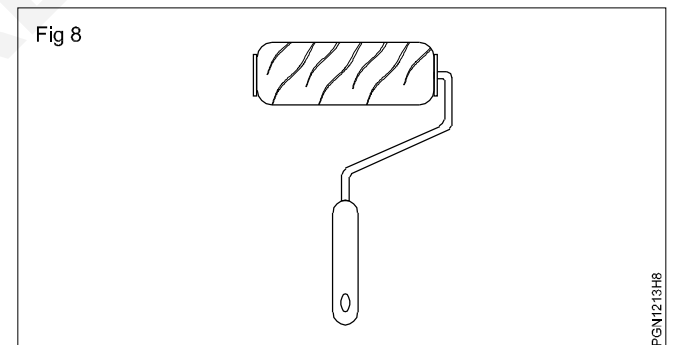

Fig 5

35 Identify the stencil frames. (Fig 6)

36 Identify the screen washing materials

Fig 6

37 Identify the screen printing table. (Fig 7)

Fig 7

38 Identify the squeegee. (Fig 8)

Fig 8

— — — — — — — —

TASK 2: **Identify the following personal protective equipment in your painting shop**

1 Decorators overalls

2 Painter's goggles

3 Dust masks

4 Hand gloves

5 Shoe covers

6 Aprons

— — — — — — — —

TASK 3: **Clean the paint shop equipments and tools (Figs 1 to 3)**

1 Use the cleaning agent to clean the above mentioned painting tools and equipments as per directions and recommendations issued by supplier. Refer the paint shop tools and equipments manual before use the cleaning solvent.

2 Do not use flammable cleaners or water on electrical equipment.

3 Use personal safety procedures while cleaning the paint shop equipments and tools.

4   Clean the air compressor.

5   Clean the paint spray gun.

6   Clean the air spray pressure feed system.

7   Clean the paint shop tools as per your instructor's guide line.

8   Clean the paint shop tools and equipments for increases the life of them.

Fig 1
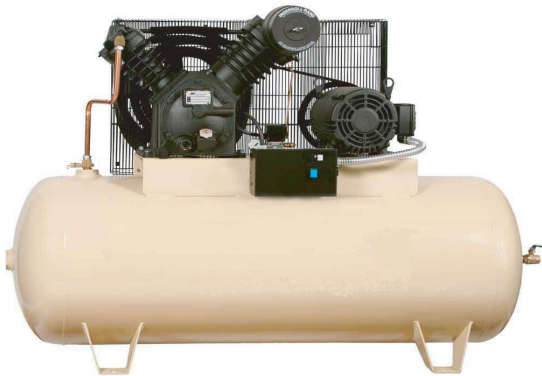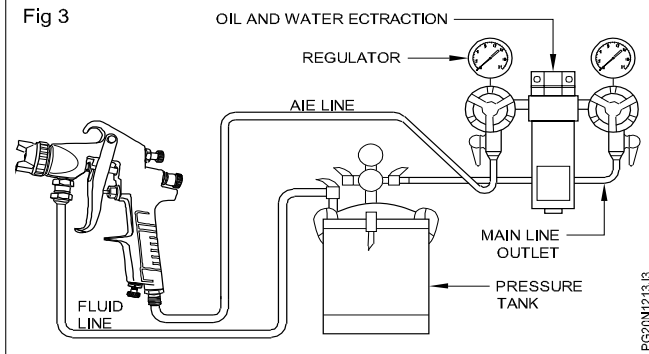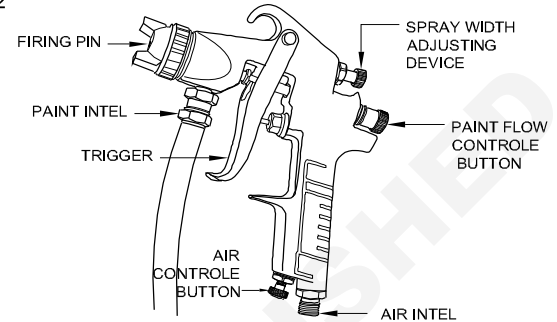
Fig 3

Fig 2

- - - - - - - - -

TASK 4: Write name of drawing equipment and instruments in Table 1 & 2 as shown in Figs 1 to 17

Fig 1
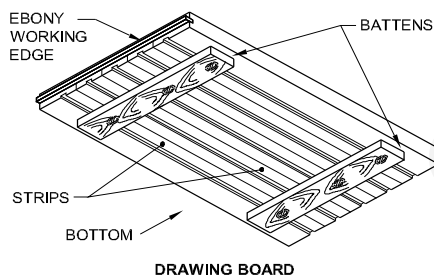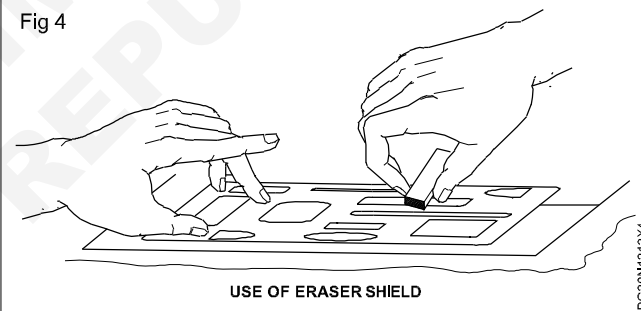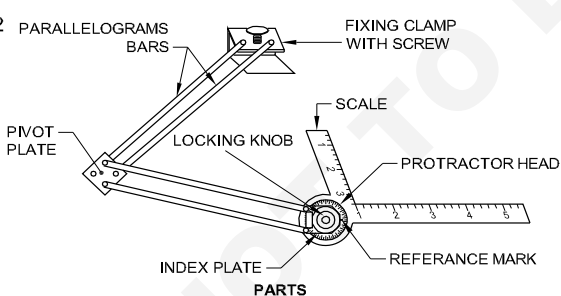
DRAWING BOARD

Fig 4

USE OF ERASER SHIELD

Fig 2

PARTS

Fig 5

(a) 45° SET SQUARE   (b) 30° - 60° SET SQUARE

Fig 3

(a) DRAWING PENCIL

(b) MECHANICAL PENCIL

(c) FINE-LEAD MECHANICAL PENCIL
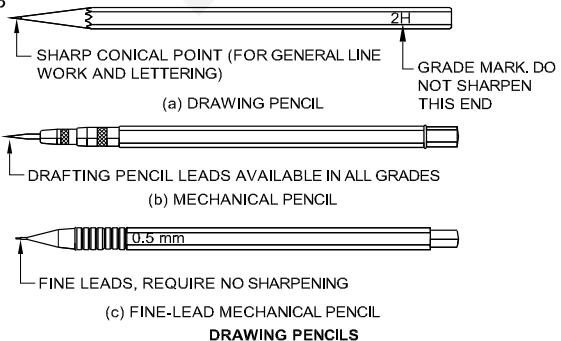
DRAWING PENCILS

Fig 6
BEAM
FINE ADJUSTMENT SCREW
BEAM COMPASS
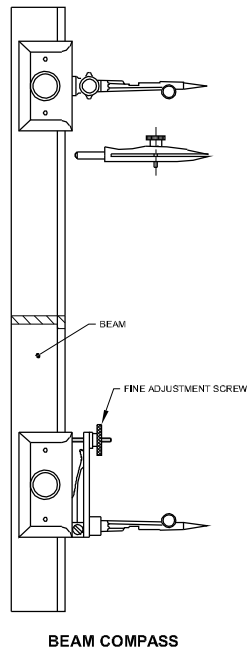
Fig 7
FRENCH CURVES
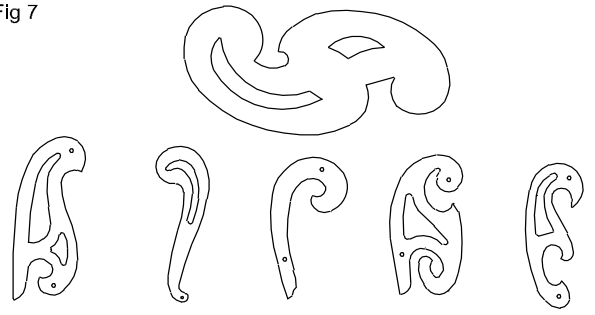
Fig 9
KNEE JOINT
LARGE COMPASS
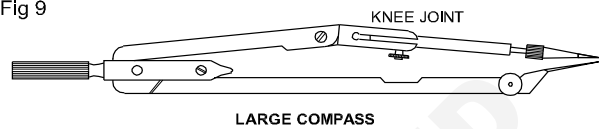
Fig 10
DIVIDER
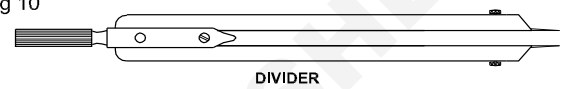
Fig 8
DRAWING INSTRUMENTS

Fig 11
(a)
NUT
(b)
WHEEL
(c)
(d)
(e)
BOW - INSTRUMENTS

Fig 12
(a)
(b)
RULING PENS

Fig 13
LENGTHENING BAR

Fig 14
SCREW DRIVER

Fig 15

LEAD CASE

Fig 16

Lines
Circles

PROPORTIONAL DIVIDERS

Fig 17

STEEL RULE   WOODEN SCALE
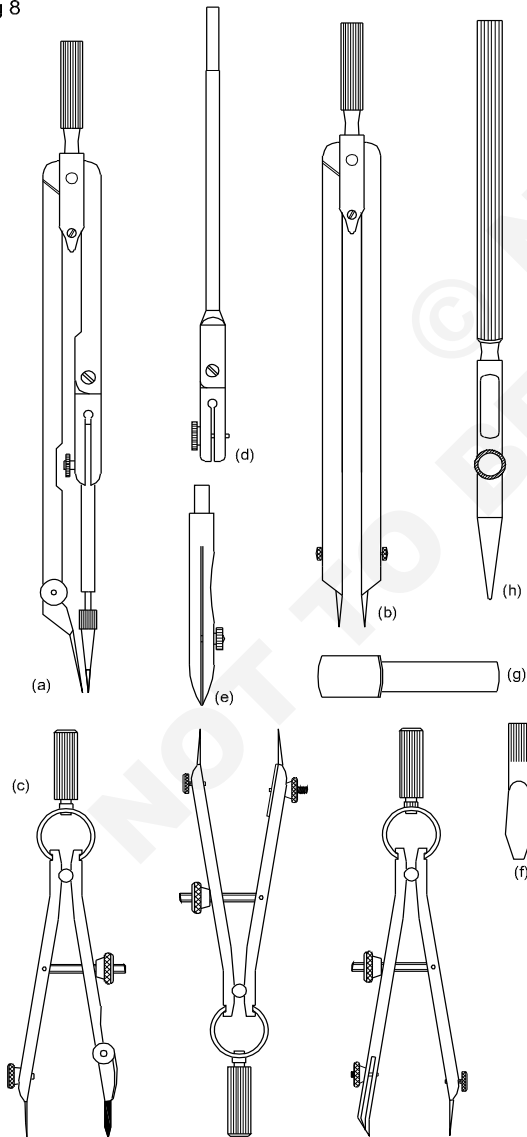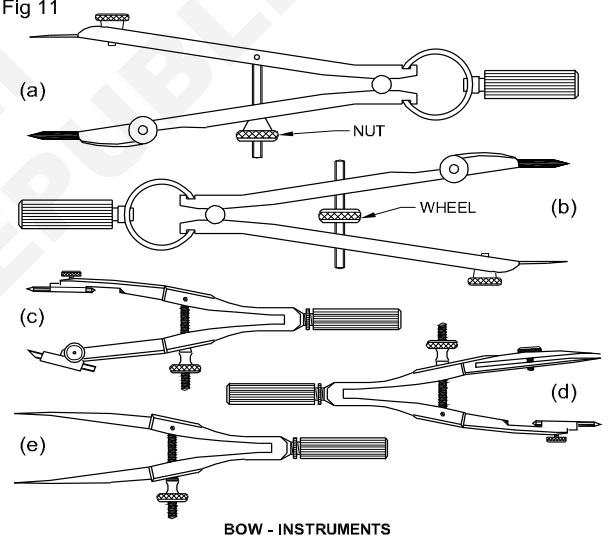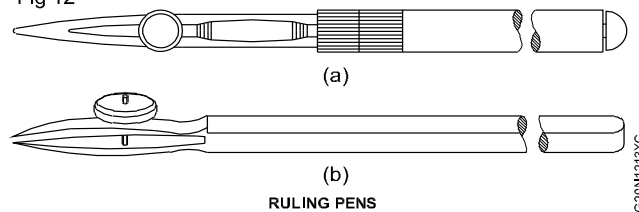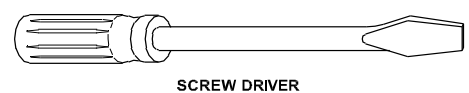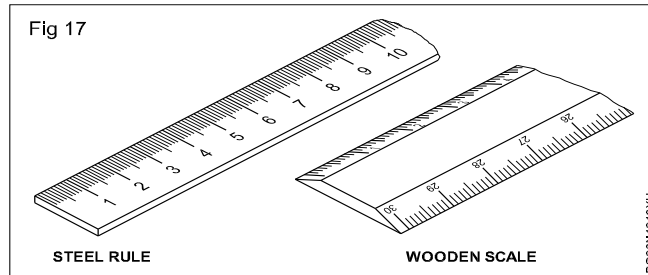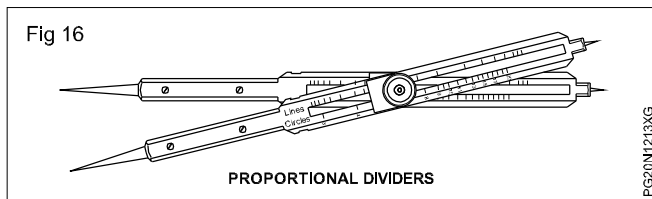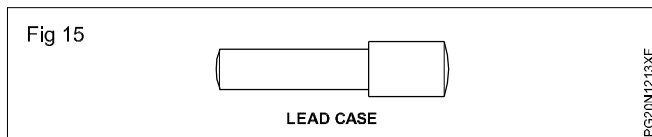
Instructor should ask the trainees to fill the table and it should be checked by him.

Table 1

Sl. No.	Name of Equipment & instrument	Uses/Purposes

Table 2

Sl. No.	Name of Equipment & Machines	Uses/ Purposes

Practice on identify the paint shop machineries

Objectives: At the end of this exercise you shall be able to
• **identify the paint shop machineries**
• **check the function of paint shop machineries.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Paint booth	- 1 No.
Equipments/Machineries		**Materials**	
• Air compressor	- 1 No.	• Cotton waste	- as reqd.
• Vacuum cleaner	- 1 No.	• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Identify the parts of paint shop machineries**

1 Air compressor - electric motor drive belt, fly wheel, cylinder, air tank, air filter, air regulator.

2 Paint gun cleaner - air hose, air spray gun, electric motor, cable.

3 Infrared dryer - Electric heater, heat air sprayer.

4 Paint spray booth- spray booth fans, ventilators, temperature controller.

5 Water wash paint booth - Electric motor, water storage, water spray gun.

6 Painting mixing room - Paint mixing booth monitor (software) and key boards.

7 Paint spray machine - Air system, spray gun parts.

— — — — — — —

TASK 2: **Observe the functions of paint shop machineries**

1 Air compressor
- Electric motor operation
- Fan belt tension
- Air compressor output
- Air water separator condition of intake air filter (strainer).
- Function of air pressure regulator.

2 Paint gun cleaner
- Paint gun cleaner air pressure input.
- Paint gun cleaner's air pressure output.
- Quality of paint gun cleaning.

3 Infrared dryer
- Dryer heater output temperature
- Paint drying method

4 Paint spray booth
- Function of spray booth
- Paint spray quality
- Paint booths gun functions

- Paint booth ventilators functions

5 Paint booth water wash
- Water wash electric motor
- Water tank storage
- Spray gun output water pressure

6 Paint mixing room
- Paint mixing machine function
- Paint container and colour mixing system

7 Paint spray machine
- Paint spray pattern

Write the use of paint shop machineries in Table 1.

Table 1

Sl.No.	Paint shop machineries	Use
1	Air compressor	
2	Paint spray gun	
3		
4		

— — — — — — — —

Practice on free hand sketch lines and strokes

Objective: At the end of this exercise you shall be able to
• **draw the different types of free hand sketch lines.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing pencil kit	- as reqd.
		• Drawing paper	- as reqd.
Equipments/Machineries		• Eraser	- as reqd.
		• Paint	- as reqd.
• Drawing board	- as reqd.	• Pallet	- as reqd.

PROCEDURE

TASK 1: **Practice to draw the following free hand sketch lines in your drawing sheet (Figs 1 & 2)**

Fig 1

Fig 2

— — — — — — — —
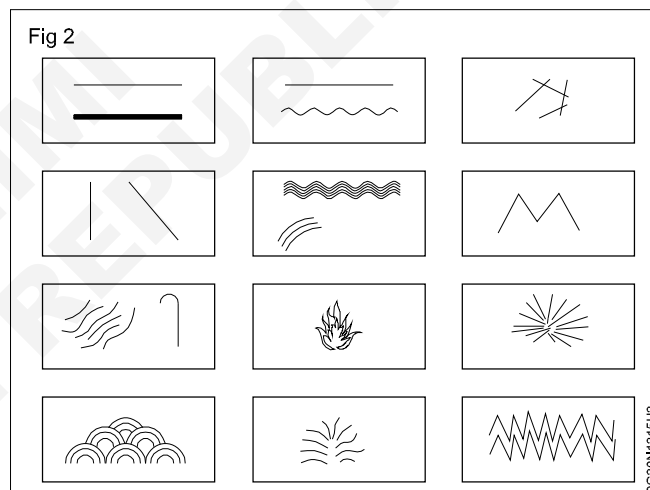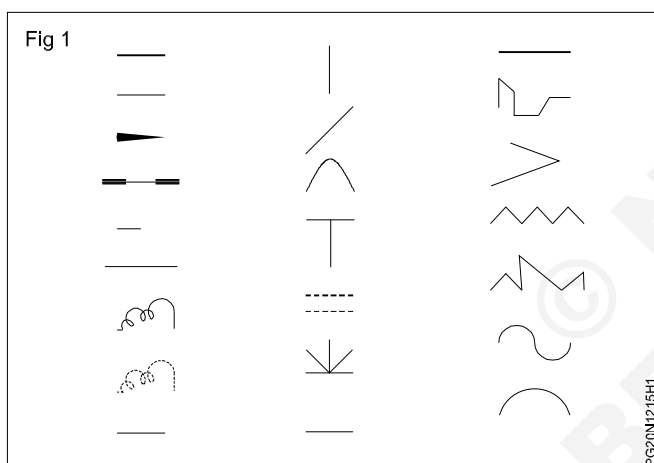
TASK 2: **Practice to draw the following painting stokes in your drawing note book (Fig 1)**

Fig 1

— — — — — — — —
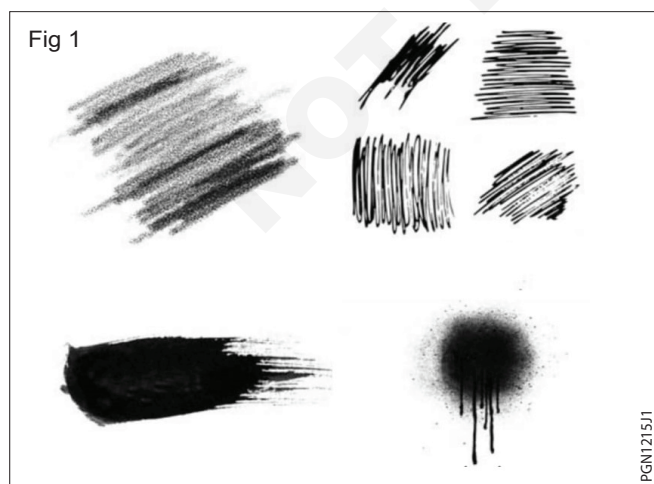
Practice on draw the nature flowers, leaves and trees

Objectives: At the end of this exercise you shall be able to
- **draw the nature flowers**
- **draw the nature leaves**
- **draw the nature tree.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing pencil kit	- as reqd.
Equipments/Machineries		• Drawing paper	- as reqd.
		• Eraser	- as reqd.
• Drawing board	- as reqd.		

PROCEDURE

TASK 1: **Draw the nature flowers (Fig 1)**

1 Select the flower to draw.

2 Prepare the drawing board and drawing paper.

3 Clip the drawing paper on the drawing board.

4 Prepare and sharpen the drawing pencils.

5 Draw a border lines of on the paper.

6 Draw the following figure in your drawing sheet.

Fig 1

— — — — — — — —
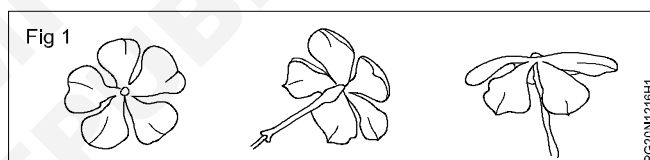
TASK 2: **Draw the nature leaves (Fig 1)**

1 Practice the following leaves in your drawing sheet.

Fig 1

— — — — — — — —
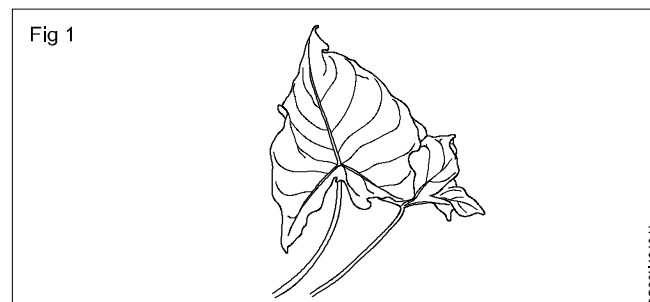
TASK 3: **Draw the nature tree (Fig 1)**

1 Practice to draw the following nature tree in your drawing sheet as per your instructors guide line.

Fig 1

— — — — — — — —
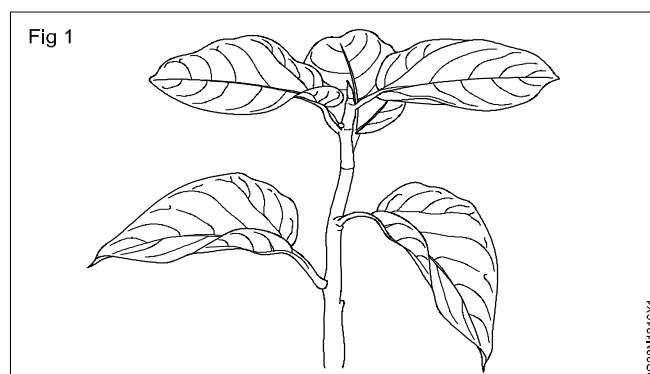
Practice on free hand sketching of birds and animals

Objectives: At the end of this exercise you shall be able to
• **free hand sketching of birds**
• **free hand sketching of animals.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing pencil kit	- as reqd.
Equipments/Machineries		• Drawing paper	- as reqd.
• Drawing board	- 1 No.	• Eraser	- as reqd.

PROCEDURE

TASK 1: **Practice on free hand sketching of the birds**

1 Select the bird to sketching in line diagram

2 Select the drawing board.

3 Select the drawing paper.

4 Fix the drawing paper on the drawing board.

5 Hang the sample bird drawing for draw the free hand sketch in front of you.

6 Select the drawing pencil and sharpening it.

7 Draw the boarder lines on the drawing paper.

8 Study bird's free hand sketch. (Figs 1 & 2)

Fig 2

Fig 1

9 Practice to draw the sample diagram given below. (Figs 3 & 4)
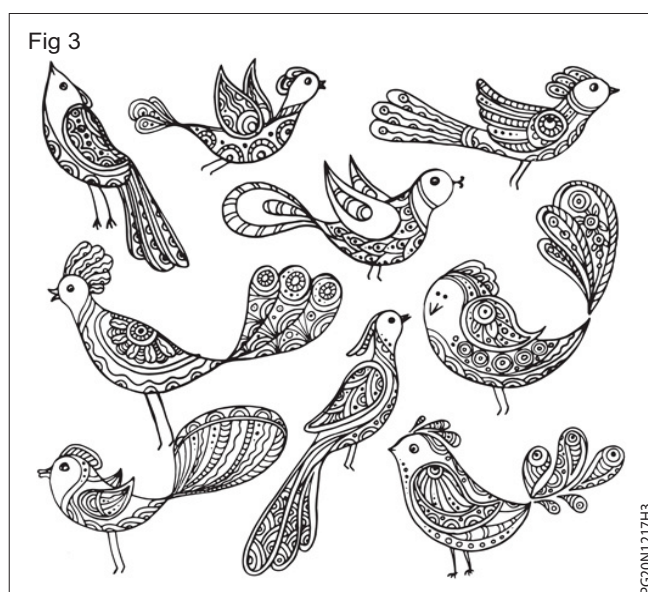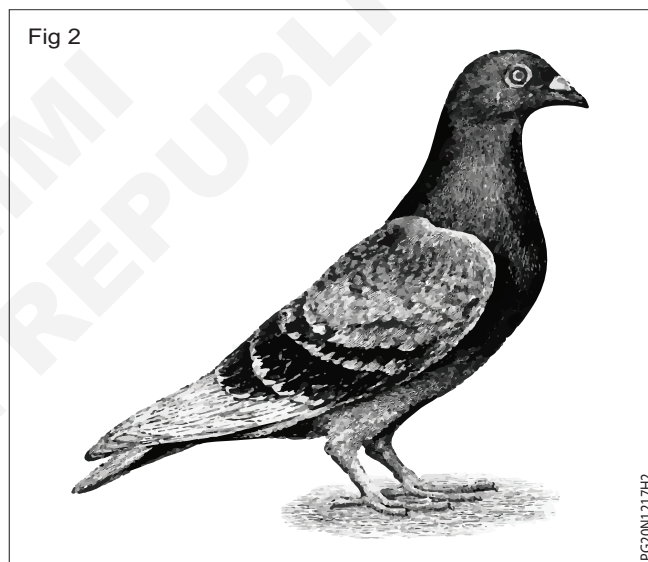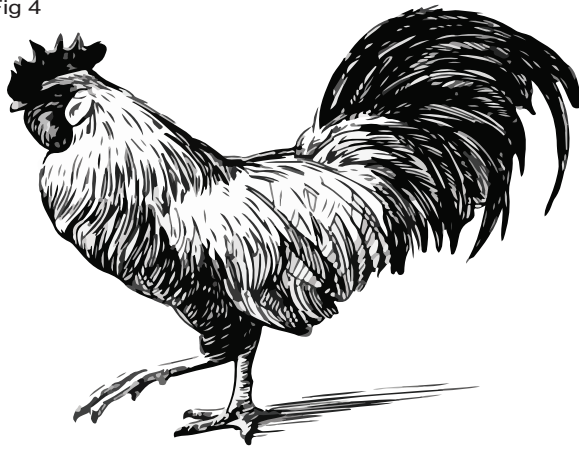
Fig 3

Fig 4

— — — — — — — — —

TASK 2: **Practice on free hand sketching of animals (Figs 1 to 5)**

1   Practice to free hand sketching of given below animal on your drawing paper.

Fig 1
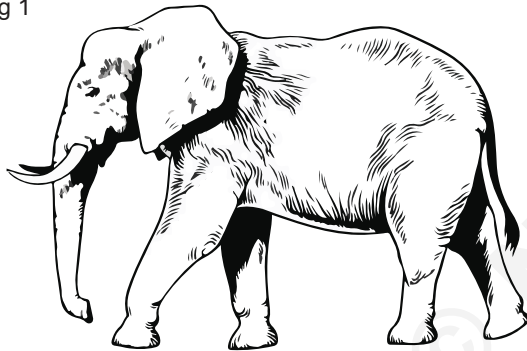
Fig 2
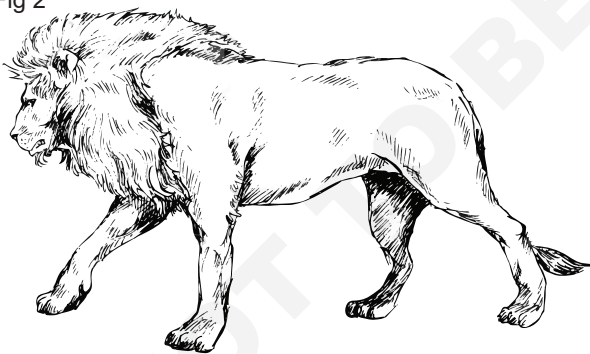
Fig 3
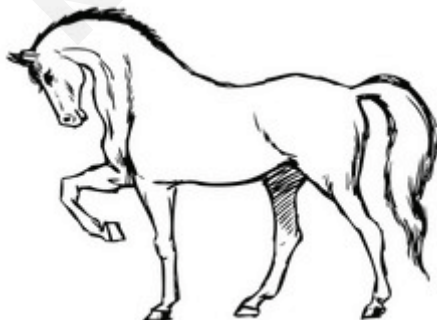
Fig 4
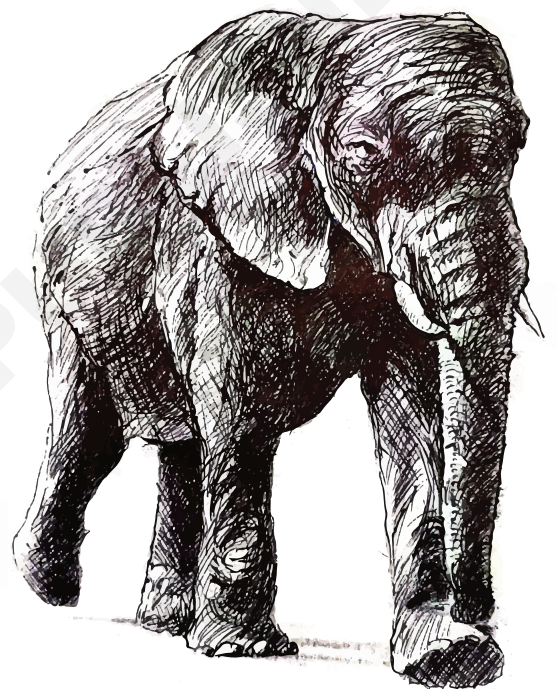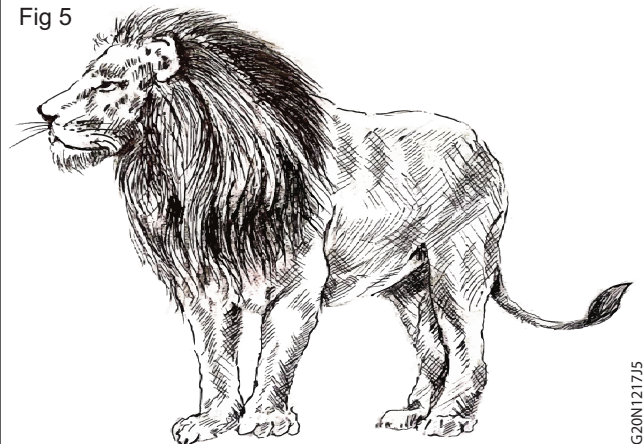
Fig 5

Practice on free hand sketching a geometrical shapes

Objective: At the end of this exercise you shall be able to
• **draw the geometrical shapes for construct design.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing paper	- as reqd.
Equipments/Machineries		• Drawing pencil kit	- as reqd.
		• Eraser	- as reqd.
• Drawing board	- 1 No.		

PROCEDURE

Draw the geometrical shapes and construct for design

1 Select the drawing board

2 Select the drawing paper and pencil kit

3 Sharpen the pencils

4 Select the geometrical shapes for free hand sketching.

5 Draw and construct for geometrical design.

6 Draw the sketch as sample given below. (Figs 1 & 2)

Fig 2
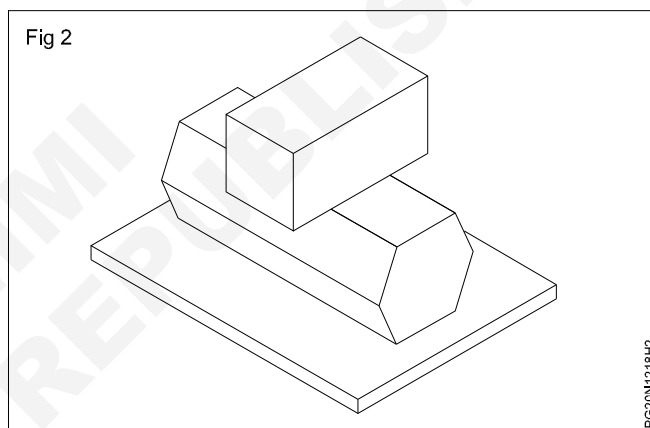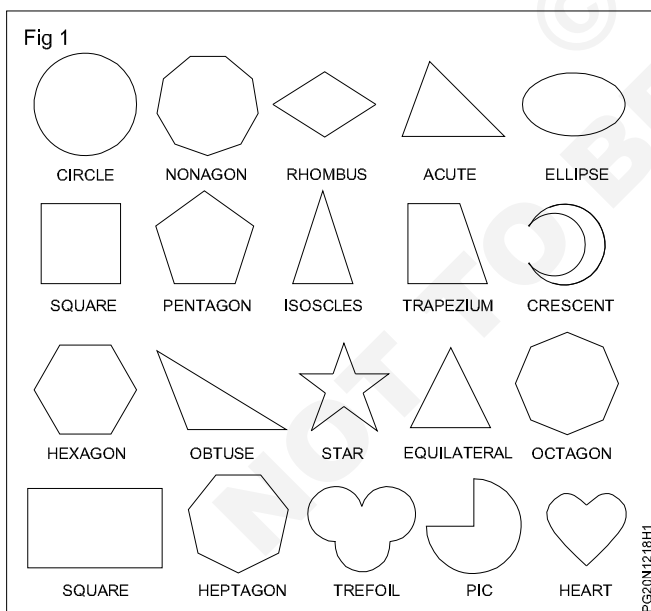
7 Practice to draw the various geometrical designs in your drawing note book as per your instructor's guide line.

Fig 1

— — — — — — — —

Draw free hand geometrical forms in perspective

Objective: At the end of this exercise you shall be able to
• **draw the free hand geometrical form.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing paper	- as reqd.
Equipments/Machineries		• Drawing pencil kit	- as reqd.
• Drawing board	- 1 No.	• Eraser	- as reqd.

PROCEDURE

Free hand geometrical forms in perspective (Fig 1)

1 Select the drawing board.

2 Select the drawing paper and pencil kit.

3 Select the geometrical shape to draw.

4 Study the shape of geometrical forms and observe it in your mind.

5 Prepare to draw the free hand sketch lines on your drawing sheet.

6 Refer the sample drawing given below for your reference.

7 Draw the sample drawings in your drawing note book or drawing sheet and check it with your instructor.

Note: Multiple free hand sketching practice increase your drawing performance.

Fig 1

— — — — — — — —
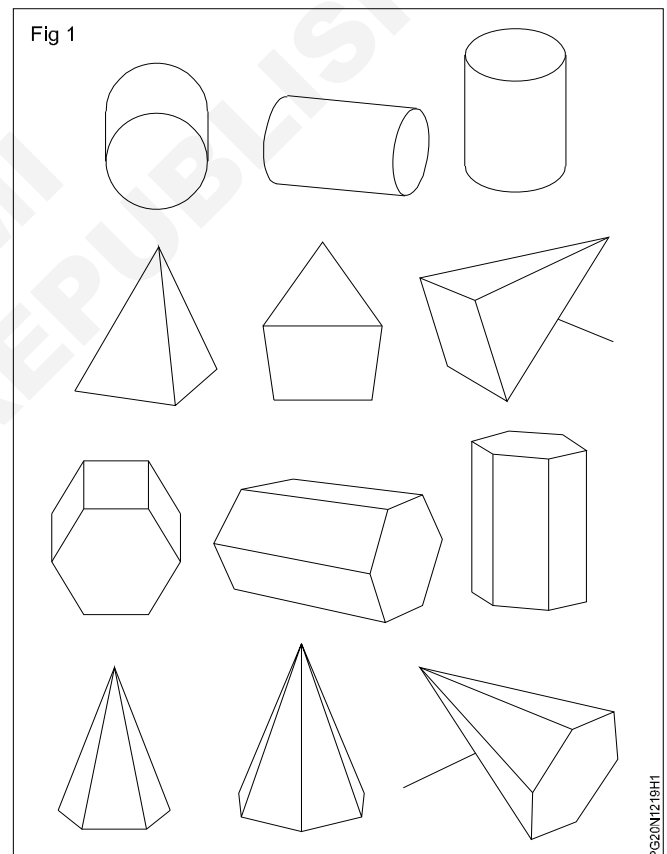
Practice to draw free hand different types of perspective

Objective: At the end of this exercise you shall be able to
• **draw the different types of perspective free hand sketches.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing paper	- as reqd.
Equipments/Machineries		• Drawing pencil kit	- as reqd.
		• Eraser	- as reqd.
• Drawing board	- 1 No.		

PROCEDURE

TASK 1: **Draw the free hand sketch of natural scenery**

1 Select the drawing board and drawing sheet.

2 Fix the drawing sheet on the drawing board.

3 Select and hang the scenery in front of you.

4 Select the drawing pencil kit and sharpen it.

5 Draw the border line on the drawing sheet.

6 Fix the scale for the drawing.

7 Draw the free hand sketch of scenery as given below drawing. (Fig 1)

Fig 1

ONE POINT PERSPECTIVE

— — — — — — — —
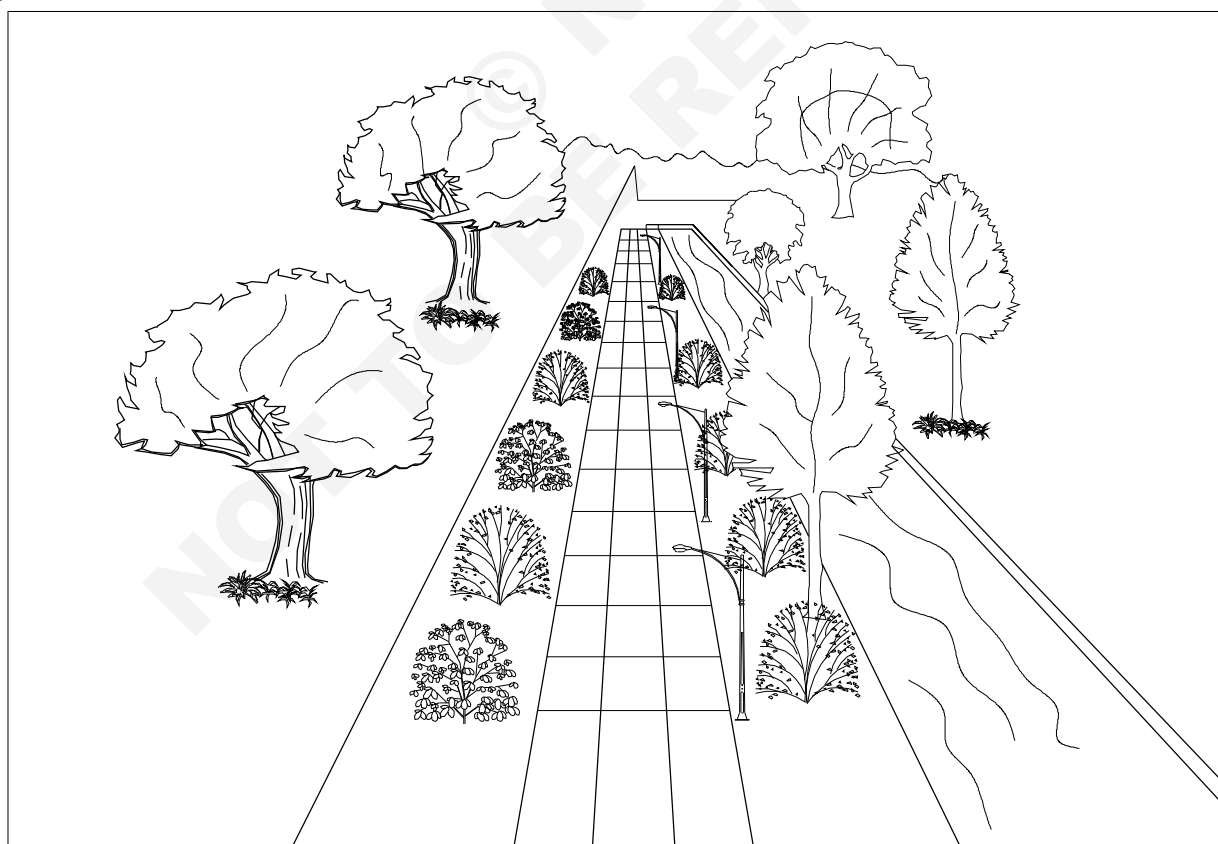
TASK 2: **Draw the two point view perspective**

1   Draw the free hand sketch of building perspective as given below drawing. (Fig 1)
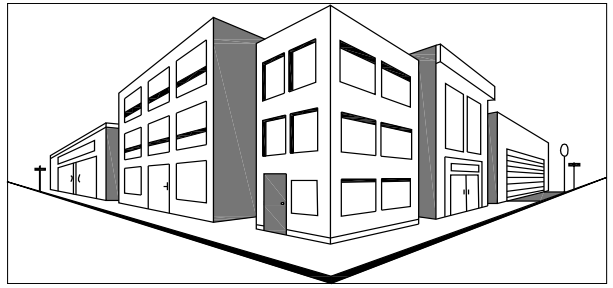
Fig 1

— — — — — — — —

TASK 3: **Draw the three point perspective free hand sketch**

1   Draw the free hand sketch of three point perspective as given below sample. (Fig 1)

2   Draw the figure in your drawing note book or drawing sheet and correct it with your instructor.

Fig 1

— — — — — — — —
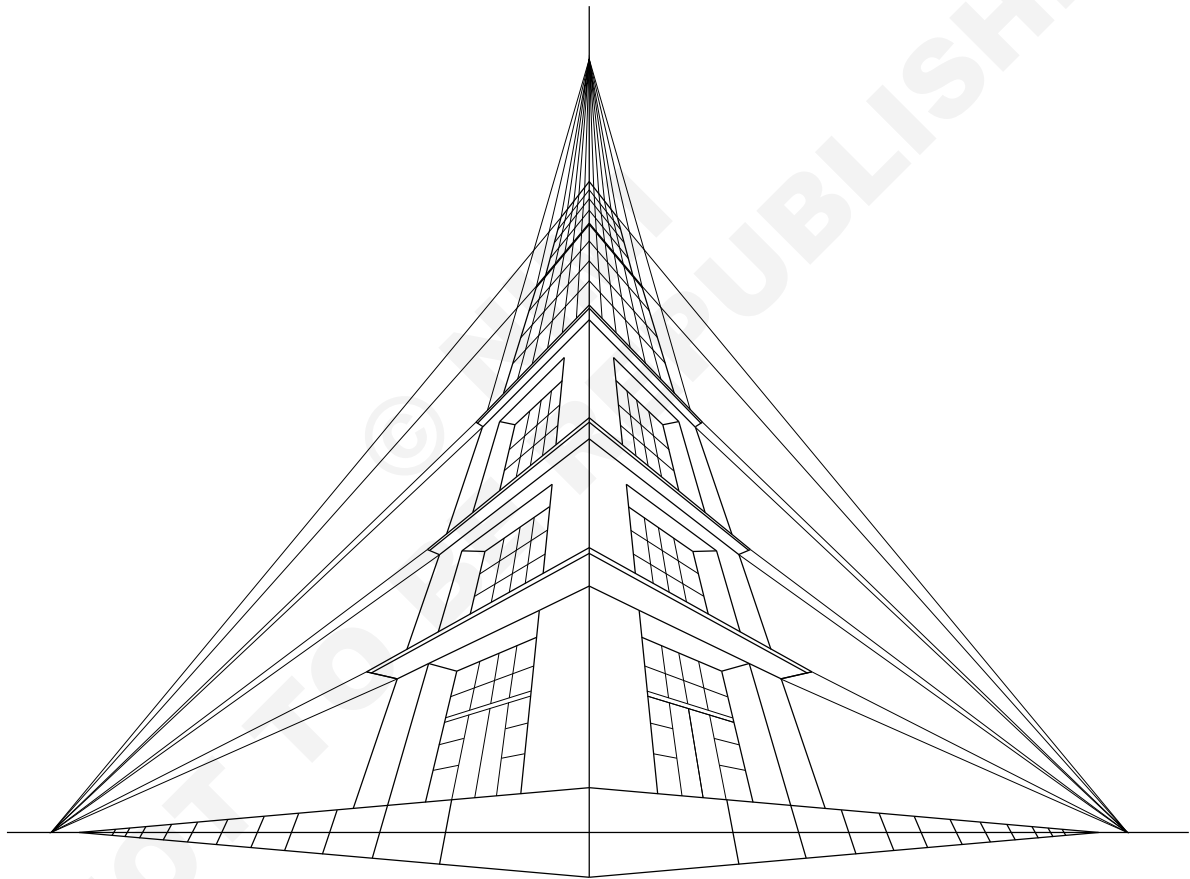
Practice on free hand sketching of human figures

Objective: At the end of this exercise you shall be able to
• **draw free hand sketching of human figure.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Water colour box	- as reqd.
• Compass	- 1 No.	• Drawing sheet	- as reqd.
		• Drawing pencil kit	- as reqd.
Equipments/Machineries		• Eraser	- as reqd.
• Drawing board	- 1 No.	• Colour pencil set	- 1 No.
• Colour dish	- 1 No.		

PROCEDURE

TASK 1: **Free hand sketching of human figures**

1 Select the drawing board and drawing paper

2 Cutting the drawing paper as per your needs.

3 Fix the drawing sheet on the drawing board.

4 Draw the border line on the drawing sheet by pencil.

5 Colour the border line, for reflect the border brighter then draw figure.

6 Draw the free hand sketch of human body parts sample figure given below. (Fig 1)

Fig 1

— — — — — — — —
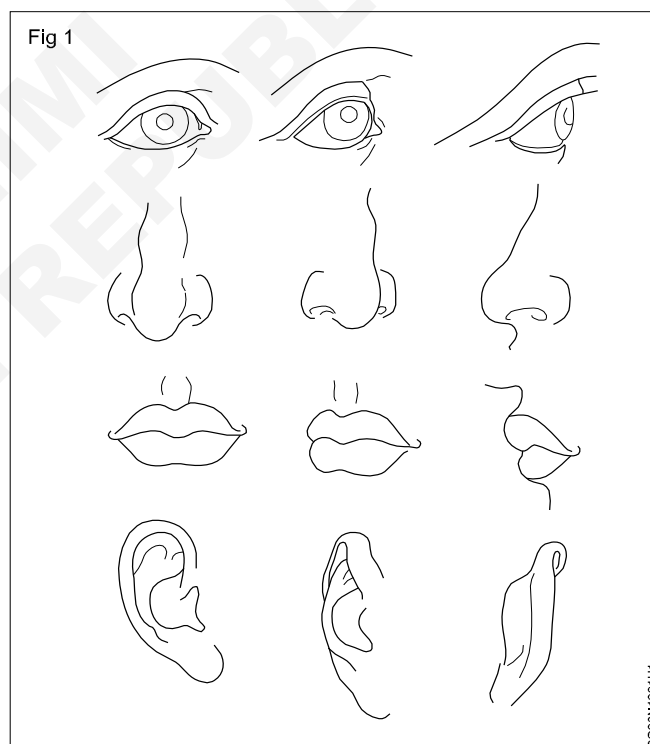
TASK 2: **Draw the free hand sketch of male figure**

1 Practice to draw the human male figure in your drawing sheet. (Figs 1 & 2)
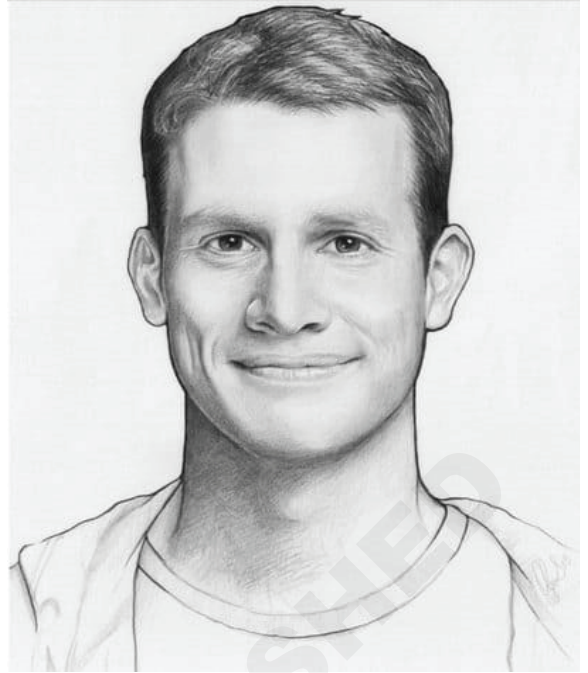
Fig 1

Fig 2

— — — — — — — —

TASK 3: **Draw the free hand sketch of female figure**

1   Draw the female figure as given below. (Figs 1 & 2)

Fig 1

- **Carefully use the knife while cutting drawing sheet.**
- **Clean the drawing tools before use it.**
- **Practice to draw the figure on normal paper before draw the final figure.**
- **Use the compass to draw the figure without any scratches on the drawing sheet.**
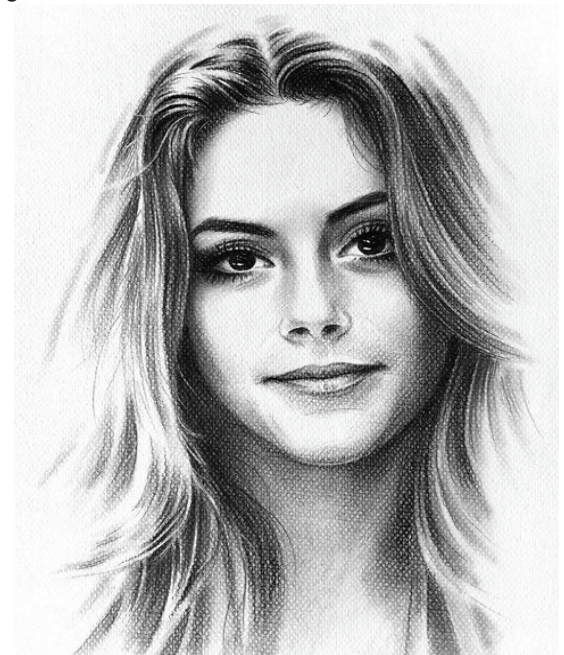
Fig 2

— — — — — — — —

Practice on shading of human figures

Objectives: At the end of this exercise you shall be able to
• **draw the human figures and black and white shading on it**
• **draw the human figures and colour shading on it.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing paper	- as reqd.
• Pencil kit	- 1 No.	• Eraser	- as reqd.
• Colour pencil kit	- 1 No.		
Equipments/Machineries			
• Drawing board	- 1 No.		

PROCEDURE

TASK 1: **Draw the human figure of children, male, female and shading by black and white pencil**

1 Select the drawing board.

2 Select the drawing paper and cut it for the size.

3 Clean the drawing board and clip the drawing sheet on the drawing board.

4 Draw the border line on the drawing sheet.

5 Draw the free hand sketch of children male and female.

6 Draw the male, female head part and shade it by black and white pencil as shown in Fig 1.

Fig 1

— — — — — — — —

TASK 2: **Draw the free hand sketch of human figure and shading it by colour pencil**

1 Draw the male and female child figure as shown in Fig 1.
2 Shade the colours as in the sample figure.

Fig 1

— — — — — — — —
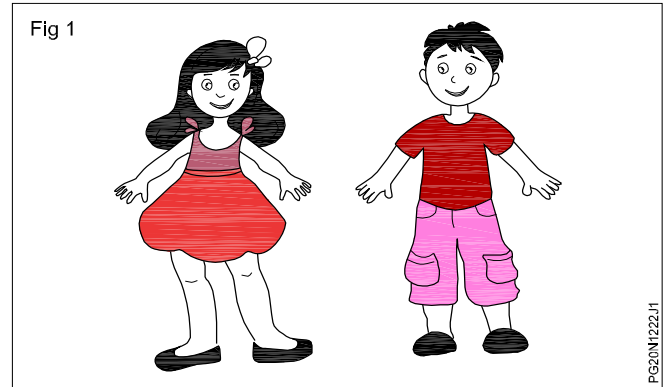
TASK 3: **Draw the free hand sketch of male figure and colour it by colour pencil**

1 Draw the free hand sketch of male figure 1.
2 Shade the colour with colour pencil for differentiate of wearing dress and his body parts.
3 Use the light and dark colour on the figure to attract it.

Fig 1

— — — — — — — —
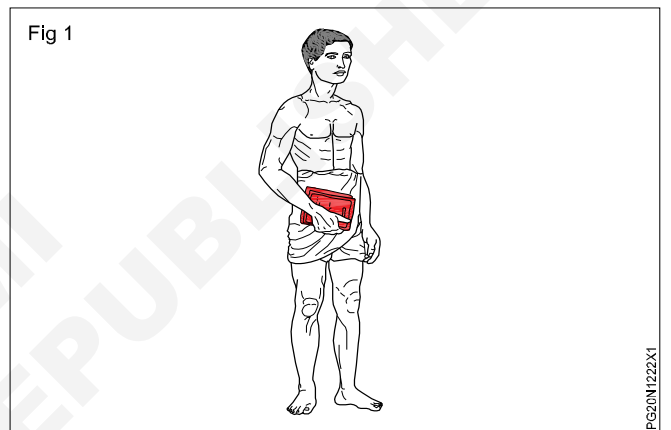
TASK 4: **Draw the free hand sketch of female figure and shade it by colour pencil**

1 Draw the free hand sketch of female figure
2 Colour shade it by colour pencil as shown in Fig 1.

Fig 1

— — — — — — — —
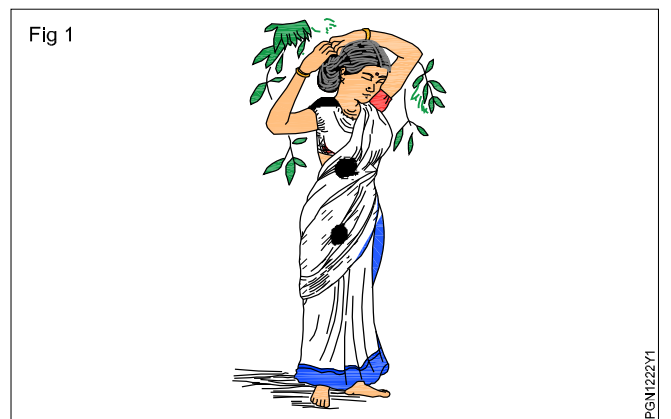
Practice on graph and figure enlargement with pencil shading

Objectives: At the end of this exercise you shall be able to
• **use the graph paper for draw the figure**
• **enlarge the figure and pencil shading on it.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Drawing pencil kit	- 1 No.	**Materials**	
• Scale	- 1 No	• Drawing paper	- as reqd.
• Compass	- 1 No.	• Graph paper	- as reqd.
		• Eraser	- as reqd.

PROCEDURE

TASK 1: **Draw the free hand sketch of a figure**

1 Select the any type of figure as you like.

2 Select the drawing board and drawing sheet.

3 Cut the drawing sheet for correct size.

4 Clean the drawing board and on the drawing board.

5 Draw the border line on the drawing sheet.

6 Draw the figure by free hand sketching lines.

7 Square the line on the figure 1.
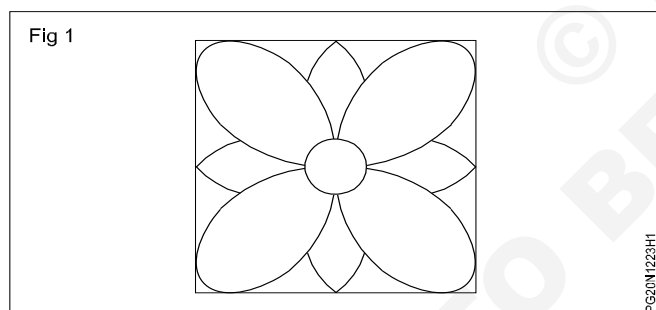
8 Marking and measure the scale of figure as shown in Fig 2.

Fig 2
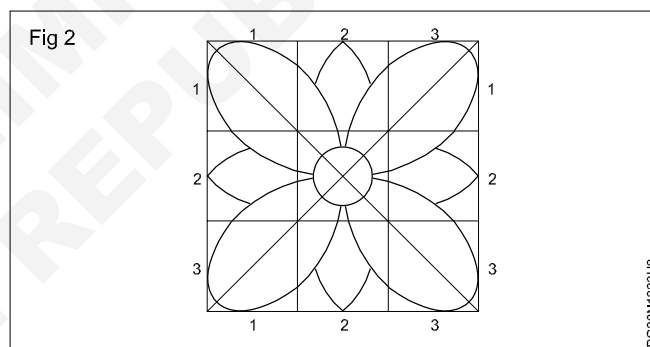
Fig 1

TASK 2: **Enlarge the figure and shading by pencil**

1 Select the suitable graph paper and fix it on the drawing board.

2 Mark the scale's on the graph paper to enlarge the figure. (Fig 1)

3 Draw the free hand sketch on the graph paper

4 Ensure the enlarged figure is as a drawing of small one.

5 Shade the figure by pencil as shown in Fig 2.

Fig 1

Fig 2
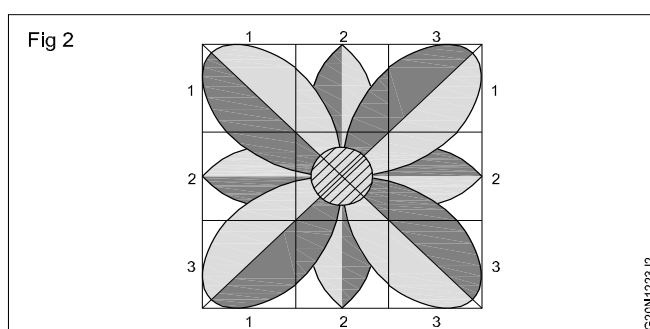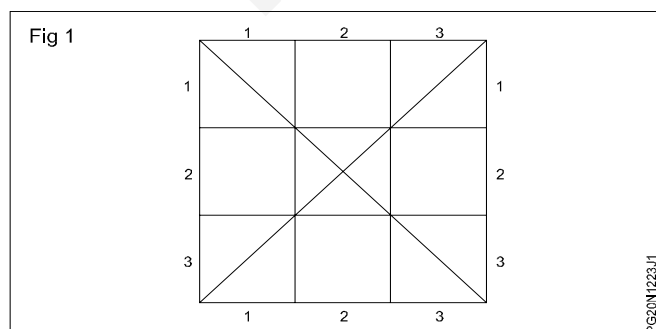
Practice on drawing and shading with the tools and equipment of painter trade

Objectives: At the end of this exercise you shall be able to
• **draw the free hand sketch of tools**
• **draw the free hand sketch of painter trade equipments**
• **shading on the free hand sketch of tools and equipments.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Drawing pencil set	- 1 No.	**Materials**	
• Eraser	- 1 No.	• Drawing paper	- as reqd.

PROCEDURE

TASK 1: **Drawing and shading the different type of painting tools (Fig 1)**

1 Draw the wall brush and shading it by black and white pencil.

2 Draw the sash brush and shading it by pencil.

3 Draw the artist brush and shading it by pencil.

4 Draw the wire brush and shading it by pencil

5 Draw the stenciling brush and shading it by pencil.

6 Draw the stipple brush and shading it by pencil.

7 Draw the dust brush and shading it by pencil.

8 Draw the bucket and shading it by pencil as shown in Fig 1.

Fig 1

1 WALL BRUSH
2 SACH BRUSH
3 ARTIST BRUSH
4 WIRE BRUSH
5 STENCILINE BRUSH
6 STIPPLER BRUSH
7 DUST BRUSH
8 BUCKET

PG20N1224H1
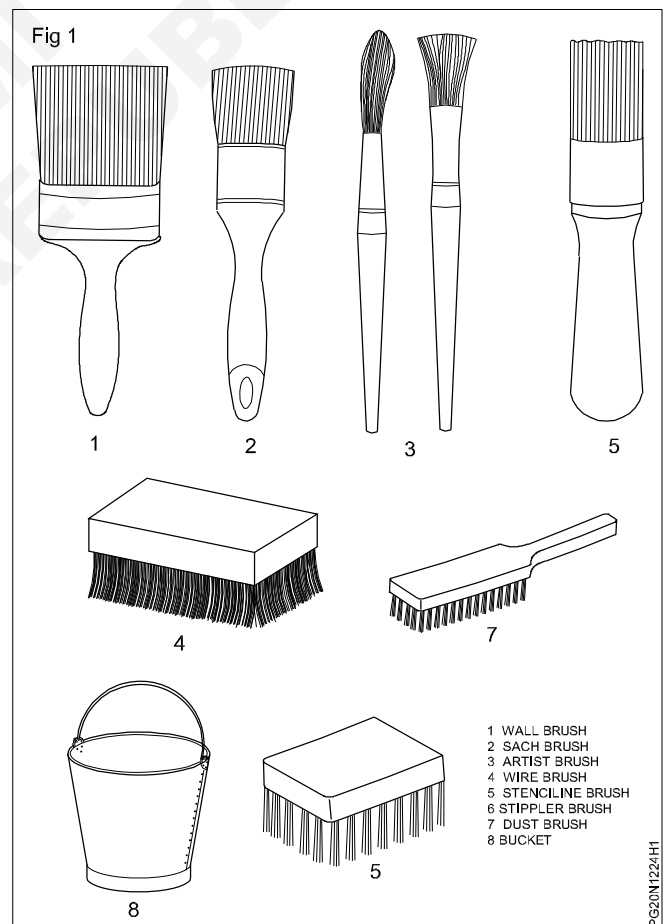
TASK 2: **Draw and shading of painting equipments (Figs 1 to 4)**

1   Draw the paint spray gun and shading it by pencil (Figs 1 to 3).

Fig 1

Fig 2

Fig 3
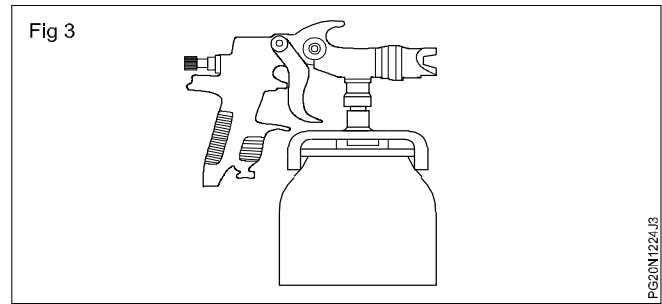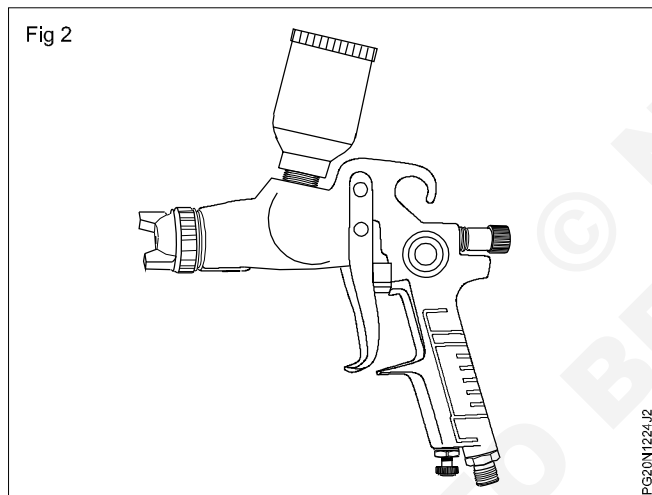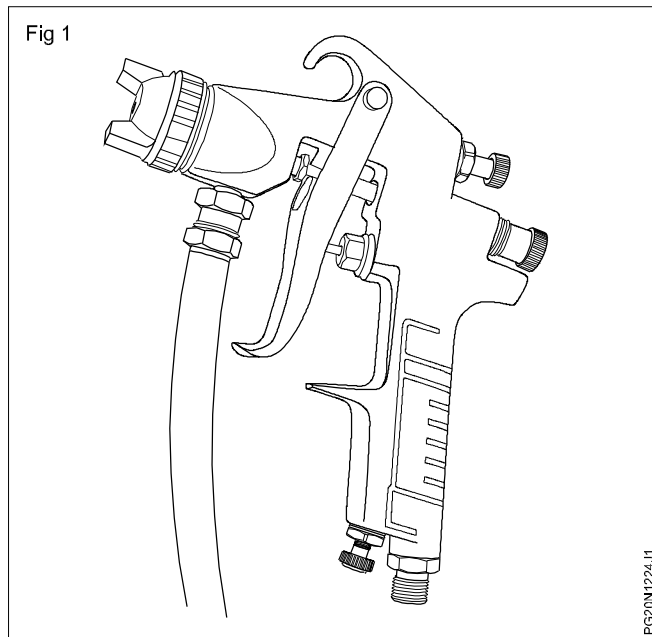
2   Draw the wall painting roller and shading it by pencil (Fig 4).

Note: Draw as line diagram and make shading on it.

Fig 4
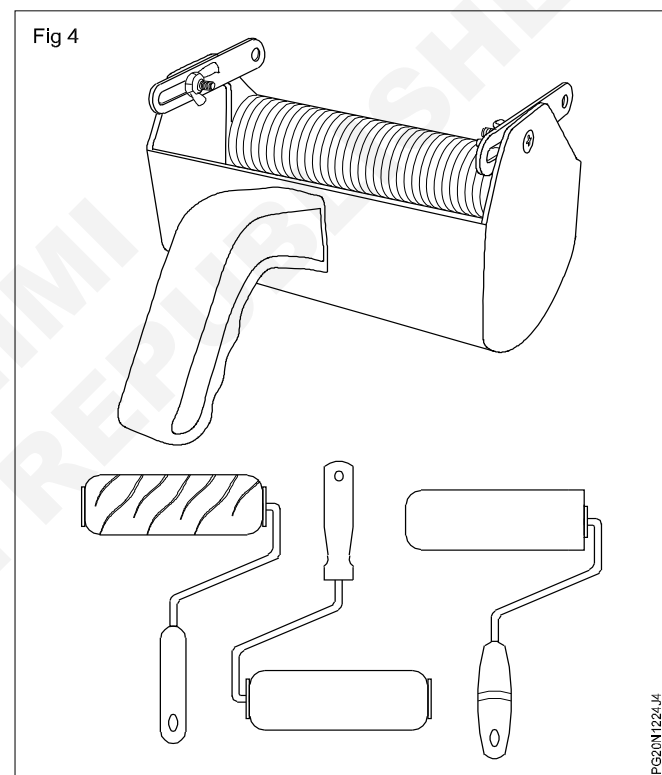
Practice on marking and cutting drawing paper as per given size

Objectives: At the end of this exercise you shall be able to
• **select the drawing paper**
• **marking and cutting the drawing sheet.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Work table	- 1 No.
• Paper cutting knife	- 1 No.	**Materials**	
• Foot scale	- 1 No.	• Drawing paper	- as reqd.

PROCEDURE

Marking and cutting the drawing paper as per given size (Fig 1)

1 Select the drawing papers in different sizes.

2 Select the marking tools.

3 Select the paper cutting knife.

4 Clean the paper cutting table.

5 Clean your hand before set the paper for cutting.

6 Place the paper on the table and clip it.

7 Mark the measurements on the drawing sheet as per given size.

8 Ensure the marking is correct as per given size.

9 Cut the drawing sheet with help of paper cutting knife as marked on the paper.

10 Remove the measured drawing sheet and dispose the waste paper.

11 Drawing sheet measurement.

A0 - 841 x 1189 mm

A1 - 594 x 841 mm

A2 - 420 x 594 mm

A3 - 297 x 420 mm

A4 - 210 x 297 mm

A5 - 148 x 210 mm

A6 - 105 x 148 mm

A7 - 74 x 105 mm

A8 - 57 x 74 mm

• **Use the different types of drawing sheet for marking and cutting practice.**

• **Use the steel rule and paper cutting knife to cut the drawing sheet.**

• **Mark the lines by pencil on marked points on the paper.**

• **Carefully use the knife while cutting the paper.**

Fig 1

A4 210 mm x 297 mm
A3 297 mm x 420 mm
A2 420 mm x 841 mm
A1 594 mm x 841 mm
A0 841 mm x 1189 mm
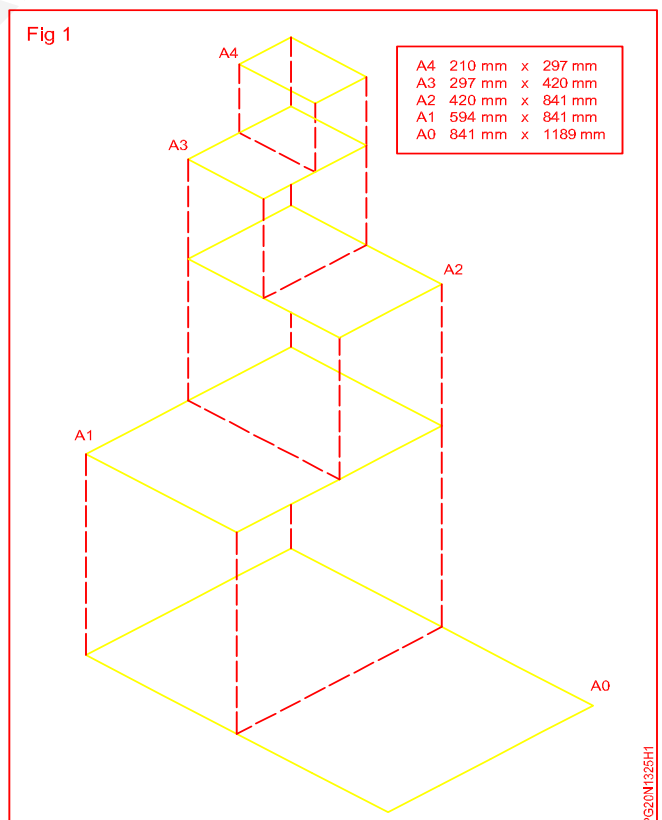
Practice on draw colour wheel with poster colour

Objective: At the end of this exercise you shall be able to
• **draw the colour wheel with poster colour.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Base board	- 1 No.
• Colouring brush kit	- 1 No.	**Materials**	
• Compass	- 1 No.	• Drawing sheet	- as reqd.
• Steel rule	- 1 No.	• Whitener	- as reqd.
Equipments/Machineries		• Pencil	- as reqd.
• Water colour box	- 1 No.	• Eraser	- as reqd.

PROCEDURE

Drawing colour wheel with poster colour

1 Select the drawing sheet to draw the colour wheel.

2 Fix the drawing sheet on the drawing board or select page of your drawing note book to draw the colour wheel.

3 Take the measurement of sample colour wheel size.

4 Mark the measurement on the drawing sheet to be draw the colour wheel.

5 Use the compass and pencil to draw the small circle and outer circle.

6 Use the scale and pencil to draw the cross section lines dividing and labelling the 12 spaces and write the number 1 to 12.

7 Select the water base colour or colour pencil to colouring the wheel. (Figs 1 & 2)

8 Write the colour names, outside of the colour wheel.

9 If you use the water colour add the water with colour tray and mix by colouring brush or letter writing brush.

10 Practice to draw the colour wheel as sample. (Fig 3)

11 Practice to draw the colour wheel as sample. (Fig 4)

12 Use the red, orange, yellow, chartreuse green, green, spring green, cyan, azure blue, violet, magenta and rose colours on the colour wheel.
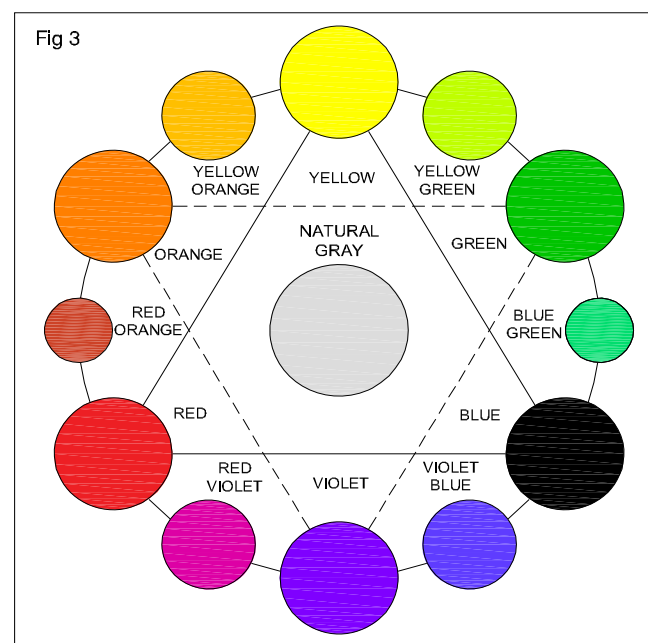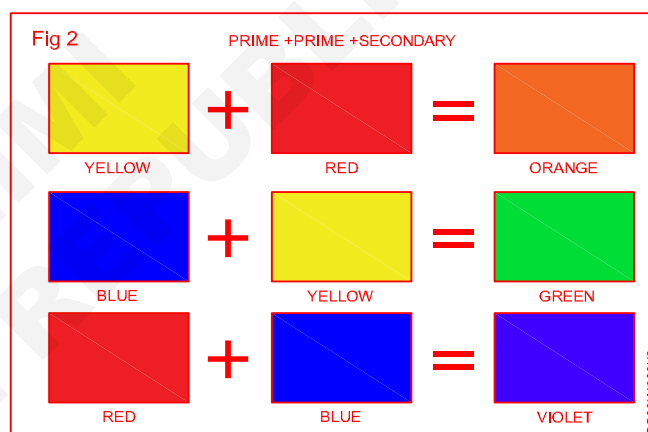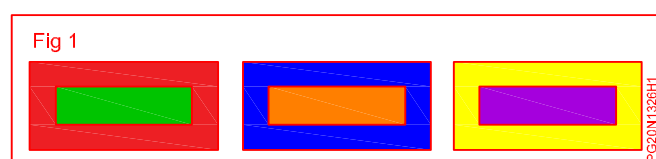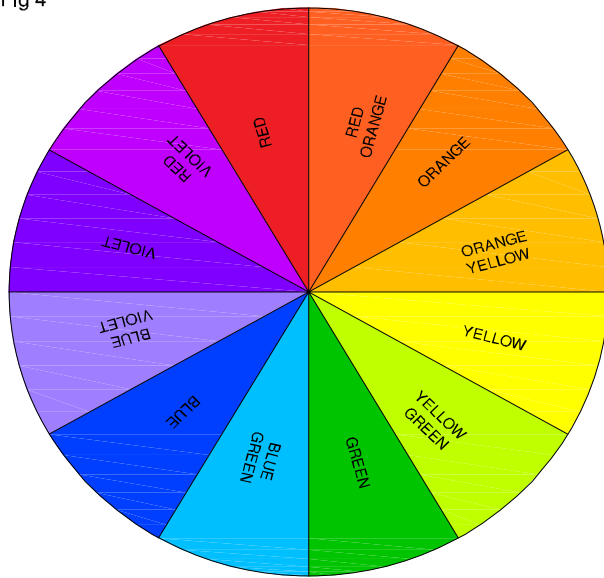
Fig 2

Fig 3

Fig 1

Fig 4
THE COLOUR WHEEL

PG20N1326H4

13 Complementary colours opposite each other on the wheel are called complementary colours.

- Red is opposite to green.

- Blue is opposite to orange.

- Yellow is opposite to purple.

14 If the colour is surrounded by its complementary colour, it will appear stronger and brighter.

— — — — — — — —

Practice on draw and colour designs in primary, secondary and tertiary colours

**Objectives:** At the end of this exercise you shall be able to
• **draw the colour design in primary colours**
• **draw the colour design in secondary colours**
• **draw the colour design in tertiary colours.**

| Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Water colour box	- as reqd.
• Letter writing brush	- 1 Set.	• Water	- as reqd.
Equipments/Machineries		• Colour mixing bowl	- as reqd.
• Drawing base board	- 1 No.	• Baniyan cloth	- as reqd.

PROCEDURE

Draw the colour design in primary, secondary of tertiary colours

1 Cut a piece of water colour paper into square.

2 Measure the size of your paper and use a ruler to cut it into a square if it is rectangle.

3 If you can't find water colour paper, use paper that's designed to with stand paint such as canvas paper.

4 Make a dot in the center of the paper. Lay a ruler horizontally on the center of the square and make a small mark in the middle using a pencil. Then turn the ruler vertically, so it's lined up with your mark and make a small dot in the center. The small dot will be the center of your colour wheel.

5 Use a compass to make a small circle 2 ½ inches (64 cm) away from the center.

6 Attach the pencil to a drawing compass and stick the leg of the compass on the center dot.

7 Extend the pencil leg of the compass, to its about 2 ½ inches from the dot. Then slowly rotate the compass to make a small circle.

8 Make another circle that's 5 ½ inches from the center dot.

9 Draw the outer circle 8 ½ inches (22 cm) from the center. This will be the border for your colour wheel.

10 Divide the circle and labelling the 12 spaces.

11 Write the numbers 1 to 12 through clockwise around the outside of the wheel. (Fig 1)

12 Writing the numbers will make it easier to evenly divide the wheel into triangular spaces.

13 Draw the straight line from between the 12 and 1 to between the 6 and 7. (Fig 2)

Fig 1
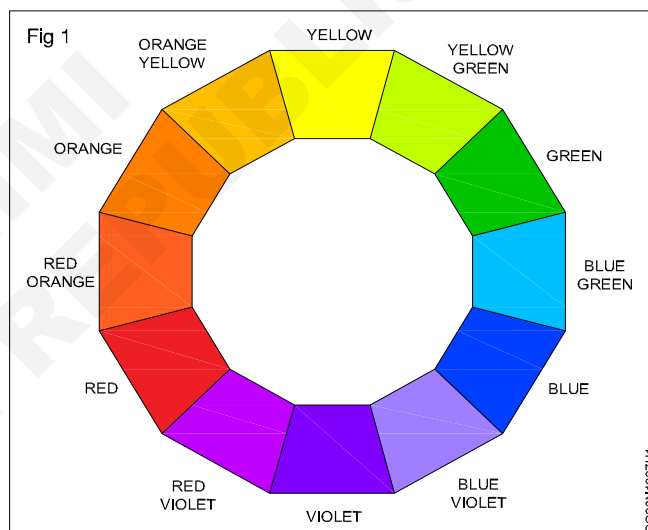
14 Draw the line, the line should go through the center dot you draw into middle of the colour wheel. (Fig 2)

Fig 2
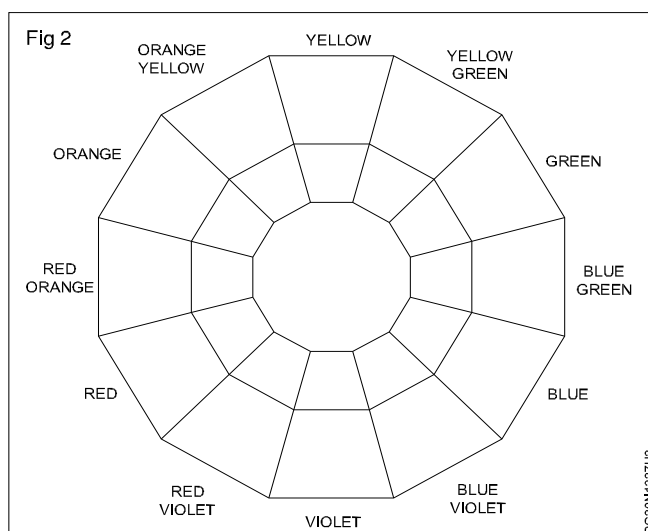
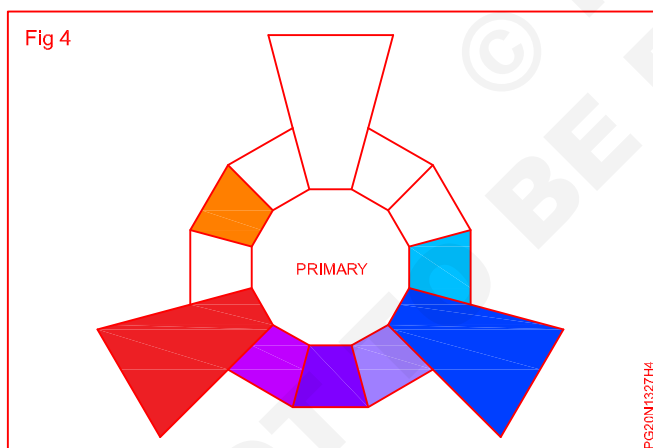15 Label each segment with the colour you will put there. (Fig 3)

Fig 3
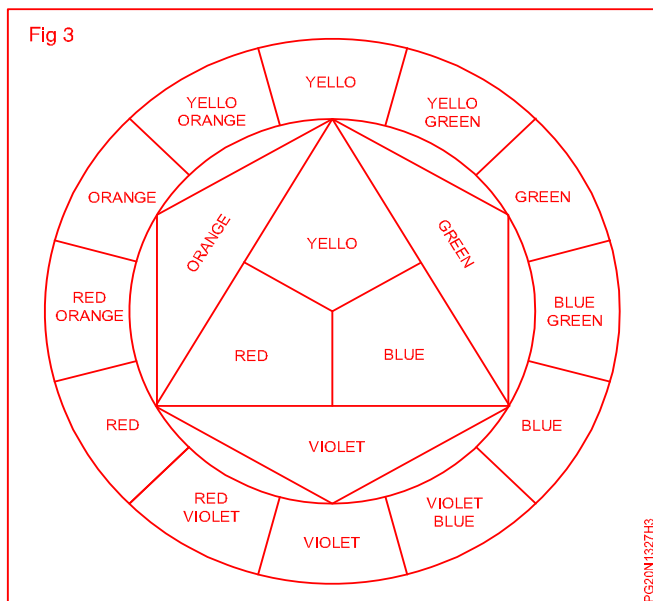
16 Adding primary colours and shades.

17 Put the primary paint colours on a paint palette. If you are using water colour paints, mix red, blue and yellow puddle on your pallet.

18 Paint the primary colours in the biggest segments. (Fig 4)

(Red, blue, green, yellow, orange, purple brown, black)

Fig 4

19 Remember to rinse your brush thoroughly in between colours.

20 Mix the secondary colours and paint the remaining have segments. Use the colour you labelled on the wheel as a guide to blend secondary colours. For example mix yellow and blue on your pallete to create green a secondary colour. (Fig 5)

Yellow + red = orange

Blue + red = purple

Fig 5
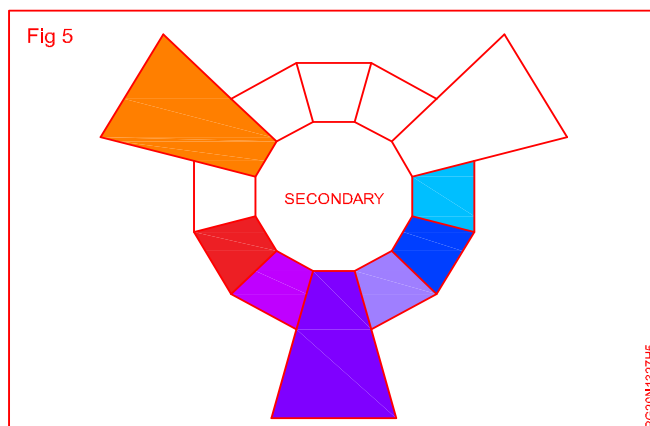
21 Create the tertiary lines for your colour wheel and use the colour to fill in the biggest segments according to your colour label. To make the tertiary lines combine (Fig 6)

Red + purple = red purple

Red + orange = red orange

Blue + green = blue green

Blue + purple = blue purple

Yellow + orange = Yellow - orange

Yellow + green = yellow - green

22 Add white to create the tint for each colour and paint the segment.

23 Add black to the lines to make shades of each colour remember to rinse your brush will so you don't muddle the paint.

Fig 6

— — — — — — — —

Practice on marking and outline drawing of 2D design

Objective: At the end of this exercise you shall be able to
• **marking and outline drawing of 2D design.**
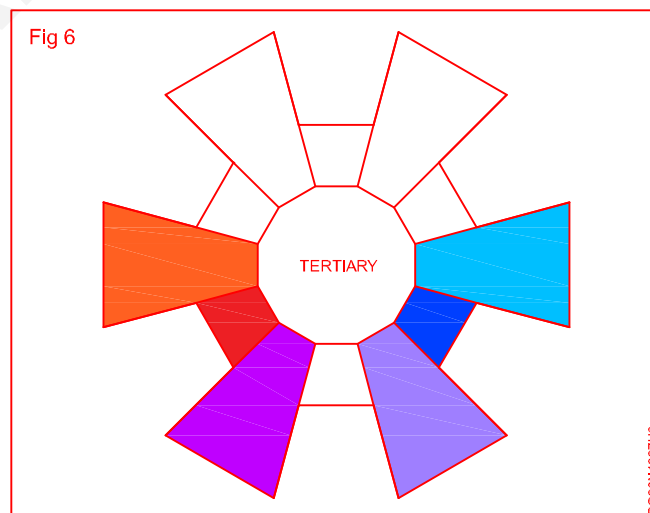
Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Basic drawing board	- 1 No.
• Steel ruler	- 1 No.	**Materials**	
• Drawing pencil kit	- 1 No.	• Drawing sheet	- as reqd.
• Eraser	- 1 No.	• Water colour box	- 1 No.
• Colour brush set	- 1 No.	• Water	- as reqd.
		• Water bowl	- as reqd.

PROCEDURE

1 Select the drawing paper.

2 Mark and cut the drawing paper for given size.

3 Select the drawing board and clean it.

4 Fix the drawing sheet on the base drawing board.

5 Draw the border line in 2D design as given measurement as shown in Fig 1.

Fig 1

Fig 2

Fig 3
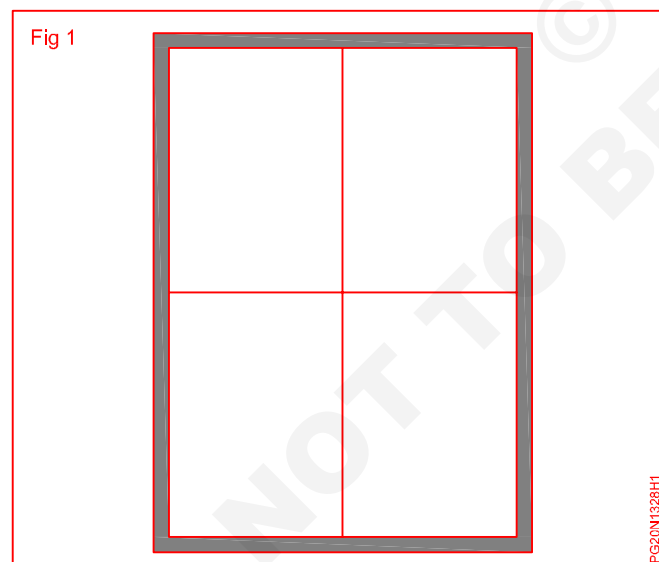
6 Draw the thin parallel and vertical line between box.

7 Draw the 2D drawing as shown in (Figs 2 & 4).

8 Draw the 2D drawing as shown in (Figs 3 & 5).

9 Practice this 2D design figure in your drawing note (Fig 6)

Fig 4

Fig 6
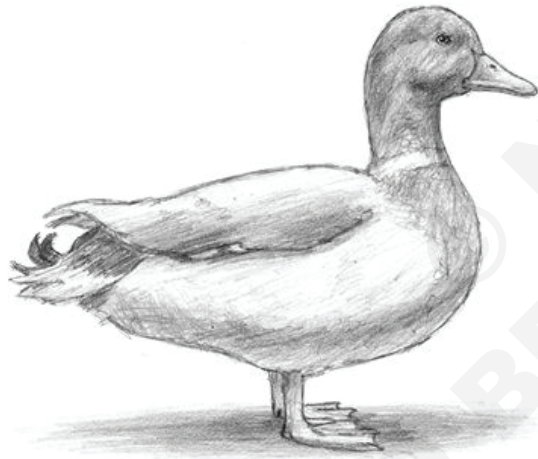
Fig 5

Practice on colouring 2D design in warm and cool colours
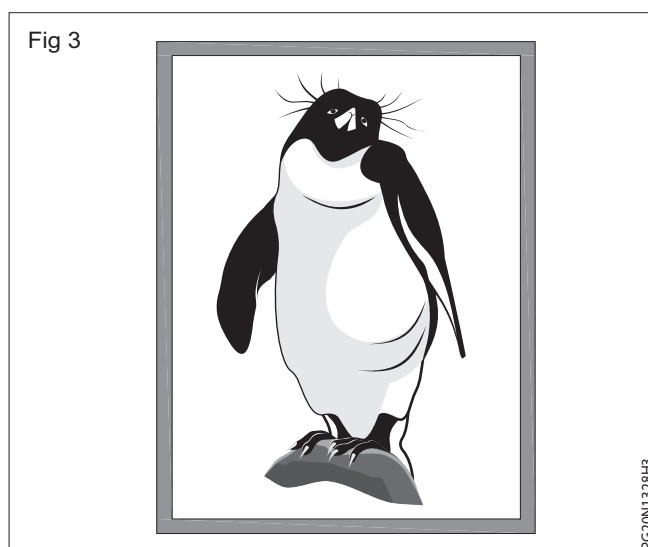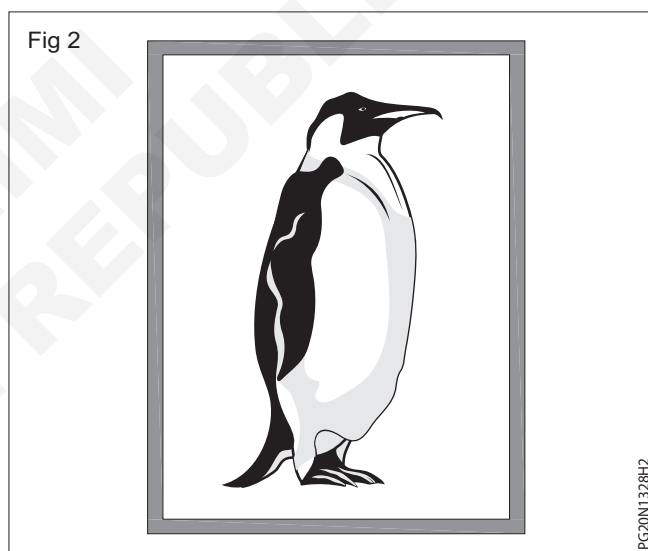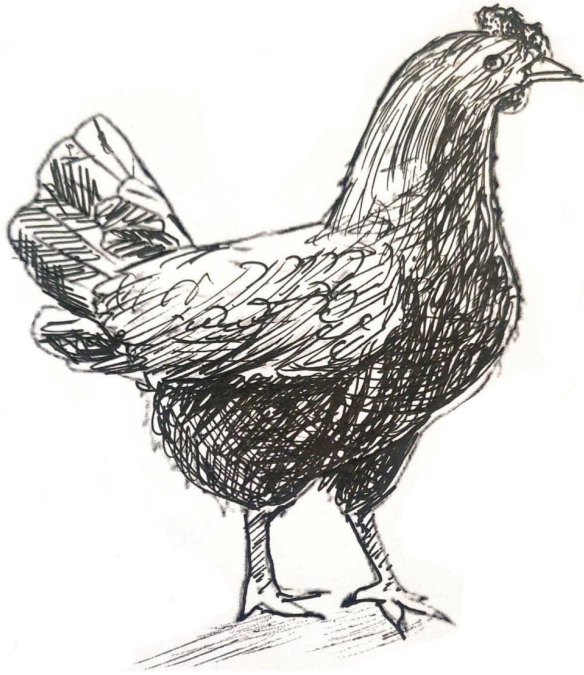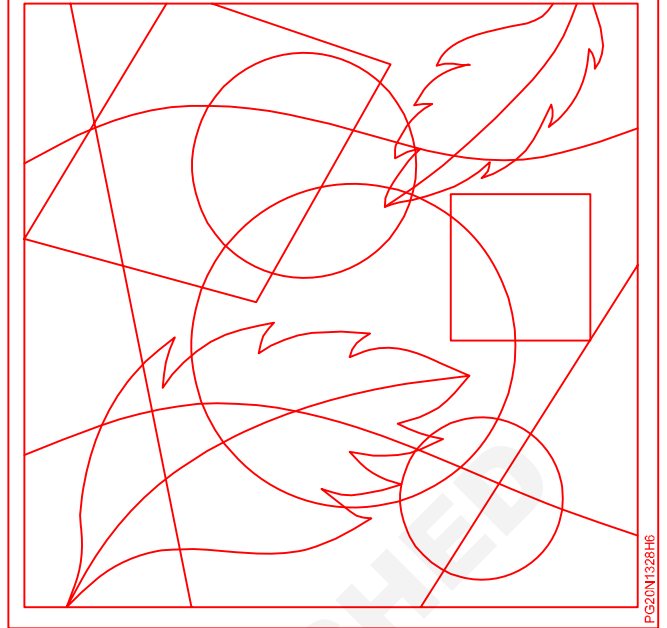
Objectives: At the end of this exercise you shall be able to
• **draw the 2D drawing design**
• **colouring the 2D drawing in warm & cool colours.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Colour box	- 1 No.
• Colouring brush kit	- 1 No.
• Eraser	- 1 No.
• Water bowl	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.

Materials

• Drawing paper	- as reqd.
• Clip	- as reqd.
• Whitener	- as reqd.

PROCEDURE

Colouring 2D design in warm and cool colors.

1 Set the drawing paper on the drawing board.

2 Fix the paper clips on the drawing board.

3 Draw the border line in 2D design.

4 Mark the measuring points of the drawing on the drawing sheet

5 Draw the 2D design drawing on the paper with sharp pencil tip.

6 On completion of drawing darken the line by pencil. (Fig 1)

7 Select the colours for colouring the drawing.

8 Apply warm and cool colours on the drawing (Fig 2).

9 Ensure the drawing colour is as natural.

10 Check the drawing colours with your instructor.

Fig 1
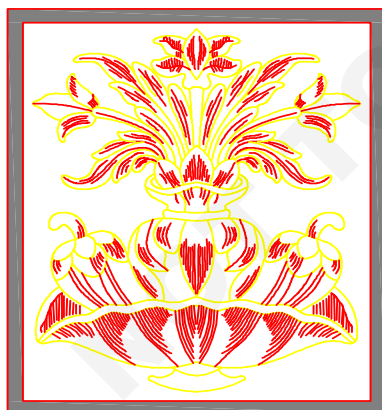
Fig 2
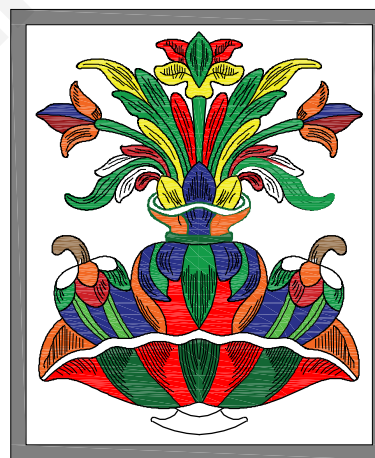
Practice on draw the 2D design and colour in contrast colour

Objectives: At the end of this exercise you shall be able to
• **drawing the 2D design drawing**
• **colouring the contrast on 2D drawing.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Basic drawing board	- 1 No.
• Water colour box	- 1 No.	**Materials**	
• Colouring brush kit	- 1 No.	• Drawing paper	- as reqd.
• Water bowl	- 1 No.	• Eraser	- as reqd.

PROCEDURE

TASK 1: **Draw the 2D design drawing**

1 Select the drawing board.

2 Select the drawing paper.

3 Clean the drawing board and fix the drawing paper on the drawing board.

4 Prepare the drawing pencil.

5 Select the 2D design drawing to draw.

6 Place the drawing on the stand in front of you.

7 Draw the border line on the drawing paper.

8 Measure the drawing to be draw.

9 Mark the measurement on marked box to draw the figure.

10 Draw the 2D design figure by light pencil.

11 Compare the line drawings with your master copy figure.

12 Ensure the drawn figure is as original figure.

13 Darken the drawn lines as Fig 1.

Fig 1

— — — — — — — —
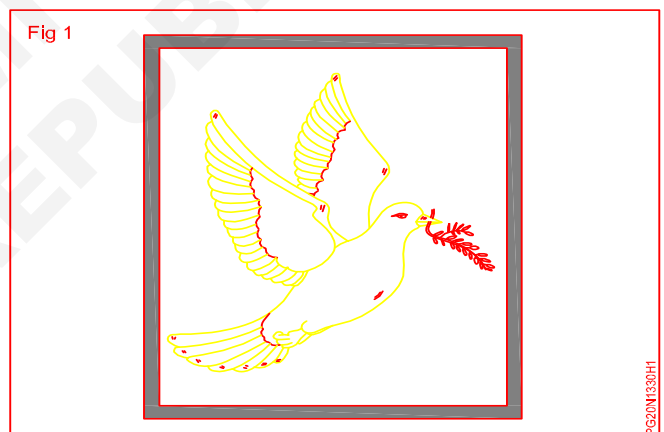
TASK 2: **Colouring the contrast colour on the drawing as original colour of the object**

1 Select the colour to be applied.

2 Colouring the contrast colour on the original figure.

3 Ensure applied colour is as original and contrast as Fig 1.

4 Practice to draw and colour it as shown in Fig 2.

Fig 1

Fig 2

Practice on draw a gray scale in pencil shading

Objectives: At the end of this exercise you shall be able to
• **draw the gray scale in pencil shading.**

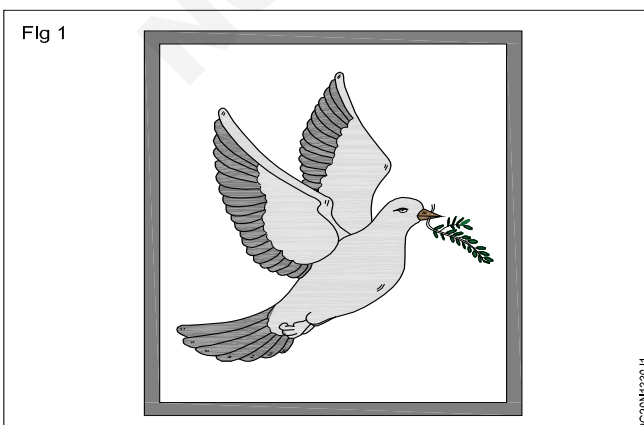| Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Drawing pencil set	- 1 No.	**Materials**	
• Eraser	- 1 No.	• Drawing sheet	- as reqd.

PROCEDURE

TASK 1: **Draw a gray scale by pencil shading (Figs 1 & 2)**

1 Select the drawing board and clean it.

2 Select the drawing sheet and cut it for size need.

3 Fix the drawing sheet on the drawing board.

4 Draw the border line on the drawing sheet.

5 Select the object to draw the gray scale shading. (Fig 1)

Fig 1

Fig 2
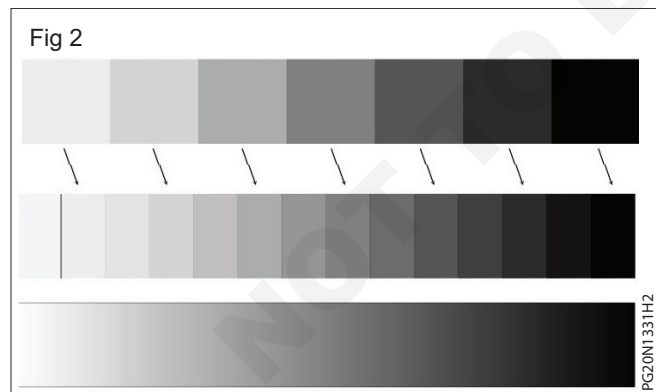
Fig 3

6 Measure the figure and mark the measurement on the drawing sheet. (Fig 3)

7 Draw the line sketching on the measurement marked on the drawing sheet. (Fig 3)

8 Draw the figure as you selected earlier.
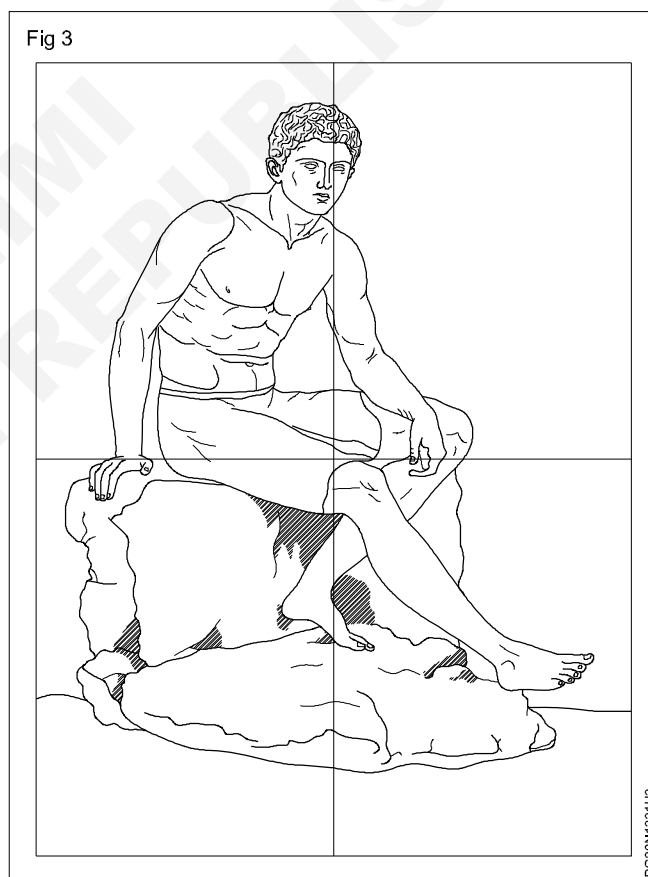
9 Make a gray shading by pencil.

10 Gray shading means colour pixel should be equal for shading.

11 For example gray shading colour shading should be red = 50%, green = 50%, blue = 50% is gray without any bias towards, red, green or blue line.

Examples of gray colours in RGB

Red	Green	Blue	Colour
50	50	50	Dark gray
120	120	120	Medium gray
200	200	200	Light gray
250	200	200	Not gray, redish
0	0	0	Black
255	255	255	White

— — — — — — — —

TASK 2: **Gray scale in pencil shading (Fig 1)**

1 Sharpen the colour pencil.

2 Select the gray scale colours.

3 Shade the gray scale colour in equal as mention above table.

> **Note: Figure should be visible clearly after apply gray scale pencil shading.**
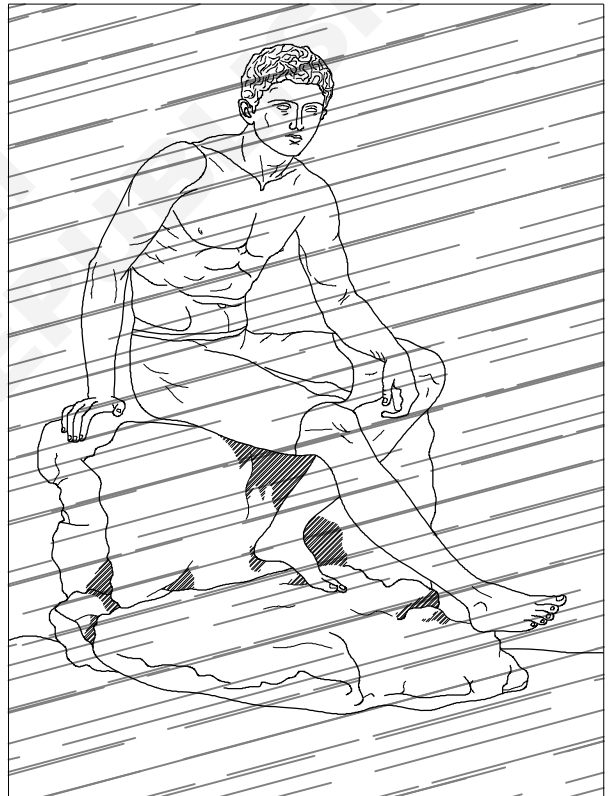
Fig 1

— — — — — — — —

Practice on draw a gray scale in poster colour

Objective: At the end of this exercise you shall be able to
• **make gray scale in poster colour.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Water colour box	- 1 No.	**Materials**	
• Colouring brush	- 1 No.	• Drawing paper	- as reqd.
• Drawing pencil kit	- 1 No.		
• Eraser	- 1 No.		

PROCEDURE

Make a gray scale poster colour

1 Select the drawing board and clean it.

2 Select the drawing paper and cut it for the given size.

3 Fix the drawing sheet on the drawing board.

4 Draw the border line on the drawing sheet.

5 Select the object to draw on the paper.

6 Draw the object on the drawing sheet at correct measurement.

7 Ensure the drawn drawing is as selected drawing.

8 Select the colours to poster colour combination.

9 Mix the colour as per learned colour mixing method.

10 Ensure, the colour pixel is gray scale as poster colour, shading colour. (Fig 1)

Fig 1
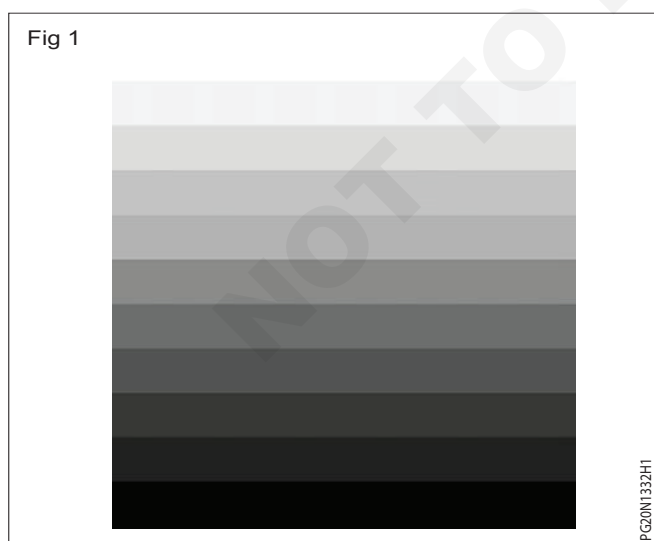
11 Shading the colour on the drawn figure.

12 Poster colour 12 shades are used for shading the figures.

13 Wet your brush first, then dry it with a clean cloth.

14 Take small amount of green colour, dip the point of the brush then smoothly paint it.

15 Remember the amount of water should be less first.

16 Apply the paint on the drawing and spread the colour with moderate amount of water.

17 Don't let the paint dray paint spreading must be done immediately after the colour is applied.

> **Note: One tactic is to use opposite colours between the background and the text for example a dark image and background would be great in white or light gray text.**

18 Poster colour and water colour are water based but water colour is thin and poster colour is coarse. Use the bright white, off white, cream, pale gray or possibly black as colours for poster colour.

19 Draw the figure as shown in Fig 2 and colour it in poster colour as mentioned steps.

Fig 2
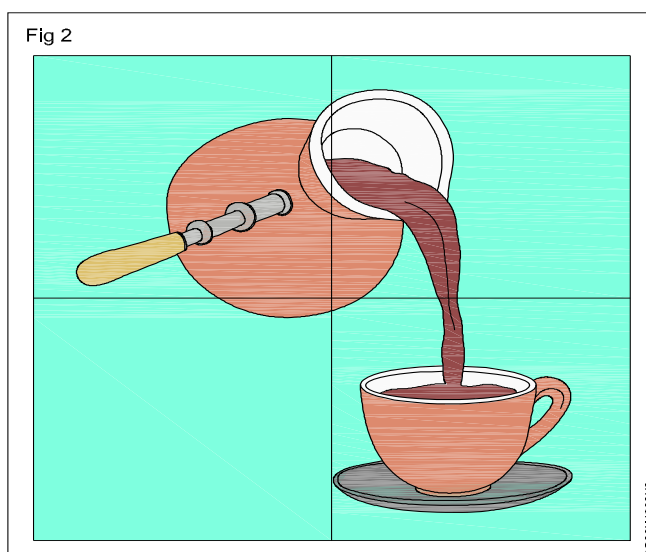
Practice on make different colour scale in poster colour

Objectives: At the end of this exercise you shall be able to
• **material preparation for drawing**
• **colouring the poster colour in different colour scale.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Foot ruler poster colour kit	- 1 No.
• Colouring brush	- 1 No.
• Drawing pencil kit	- 1 No.
• Eraser	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.

Materials

• Drawing paper	- as reqd.

PROCEDURE

TASK 1: Material preparation for drawing

1 Select the drawing to make a poster colour.

2 Select the suitable drawing board and drawing sheet.

3 Clean the drawing board and cut the drawing sheet as required measurement.

4 Fix the drawing sheet on the drawing board.

5 Select the poster colour kit. (Fig 1)

6 Select the suitable colouring brush kit.

Fig 1

— — — — — — — —
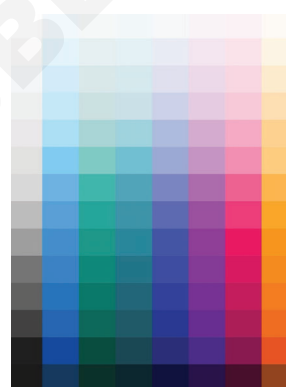
TASK 2: Draw the figure to be poster colouring

1 Draw the border line on the drawing sheet.

2 Measure the selected drawing to be colouring.

3 Mark the measurement on the drawing sheet as per your instructor's guide line.

4 Draw the figure light thin line on the drawing sheet.

5 Ensure the drawn object figure is same as sample figure.

6 Darken the drawn figure lines. (Fig 1)

— — — — — — — —

TASK 3: Colour scale in poster colour

1 Place the poster colour box on the table.

2 Add the water to mix the colour.

3 Select the colour to mixing the poster colour.

4 Select the areas to colouring in different colour.

5 Wet the brush and clean it with dry cloth.

6 Mix the paint and apply the poster colour on the figure in selected parts of the figure.

7 Don't drop one colour on another colour it will be damage the colour effect.

8 Ensure complete figure is painted by poster colour.

9 Allow the figure to dry it. (Fig 1)
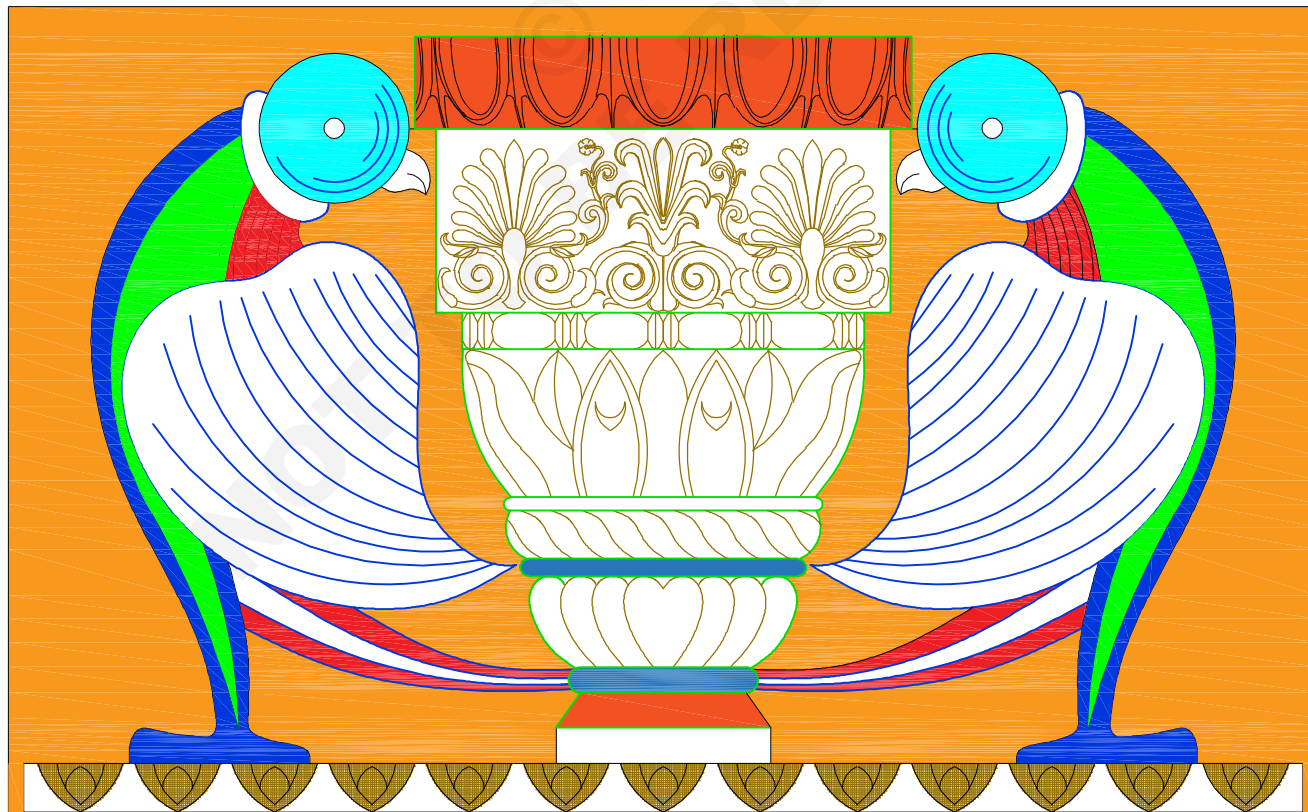
10 Correct it by your instructor.

Fig 1 — TASK 2
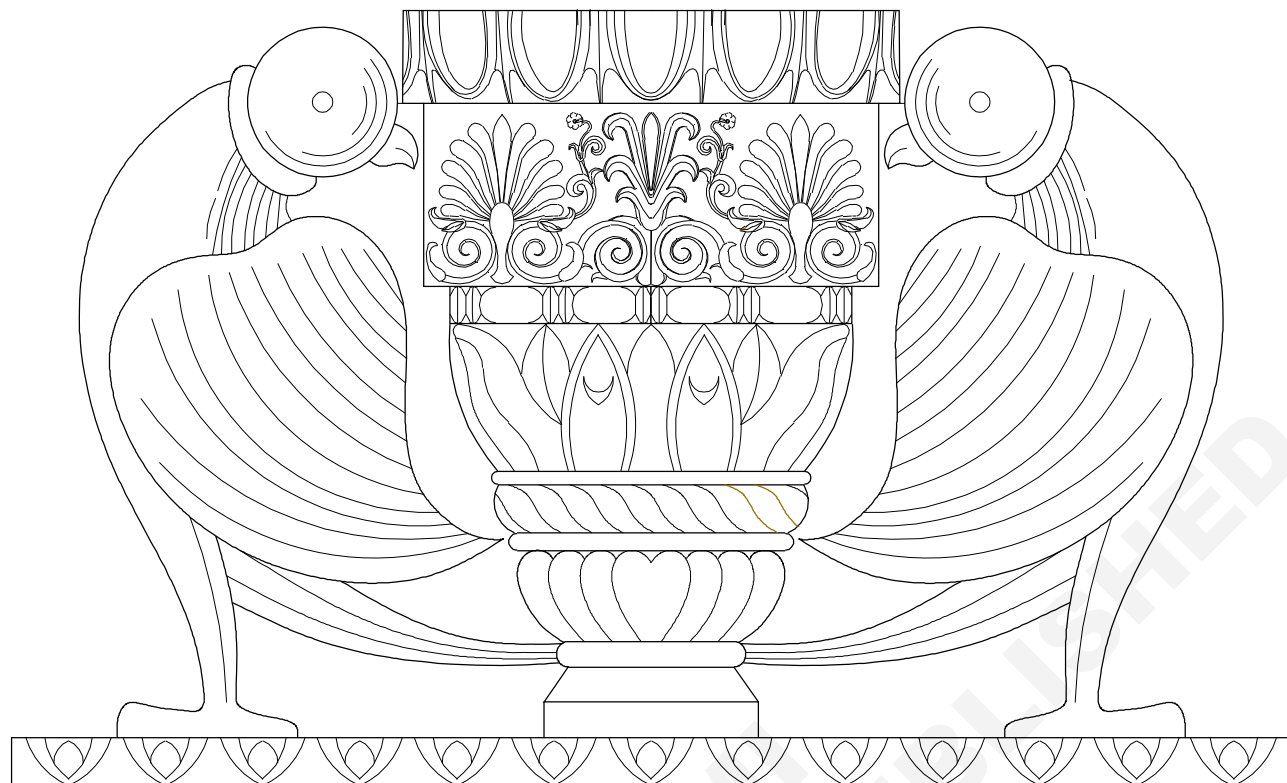
PG20N1333J1

Fig 1 — TASK 3

PG20N1333X1

Practice on drawn 2D design in different composition paint by high, middle and low key poster colour

Objectives: At the end of this exercise you shall be able to
• **draw the 2D design drawing**
• **apply the poster colour by high, middle and low key composition paint.**

Requirements

Tools/Instruments

•	Trainee's tool kit	- 1 No.
•	Paint brush	- 1 Set.
•	Pencil	- 1 Set.
•	Eraser	- 1 No.
•	Water colour box	- 1 No.
•	Water bowl	- 1 No.

Equipments/Machineries

•	Drawing board	- 1 No.

Materials

|		
•	Drawing paper	- as reqd.
•	Colour paints	- as reqd.

PROCEDURE

TASK 1: **Draw the 2D design drawing for painting**

1 Select the suitable drawing board and drawing paper.

2 Cut the drawing sheet as required size by the paper cutting knife.

3 Clean the drawing board and tools.

4 Fix the drawing sheet on the drawing board and fix the paper clip.

5 Select the 2D drawing to draw.

6 Sharpen the pencil and draw the 2D border line on the drawing sheet.

7 Draw light thin lines of drawing on the drawing paper.

8 Compare the line drawing with your master copy.

9 Ensure the both drawings are same.

10 Darken the drawing lines. (Figs 1 & 2)

Fig 1

PG20N1334H1

Fig 2

— — — — — — — —
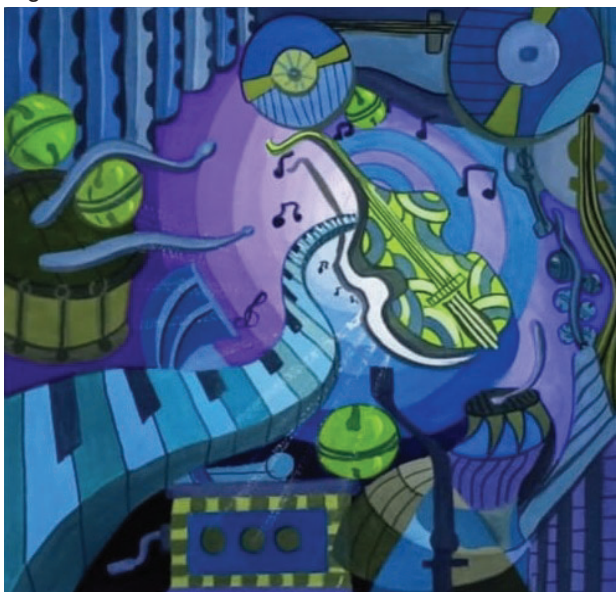
TASK 2: **Composition painting in high, middle and low key by poster colour**

1   Select the paint composition and mix the paint.

2   Wet the painting brush tip with water and dry it with cotton cloth/towel.

3   Apply the composition paint on marked area in the drawing by using high key.

4   Apply the composition paint on marked area of drawing by using middle key.

5   Apply the composition paint on remain area of the drawing by using low key.

6   Let allow the time to dry the paint, between each key operation. (continue painting work will be destroy the previous painted area).

7   After painting work clean, the painted area of the drawing. (Figs 1 & 2)

8   Check the drawing with your instructor.

Fig 2

Fig 1

— — — — — — — —

Practice on colour mixing, matching, touch up on damage poster and photographs

Objectives: At the end of this exercise you shall be able to
• **mixing and matching the colour**
• **touch up the paint damage on the poster**
• **touch up the paint on damaged photographs.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Painting brush	- 1 Set.
• Pencil	- 1 Set.
• Eraser	- 1 No.

Equipments/Machineries

• Colour poster	- 1 No.
• Colour photo	- 1 No.

• Drawing board	- 1 No.

Materials

• Colour paints	- as reqd.
• Thinner	- as reqd.
• Colour mixing pad	- as reqd.

PROCEDURE

TASK 1: Paint mixing and matching the colour

1 Study the damaged poster and mark the paint damaged area.

2 Study the damaged paint colour.

3 Select the paints for mixing poster colour.

4 Mix the paint and touch the paint on rough paper and match it with poser or photo colours.

— — — — — — — —

TASK 2: Touch up the posters damaged painting area with new paint

1 Select the drawing board and clean it.

2 Fix the poster on the drawing board. (Fig 1)

Fig 1

3 Clean the poster with cloth or cleaning solvent.

4 Sanding the colour damaged area of the poster.

5 Select the painting brush, wet the brush tip with water and dry it with clean cotton cloth.

6 Touch a brush tip with paint and apply the paint colour on the poster colour damage marked area.

7 Use the separate brush for each colour touching or clean the brush tip with cleaning solvent before change the colour apply to the poster.

8 Apply different type of dark and light colours as earlier used the poster colour matching.

9 Use the paint colour code book to match the poster colour.

10 After colour touch up with poster, clean the paint debries. (Fig 2)

11 Ensure the touch up colour is matched with earlier colours applied on poster.

Fig 2

— — — — — — — —

TASK 3: **Touch up the photographs on damaged area with colour paint**

1 Select the damaged photo for touch up the damaged area on the photograph. (Fig 1)

Fig 1

2 Select the suitable paint touch up brushes.

3 Compare the paint colour code with photograph paint colours.

4 Select the paint for touch up the photographs or mixing the paint to suit the photo's damaged colour.

5 Clean the brush and touch the paint with brush tip.

6 Touch the colour on the photo and ensure which paint colour used by you is same as photo colour.

7 Ensure the photo after damage correction is as look a new photo. (Fig 2)

Fig 2

— — — — — — — —

Practice on draw a realistic colour birds

Objectives: At the end of this exercise you shall be able to
• **prepare the materials for drawing work**
• **draw the line sketch of birds**
• **colour the drawing as realistic colour.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Drawing pencil kit	- 1 No.	**Materials**	
• Eraser	- 1 No.		
• Water colour box	- 1 No.	• Drawing paper	- as reqd.
• Colour brush	- 1 Set.		

PROCEDURE

TASK 1: **Prepare the materials for drawing work**

1 Select the drawing board and drawing paper

2 Select the colour birds figure to draw in realistic colour bird.

3 Cut the drawing sheet with help of paper cutter.

4 Fix the drawing paper on the drawing board.

5 Draw the border line on the drawing sheet.

— — — — — — — —

TASK 2: **Draw the birds line sketch on the drawing sheet (Figs 1 to 3)**

Fig 1

65

Fig 2

Fig 3

1 Measure the figure to be drawn.

2 Mark the measurement on the drawing sheet.

3 Draw the light line of birds figure.

4 Compare the line diagram with master copy.

5 Darken the line of birds figure.

— — — — — — — —

TASK 3: **Colour the birds drawing as a master copy of birds. (Figs 1 to 4)**

Fig 1

Fig 2

Fig 4

1 Select the colour to be apply on the birds drawing.

2 Use the paint colour code to select the suitable paint colour.

3 If need mixing the paint to match the birds colour.

4 Clean the brush and dip the brush tip with water.

5 Clean the brush tip with clean cotton towel.

6 Touch the brush tip on the paint lightly and apply paint on the drawing according to the birds colour.

7 Clean the brush tip before change the colour touch.

8 Evenly apply colour as colour marked on the drawing.

9 Realise the painted birds colour is as realistic bird.

Fig 3

— — — — — — — —

Practice on drawing of animals with realistic colour

Objectives: At the end of this exercise you shall be able to
• **draw the animals sketch lines on drawing paper**
• **realistic colouring of animals drawing.**

Requirements		
Tools/Instruments		**Equipments/Machineries**

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Colour paint box	- 1 No.
• Paint brush set	- 1 No.
• HB pencil	- 1 No.
• Eraser	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.
• Drawing board standard	- 1 No.
• Chart hanger	- 1 No.

Materials

• Drawing paper	- as reqd.

PROCEDURE

TASK 1: **Draw the animals sketch lines on drawing paper (Fig 1)**

1 Select the drawing board and drawing paper.

2 Select the drawing board stand and chart hanger.

3 Cut the drawing sheet as per specification given to you.

4 Use the knife to cut the paper for accurate size.

5 Fix the drawing sheet on the drawing board.

6 Draw the border line on the drawing sheet.

7 Select the animal figures to draw.

8 Hang the animals chart on the stand as shown in Fig 1.

9 Draw the animals figure on the drawing sheet.

Fig 1

— — — — — — — —
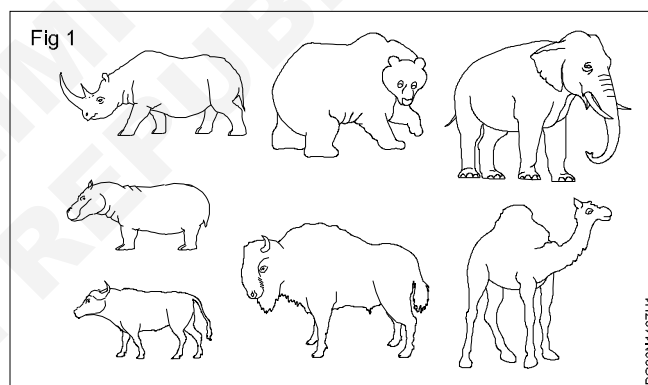
TASK 2: **Realistic colouring of animal drawing (Fig 1)**

Fig 1
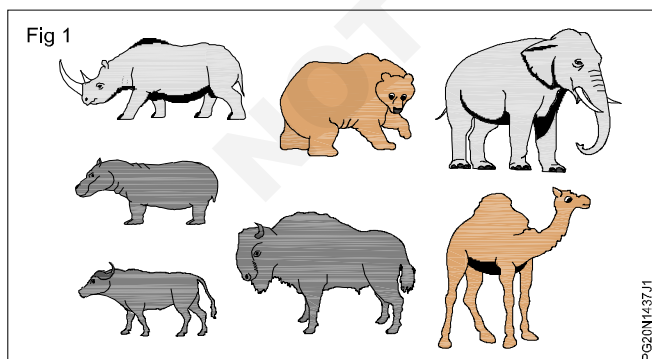
1 Check animals drawing is as real shape of particular animal.

2 Choose the animals colour, if need mix the colour bring animals colour.

3 Clean the painting brush.

4 Touch the paint brush tip on the water and dry it with clean cotton cloth.

5 Dip the paint brush tip and touch and spread the paint colour on the drawing as original figure. (Fig 1)

6 Use the different colours of animals for shining the animal.

7 Check the coloured drawing with master copy of drawing.

8 Check the coloured drawing with your instructor and correct it's mistakes.

— — — — — — — —

Practice on drawing a colour of realistic human figure

Objectives: At the end of this exercise you shall be able to
• **draw the human figure**
• **colour the human figure.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Drawing pencil	- 1 No.	**Materials**	
• Eraser	- 1 No.	• Drawing sheet	- as reqd.
• Water colour box	- 1 No.	• Cotton cloth	- as reqd.
• Water bowl	- 1 No.		
• Painting brush	- 1 Set.		

PROCEDURE

TASK 1: **Drawing the human figure (Fig 1)**

Fig 1
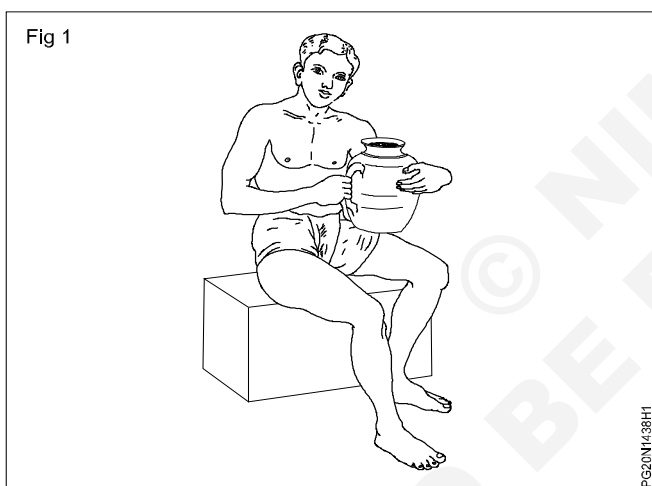
1 Select the drawing board and drawing sheet.

2 Cut the drawing sheet as measurement given to you.

3 Fix the drawing sheet on the drawing board.

4 Select the human figure to be drawn.

5 Draw the border line on the drawing sheet.

6 Draw the line sketch of human figure by pencil sharp tip.

7 Darken the human line sketch by pencil.

8 Mark the area to be colour apply.

— — — — — — — —

TASK 2: **Colouring the human figure (Fig 1)**

Fig 1
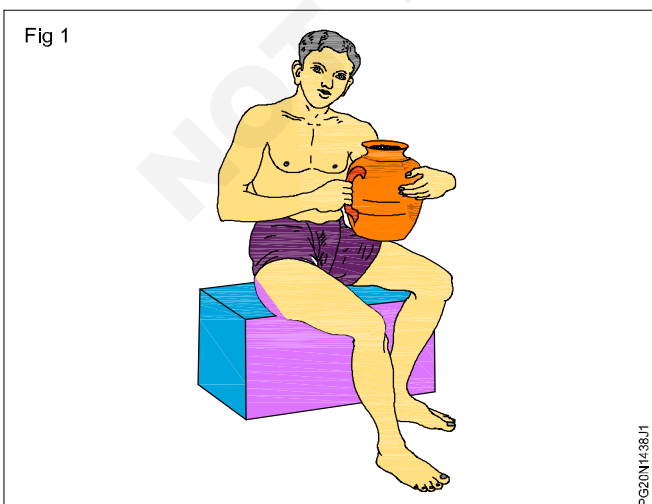
1 Select the realistic colour of human figure.

2 Prepare the selected colours to apply on the drawing.

3 Clean the painting brush.

4 Wet the paint brush tip with water and clean it with cotton cloth.

5 Apply the dark colour of the figure and then apply light colours to decorate the figure.

6 Ensure the coloured figure is as natural human colour.

Practice on mounting and decorate the painted pictures

Objectives: At the end of this exercise you shall be able to
• **decorate the painted pictures**
• **mounting the pictures on the wall.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Painted picture	- 1 No.
• Frame mounting tools	- 1 Set.	**Materials**	
• Paint box (Water editor)	- 1 No.	• Pictures mounting frame	- as reqd.
• Paint brush set	- 1 No.	• Nails	- as reqd.
• Drawing pencil set	- 1 No.	• Frame jointers	- as reqd.
• Eraser	- 1 No.		

PROCEDURE

TASK 1: Decorate the painted pictures

1   Select the pictures and drawing board.

2   Select the suitable drawing sheet and draw the border line.

3   Draw the pictures on the drawing sheet in light line sketch.

4   Compare the drawing with original picture.

5   Darken the drawing lines.

6   Colour the picture by use of high, middle and low key.

7   Always use dark and light bright colours for the pictures and decorate pictures before framing it. (Fig 1)

8   Ensure drawn picture is same as original pictures.

Fig 1

TASK 2: Framing the picture and mounting it on the wall

1   Select the wood or aluminium frame design. (Fig 1)

2   Measure the size of picture.

3   Cut the frame for the picture size and decorate it.

4   Set the decorative frames on the picture along with picture's back side frame plate or cord board or tin sheet to protect the picture from insects damage.

5   Fix the frame joints corner plate with nail screwing.

6   Fix the picture hanging screw with ring.

7   Mount the wooden frame on the wall.

8   Mount the picture on wall.

9   Ensure the picture is properly mounted on the wall. (Fig 2)

Fig 1

Fig 2

_ _ _ _ _ _ _ _
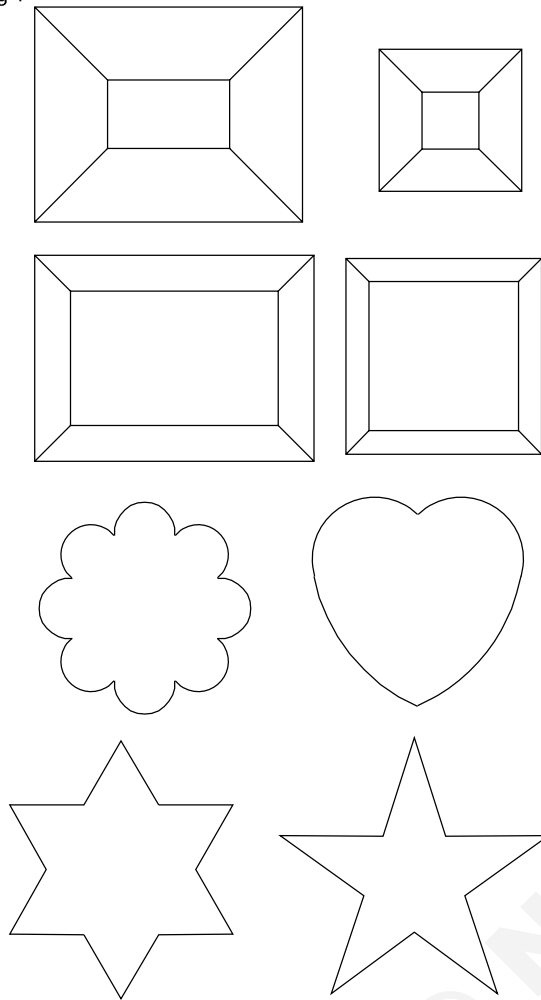
Practice on draw the landscape

Objective: At the end of this exercise you shall be able to
• **draw the landscape.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Water colour box	- 1 No.	**Materials**	
• Drawing pencil	- 1 No.		
• Eraser	- 1 No.	• Drawing paper	- as reqd.
• Water bowl	- 1 No.	• Cotton cloth	- as reqd.
• Painting brush set	- 1 No.		

PROCEDURE

Draw the lanscape (Fig 1)

1 Select the landscape to be draw.

2 Select the drawing board and drawing sheet.

3 Cut the drawing sheet as required size.

4 Fix the drawing sheet on the drawing board.

5 Draw the border line on the drawing sheet.

6 Measure the landscape drawing and mark the measurement on the drawing sheet.

7 Make a line sketch of landscape scenarios.

8 Darken the lines and select the colours to apply the landscape drawing.

9 Apply colour as landscape original picture.

10 Compare the drawing with original picture.

11 Ensure drawn landscape is same as original picture.

12 Check the drawing with your instructor for correction.

Fig 1

— — — — — — — —

Practice on draw the landscape and colouring it in water/poster colour

Objective: At the end of this exercise you shall be able to
• **draw the landscape and colouring it.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Water colour box	- 1 No.
• Colouring brush set, 0,2,4,8	- 1 No.
• Water bowl	- 1 No.
• Steel ruller	- 1 No.
• Flat brush No.5	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.
• Drawing board stand	- 1 No.

Materials

• Drawing paper	- as reqd.
• Poster colour box	- as reqd.
• Cotton waste cloth	- as reqd.
• Soap oil	- as reqd.
• Thinner	- as reqd.
• Pencil	- as reqd.
• Eraser	- as reqd.

PROCEDURE

TASK 1: Draw the landscape outline sketch

1 Select the suitable drawing board and drawing paper.

2 Clean the drawing board before fix the drawing paper on it.

3 Cut the drawing paper as measurement given to you.

4 Fix the drawing paper on the drawing board.

5 Draw the border line on the drawing sheet.

6 Measure the drawing of landscape.

7 Mark the measurement on the drawing sheet.

8 Sharpen the pencil and draw a thin line in the shape of landscape.

9 Compare the drawn landscape with original landscape figure given to you.

10 Darken the thin line of drawn landscape sketch. (Figs 1 & 2)

Fig 2

Fig 1

— — — — — — — —

TASK 2: **Colouring the landscape with water colour/poster colour (Figs 1 to 3)**

1   Select the water colour or poster colour for colouring the landscape.

2   Divide the picture into lower and upper parts as landscape require.

3   Select the colouring brush.

4   Prepare the colours for colouring.

5   Wet the painting brush tip in water and dry it with dry cloth.

6   Select the single colouring area of landscape.

7   Colour the selected area with painting brush with light touch. Paint the background first using light colours.

8   Let it allow to dry before apply the another colour on the landscape sketch.

9   Clean the brush and use it for another colour painting work.

10 Use the different colour to decorate the landscape drawing and the colouring landscape is as natural scene.

11 Ensure the landscape water/poster colour is look like as natural scene.

12 Correct it with your instructor.

> **Note: Let the back ground colours dry completely then paint the middle ground with brighter colours.**

Fig 1

Fig 2
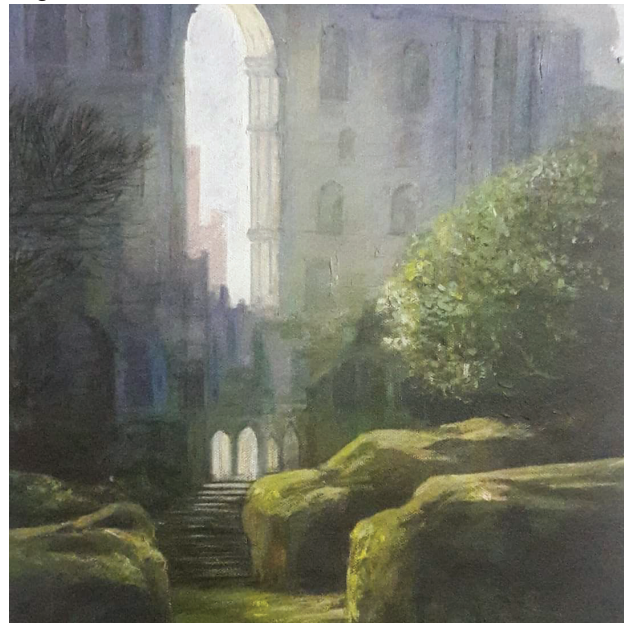
Fig 3

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Practice on use graph on portrait picture and enlarge on drawing paper

Objectives: At the end of this exercise you shall be able to
• **use graph on portrait picture**
• **enlarge the graph portrait picture on the drawing paper.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Drawing pencil	- 1 No.
• Eraser	- 1 No.
• Steel ruler	- 1 No.
• Portrait picture	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.
• Board stand	- 1 No.

Materials

• Drawing paper	- as reqd.
• Clip	- as reqd.

PROCEDURE

TASK 1: Graph on portrait picture

1 Select the drawing board and drawing sheet.

2 Select the portrait picture which is easy to draw by you.

3 Cut the drawing sheet as per given measurement.

4 Use the paper cutter to cut the drawing sheet.

5 Carefully use the knife while cutting the drawing sheet.

6 Clean the drawing board.

7 Fix the portrait picture on the drawing board.

8 Take measurement of the portrait picture.

9 Draw the graph line on the picture as shown in Fig 1.

10 Remove the picture from drawing board.

Fig 1

— — — — — — — —
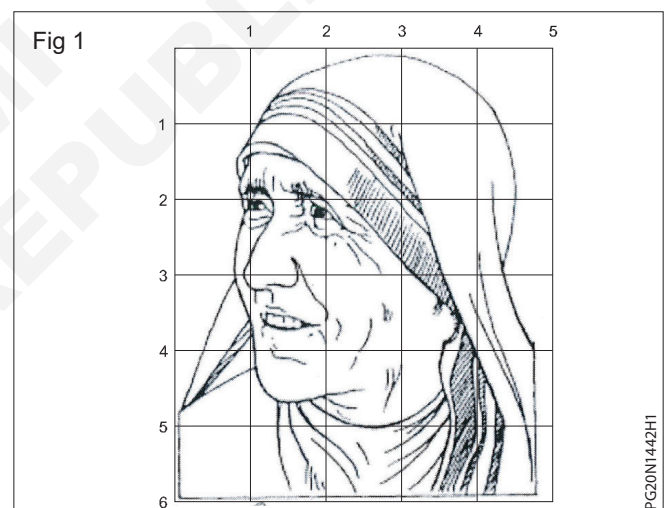
TASK 2: Enlarge the outline portrait picture

1 Fix the drawing sheet on the drawing board.

2 Draw the border line on the drawing sheet.

3 Draw the graph line as marked in enlarge position.

4 Measure the picture's each part of graph line covered on the picture.

5 Draw the picture on enlarged thin graph line.

6 Drawing sheet picture's part by part sketch it on drawing sheet by thin line by pencil as graph enlarged measurement.

7 Darken the thin line of the picture as shown in Fig 1
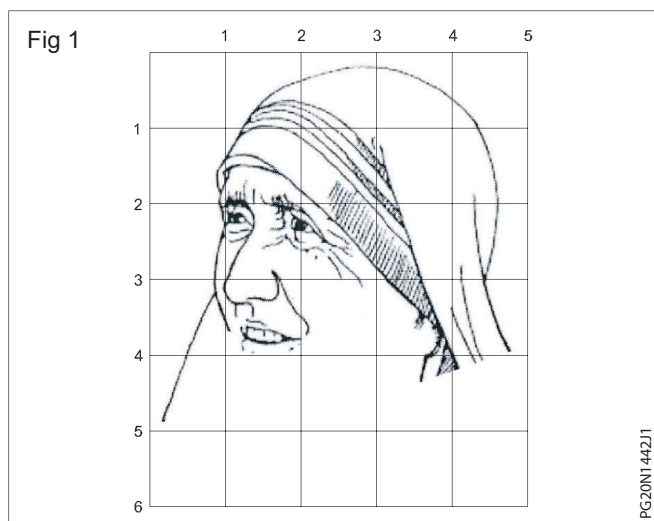
8 Erase the graph line above the picture.

9 Shade the back ground of picture as shown in Fig 2.

Fig 1

Fig 2

— — — — — — — — —
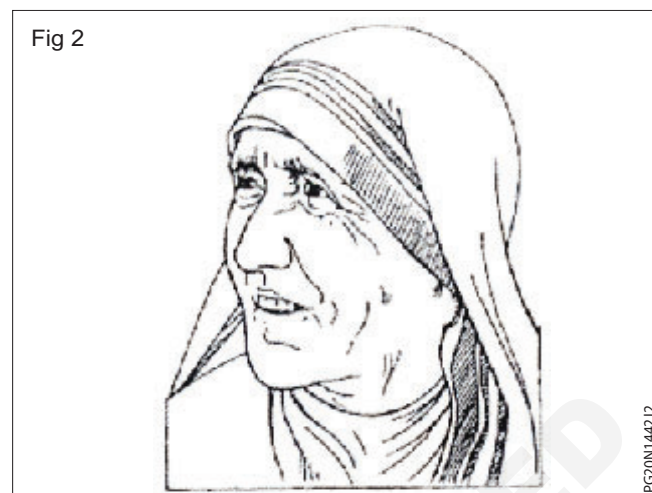
Practice on water or poster colouring on enlarged drawing picture

Objectives: At the end of this exercise you shall be able to
• **draw the enlarged picture**
• **colouring the enlarged drawn sketch of the picture.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Water colour box	- 1 No.	• Drawing board stand	- 1 No.
• Colouring brush	- 1 Set.	**Materials**	
• Drawing pencil set	- 1 No.	• Cotton cloth	- as reqd.
• Eraser	- 1 No.	• Drawing sheet	- as reqd.
• Picture chart	- 1 No.	• Drawing pin/clip	- as reqd.
• Bowls	- 2 Nos.	• Palette	- as reqd.

PROCEDURE

TASK 1: **Draw the enlarged picture on the drawing sheet**

1 Select the drawing of previous exercise enlarged picture or any other enlarged picture.

2 Select the drawing board and drawing sheet.

3 Cut the drawing sheet as per given measurement.

4 Clean the drawing board and fix the drawing sheet on the board.

5 Draw the border line on the drawing sheet.

6 Mark the measurement of the picture.

7 Draw the enlarged picture on the drawing board as per your instructor's guide line.

8 Ensure the drawing picture is same as original picture. (Fig 1)

9 Check it with your instructor and correct it's mistakes.

10 Ensure the picture is ready for water or poster colouring.

Fig 1

PG20N1443H1

— — — — — — — —

TASK 2: **Water/poster colouring the enlarged drawn sketch of the picture**

1 Select the water or poster colour for colouring the picture.

2 Select the colouring brush.

3 Mix the water with selected colours. (Fig 2)

4 Wet the brush tip in water and clean it with dry cloth.

5 Mark the areas on the picture to particular colour. (Fig 1)

6 Touch the brush tip on the paint colour.

7 Apply the colour touch /brushing on the picture one by one colour is specified time distance.

8 Clean the brush tip when changing the colour.

9 Let allow the picture colour to dry well.

Fig 1

Fig 2

Note: Things to remember while painting

- **Make sure that all your brushes are clean before you begin to paint.**
- **Use thick brushes for applying wash and thinner ones to paint small areas.**
- **Paint the picture from top to bottom to avoid smudging of wet paint by hand.**
- **Let the applied colour dry first to avoid unwanted mixing to colours on paper.**
- **Always do patch test of prepared colour on a small area before painting the area completely.**

— — — — — — — —

Practice on draw colour safety/sign trade poster

Objectives: At the end of this exercise you shall be able to
• **draw the safety/sign trade poster sketch**
• **colouring the safety sign/trade poster.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Water colour box	- 1 No.
• Colouring brush	- 1 Set.
• Drawing pencil	- 1 No.
• Eraser	- 1 No.
• Water bowl	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.
• Drawing board stand	- 1 No.

Materials

• Drawing sheet	- as reqd.
• Drawing pin/clip	- as reqd.
• Cotton cloth	- as reqd.

PROCEDURE

TASK 1: **Draw the safety sign** (Fig 1)

1 Select the safety/warning sign to draw.

2 Select the drawing board and drawing paper.

3 Cut the drawing sheet for your need.

4 Clean the drawing board and fix the drawing sheet on the drawing board.

5 Draw the border line on the drawing board.

6 Select the sequence of safety sign drawing.

7 Measure each safety sign and mark the measurement on the drawing sheet.

8 Draw the safety sign on the drawing sheet one by one as thin line sketch.

9 Compare the line sketch with original safety sign.

10 Draw the thick line on the thin line sketch of safety sign.

11 Select the suitable colours for the safety sign.

12 Mix the colour and colouring safety sign with help of colouring brush. (Fig 2)

Fig 1

Fig 2
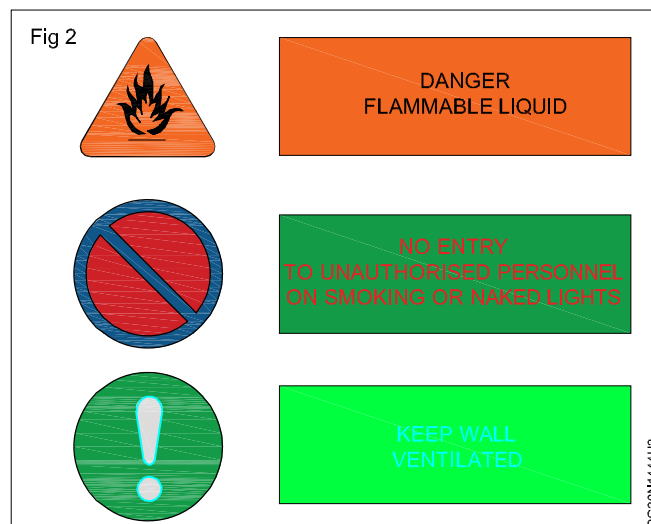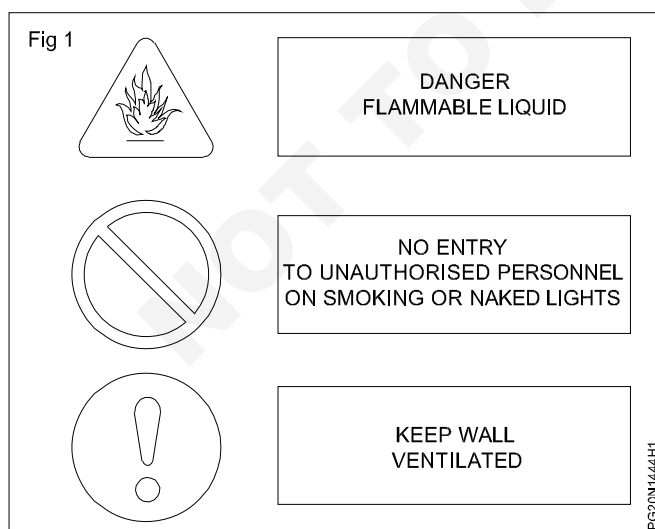
TASK 2: **Draw and colouring the trade poster**

1   Select the trade mark poster to draw as you like.

2   Fix the drawing sheet on the drawing board and draw the border line.

3   Measure the trade mark and mark it on the drawing sheet.

4   Draw the thin line sketch of trade mark on the paper.

5   Correct the error on the drawn sketch.

6   Thicken the thin line and compare it with original trade mark. (Fig 1)

Fig 1

Fig 2

Fig 3
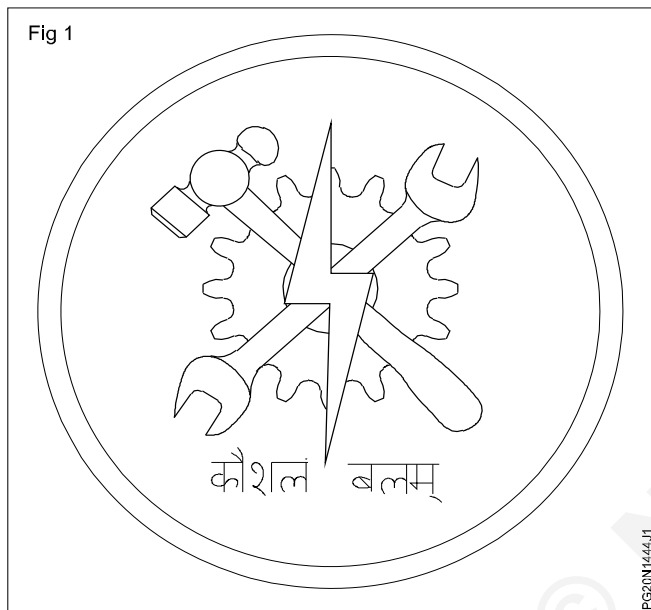
7   Select the colours as in trade mark symbol.

8   Mix the colours and colouring the trade mark with help of painting brush. (Fig 2)

9   Ensure the colour of the trade simple is as original trade symbol.

10 Practice to draw and colouring figures 2 & 3 in your drawing note book.

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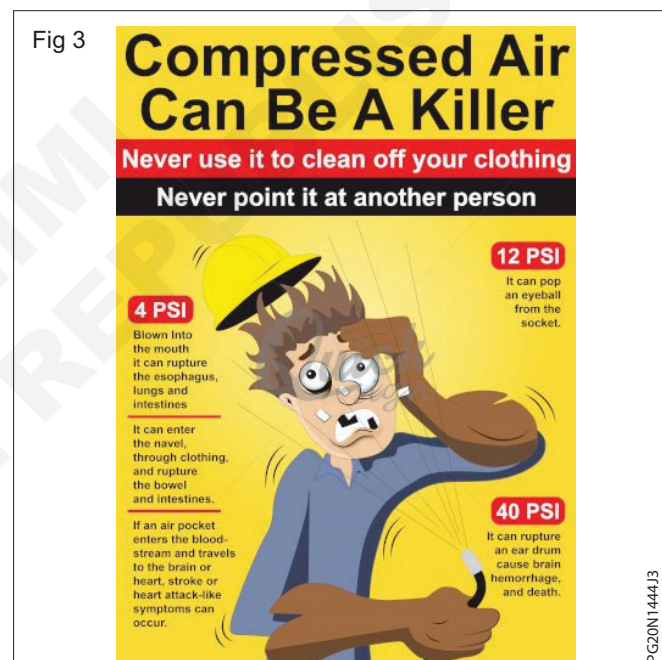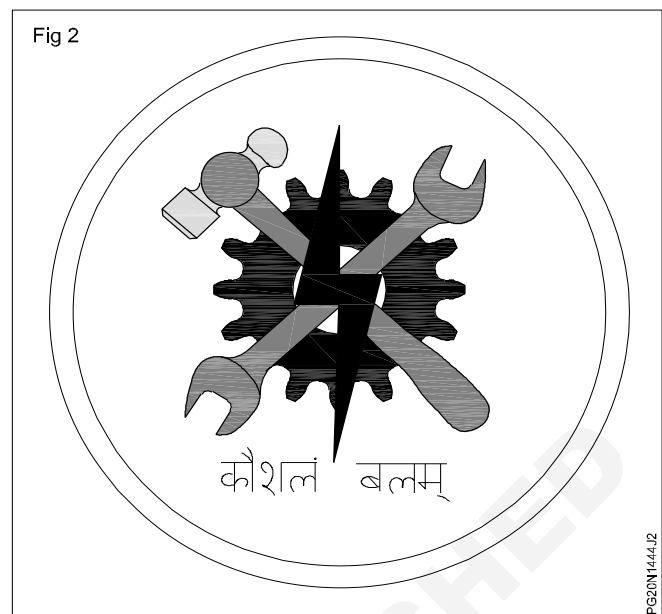
Practice on enlarge and sketching the cinema posters

Objectives: At the end of this exercise you shall be able to
• **sketching the cinema poster**
• **enlarge the cinema poster.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Drawing board	- 1 No.
• Drawing pencil set	- 1 No.	**Materials**	
• Eraser	- 1 No.	• Drawing paper	- as reqd.

PROCEDURE

TASK 1: **Graphing and sketching the cinema poster (Fig 1)**

1 Select the cinema poster as you like

2 Measure the length and width of the poster.

3 Draw border line on edge of the poster.

4 Measure the size of the poster.

5 Divide the poster by graph lines.
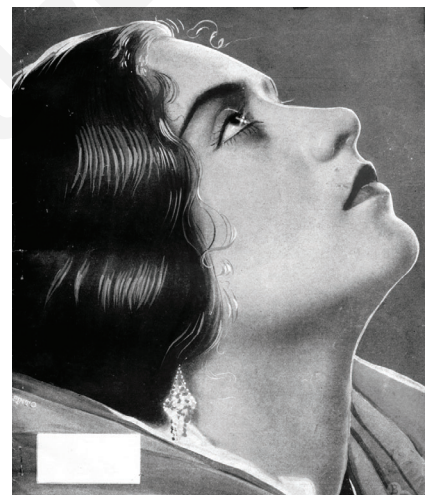
Fig 1

— — — — — — — —

TASK 2: **Graphing and enlarge the sketching the cinema poster**

1 Select the drawing board and drawing paper.

2 Cut the drawing paper for the correct size.

3 Fix the drawing sheet on the drawing board.

4 Draw the thin enlarged graph lines on the drawing paper. (Fig 1)

5 Mark the picture measurement on the enlarged graph line.

6 Draw the cinema poster on the graph paper in easy way.

7 On completion of line sketch, compare the drawing with original cinema poster.

8 If it is same as original poster make a pencil shade on it. (Fig 2)

9 Check the drawn cinema poster with your instructor and correct the mistake indicated by your instructor.

Fig 1

Fig 2
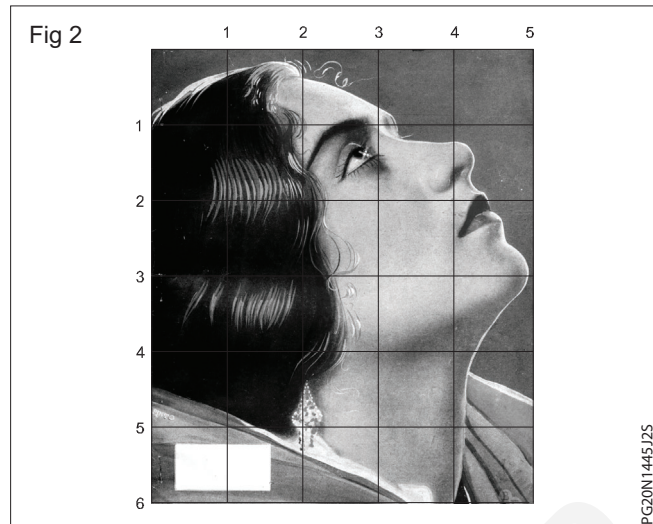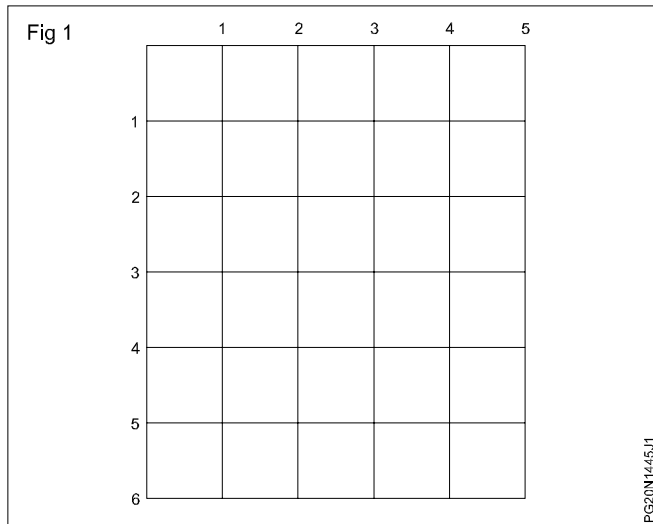
Practice on colouring the enlarged cinema poster

Objective: At the end of this exercise you shall be able to
• **colouring the enlarged cinema poster.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Water colour box	- 1 No.
• Water bowl	- 1 No.
• Colouring brush set	- 1 No.
• Drawing pencil	- 1 No.
• Eraser	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.

Materials

• Drawing sheet	- as reqd.
• Cotton cloth	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

Colouring the enlarged cinema poster

1 Select the drawing board and clean it.

2 Fix the enlarged cinema poster on the drawing board.

3 Prepare the colour for colouring the poster with adding water drops with help of ink filler.

4 Study the poster's primary, secondary and territory colours and prepare the colours as required.

5 Prepare the painting brush and select the suitable brush for each colour of poster.

6 Wet the brush tip in water and dry it with dry cloth.

7 Hang the original cinema poster in front of you for easy viewable.

8 Apply the light colours first and then one by one other colours on the poster.

9 Be carefully apply the colours on the poster.

10 Don't drop the colours on the other coloured spot of the poster.

11 Let allow the time to dry the applied colours.

12 Compare the applied colours with original poster colour.

13 Check it with your instructor for correction.

14 Rectify the mistakes in your coloured poster.

15 Clean the debris on the poster. (Fig 1)

Fig 1

Note: Use the palette to arrange and mix the paints while painting keep a cup of water near you for washing your brushes.

• **Use the cotton rag to clean and wipe the art materials.**

• **Use the sketch pens for definite shape and other sharp details to your drawing.**

— — — — — — — —

Practice on sketching and colouring gothic letters in english

Objectives: At the end of this exercise you shall be able to
• **sketching the english gothic letters**
• **colouring the english gothic letters.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Drawing pencil	- 1 No.
• Water colour box	- 1 No.
• Colouring brush	- 1 Set.
• Eraser	- 1 No.
• Water bowl	- 1 No.
• Palette	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.
• Ink filler	- 1 No.
• Enamel dish	- 1 No.

Materials

• White chart	- as reqd.
• Water	- as reqd.
• Banian cloth	- as reqd.
• Graph sheet	- as reqd.

PROCEDURE

TASK 1: **Sketching the English gothic letters**

1 Select the English gothic letter chart.

2 Select the drawing board and drawing sheet.

3 Select the graph sheet and mark the letter sizes of A to Z.

4 Measure the letters height and width.

5 Mark each letter size on the graph sheet.

6 Make a space between letters.

7 Write the letter on the space marked on the graph sheet as shown in Fig 1.

8 Fix the drawing sheet on the drawing board.

9 Draw the thin vertical and parallel lines on the drawing sheet.

10 Write a letter on drawing sheet in double stroke vertical gothic letters as shown in Fig 2.

Fig 1
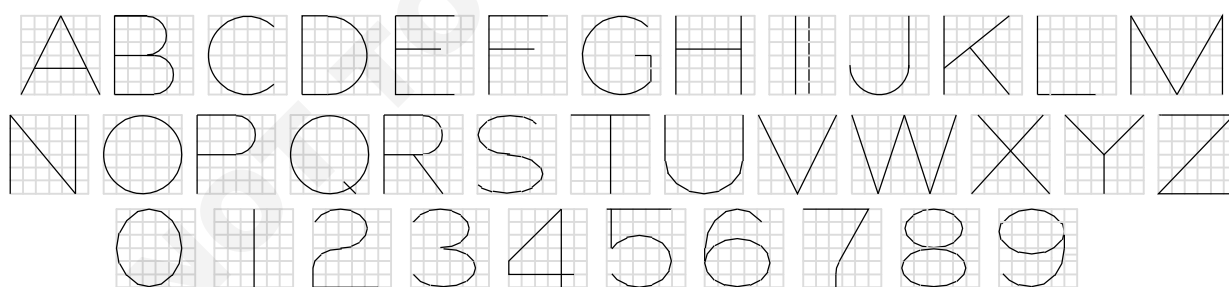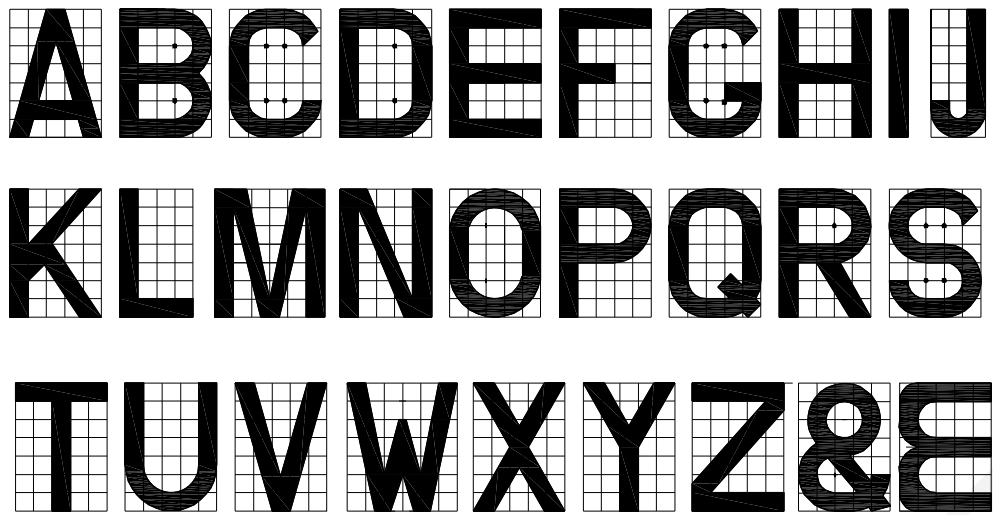
Fig 2

— — — — — — — —

TASK 2: **Colouring the English gothic letters**

1   Select the colour for colouring the letters.

2   Prepare the colours by mixing the drops of water.

3   Use the ink filler to drop the water in colour.

4   Use the colour painting brush or lettering brush to colour the letters.

5   Use the different colours for different letters as shown in Fig 1.

Fig 1

— — — — — — — —
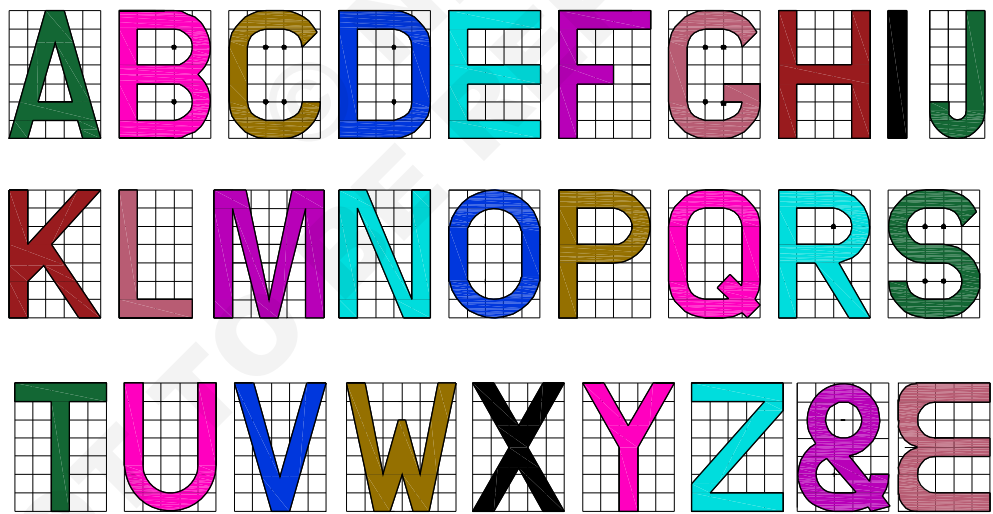
Practice on sketching and colouring the gothic letters in mother language

Objectives: At the end of this exercise you shall be able to
• **sketching the mother language letters**
• **colouring the mother language letters.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Drawing sheet	- as reqd.
• Water colour box	- 1 No.	• Water	- as reqd.
• Colouring brush	- 1 No.	• Banian cloth	- as reqd.
• Water bowl	- 1 No.	• Graph sheet	- as reqd.
• Drawing pencil	- 1 No.	• Drawing board	- as reqd.
• Eraser	- 1 No.		
• Palette	- 1 No.		

PROCEDURE

TASK 1: **Sketching the gothic letters in mother language letters**

1   Select the any type of language alphabetic letter chart as per your choice.

2   Hang the chart on the stand.

3   Select the suitable drawing board and graph sheet.

4   Clean the drawing board and fix the graph sheet on the board.

5   Measure the letter size and mark it on the graph sheet.

6   Sharpen the pencil and practice to draw the letters in a thin line of all letters in graph sheet as shown in Fig 1.

Fig 1

— — — — — — — —

TASK 2: **Colouring the gothic letters in mother language**

1   Fix the drawing sheet on the drawing board.

2   Draw the graph lines on the drawing sheet.

3   Mark the letter's measurement on drawing sheet.

4   Draw or write the double stroke vertical gothic letters.

5   Ensure letters are as same in original shape.

6   Select the colours and mix the colours for colouring the letters.

7   Use the colouring brush to colour the letters.

8   Clean the brush with wet and dry cloth before touch the colour.

9   Touching the different colours on the letters as shown in Fig 1.

Fig 1

— — — — — — — —

Practice on sketching and colouring of roman letters

Objectives: At the end of this exercise you shall be able to
• **sketching the roman letters**
• **colouring the roman letters.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Water colour box	- 1 No.
• Colouring brush set	- 1 No.
• Drawing pencil	- 1 No.
• Eraser	- 1 No.
• Letter chart	- 1 No.
• Letter templete	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.

• Drawing board stand	- 1 No.
• Letter chart stand	- 1 No.

Materials

• Drawing paper	- as reqd.
• Graph sheet	- as reqd.
• Cotton cloth	- as reqd.
• Water	- as reqd.
• Water bowl	- as reqd.

PROCEDURE

TASK 1: Sketching the roman letters

1 Select the roman letter chart.

2 Select the drawing board and graph sheet.

3 Clean the drawing board and fix the graph sheet on the board.

4 Measure the roman letters size and mark the measurement of each letter on the graph sheet.

5 Draw the letters sketch line on marked points in graph sheet.

6 Check the letters sketching line with original roman letters.

7 Dark the thin with HB pencil as Fig 1.

Fig 1

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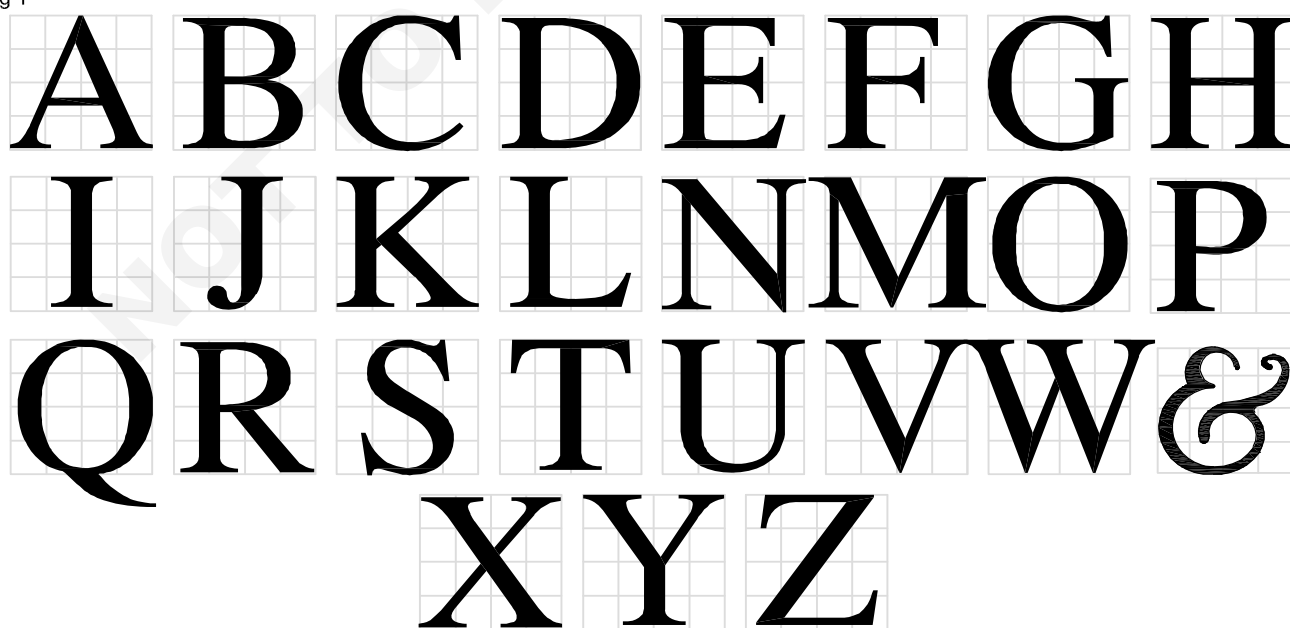
TASK 2: **Colouring the roman letters**

1 Fix the drawing sheet on the drawing board.

2 Draw the border line on the drawing sheet.

3 Draw the lines as graph sheet.

4 Mark the letters enlarge measurement and draw letter as in graph.

5 Select the colours and prepare the colour mixing.

6 Use the ink filler to drop the waters in colour.

7 Select suitable colouring brush to apply colour on the roman letters.

8 Use the different colours on the letters as shown in Fig 1.

Fig 1

PG20N1549J1
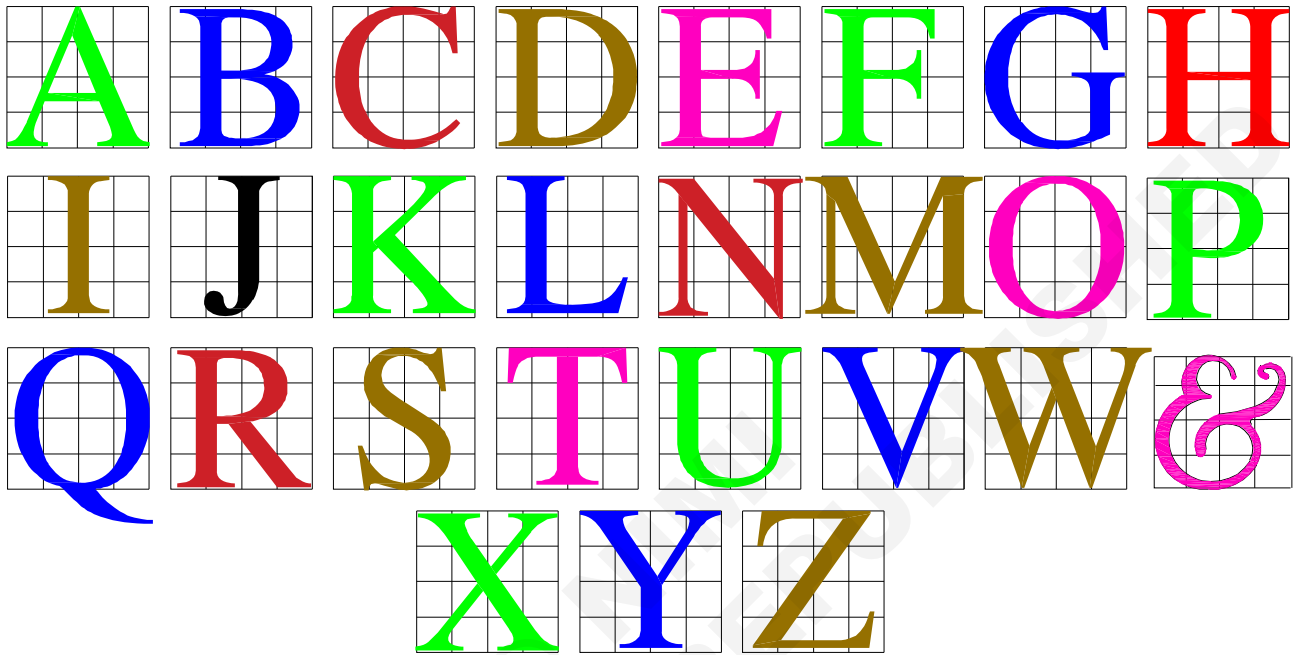
Practice on free hand boru strokes of devnagri letters

Objectives: At the end of this exercise you shall be able to
• **draw free hand boru strokes of devnagri letters.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Free hand writing pen	- 1 No.
• Drawing pencil set	- 1 No.
• Eraser	- 1 No.
• Steel ruler	- 1 No.
• Devnagri letters chart	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.

Materials

• Drawing paper	- as reqd.
• Pen nib	- as reqd.
• Graph sheet	- as reqd.
• White sheet	- as reqd.

PROCEDURE

Free hand boru strokes of devnagri letters

1 Select the any language alphabetic letters to writing practice.

2 Select the drawing board and graph sheet and drawing sheet.

3 Select the pen nibs in different sizes as shown in Fig 1.

Fig 1
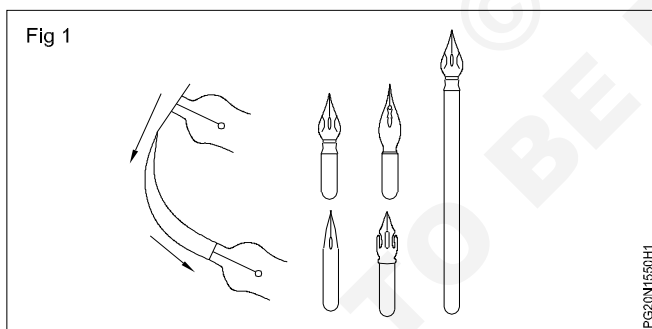
4 Draw the lines on graph sheet and mark the letter size for free hand writing practice as shown in Fig 2.

5 Write the letters in free hand boru strokes of devnagri as shown in Fig 2.

6 Make your self clear confident in writing free hand boru strokes of devnagri writing method.

7 Write with second of eye on your writing.

8 Use the proper pen nib for each strokes of letters.

9 Use the proper level of strokes while write the letters.

> **Note: Before start the writing work get brief guide line from your instructor.**

10 Remove the graph paper from the drawing board.

Fig 2
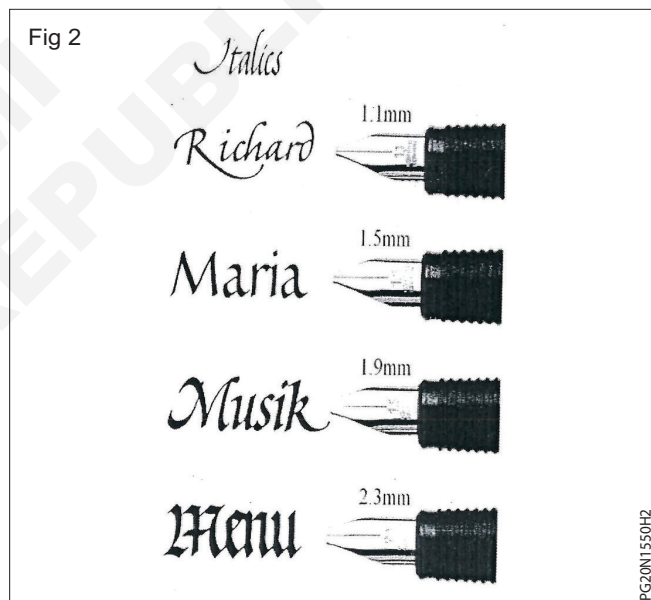
11 Fix the drawing sheet on the drawing board.

12 Draw the border line on the drawing sheet.

13 Measure the different size of letter and mark it on the drawing sheet.

14 Draw the lines on drawing sheet as shown in Fig 3.

15 Do practice the letter writing in free hand boru strokes of devnagri method in Fig 3.

Fig 3

FRONT SIDE

THICK AND THIN
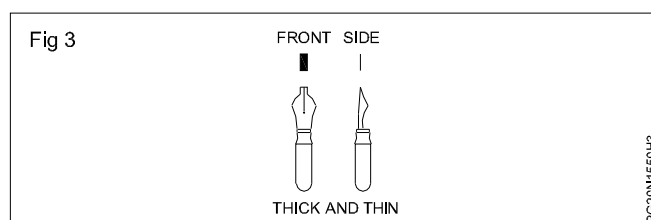
16 Do practice to write letter and sentence as shown in Figs 4 to 6

Fig 6

Fig 4

Fig 5

अ											
आ											
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Construction: Painter (General) (NSQF - Revised 2022) - Exercise 1.5.50　　**91**

Practice on sketching and colouring devnagri letters

Objective: At the end of this exercise you shall be able to
• **sketching and colouring the devnagri letters.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Colour box	- 1 No.
• Colouring brush set	- 1 No.
• Drawing pencil	- 1 No.
• Eraser	- 1 No.

Equipments/Machineries

• Drawing board	- 1 No.

• Drawing board stand	- 1 No.

Materials

• Graph sheet	- as reqd.
• Drawing sheet	- as reqd.
• Water	- as reqd.
• Water bowl	- as reqd.

PROCEDURE

Sketching and colouring devnagri letters

1 Select any language letter chart to writing practice.

2 Select the drawing board, drawing sheet and graph paper.

3 Measure the letters size and mark the measurement on the graph sheet (letters height and width)

4 Consult your instructor before start the writing practice.

5 Sketching the letters on the graph paper in the style of devnagri boru strokes as shown in Fig 1.

Fig 1

6 Remove the graph paper and fix the drawing sheet and draw the border line.

7 Sketching the letters in thin line on the drawing sheet.

8 Write the free hand boru strokes of devnagri letter as shown in Figs 2 to 4.

9 Use the suitable pen nips according the letter size and stroke.

10 Prepare the colours for colouring the letters.

11 Use the ink filler to drop the water to mix the paint.

12 Store the mixed paint in palette board.

13 Clean the painting brush and wet the brush tip in water and dry it with dry cloth.

14 Touch the paint brush tip in paint and touch up the colour on hand written letters as shown in Fig 3.

15 After colouring the letters let allow to dry it enough time.

Fig 2

Fig 3

Fig 4

देवनागरी लेटरिंग

अ आ इ ई उ ऊ ए
ऐ ओ औ अं अः
क ख ग घ ङ
च छ ज झ ञ
ट ठ ड ढ ण
त थ द ध न
प फ ब भ म
य र ल व क्ष
ष स ह ज्ञ

16 Clean the colour debris on letters.

17 If happen any mistakes during colouring the letter, apply back ground colour on it and again colour the wright colour on the letter.

18 On completion of painting work clean the painting tools and place it in shape place.

Practice on sketching and colouring text or italic letters

Objectives: At the end of this exercise you shall be able to
• **sketching and colouring the text letters**
• **sketching and colouring the italic letters.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Drawing board stand	- 1 No.
• Colour box	- 1 No.	• Tools	- 1 No.
• Colouring brush	- 1 Set.	**Materials**	
• Drawing pencil	- 1 No.	• Drawing paper	- as reqd.
• Eraser	- 1 No.	• Graph paper	- as reqd.
• Water bowl	- 1 No.	• Water	- as reqd.
Equipments/Machineries		• Cotton cloth	- as reqd.
• Drawing board	- 1 No.		

PROCEDURE

TASK 1: **Sketching and colouring the text letters**

1 Select the text letter to sketching and colouring.

2 Select the suitable drawing board and drawing sheet.

3 Cut the drawing sheet as required size.

4 Fix the drawing sheet on the drawing board.

5 Draw the border line on the drawing sheet.

6 Draw the vertical and parallel lines on the drawing sheet.

7 Mark the letters measurement on the drawing sheet with in drawn lines.

8 Sketching the letters in 30° angle.

9 Practice to sketching the letters of A to Z as shown in Fig 1 in your drawing sheet.

12 Clean the colouring brush and touch the brush tip in a colour and touching the colour on letter sketch.

13 Use the poster colour on the text letters as shown Figs 2 to 5.

14 After colouring the letters, clean the debres on the letters.

15 Finally do the finishing paint touches on the sketching letters.

16 Ensure the text letters are properly coloured.

Fig 1

10 After sketching the A to Z compare the text figures sketch with original chart letters.

11 Prepare the colours for colouring the drawn letter sketch.

Fig 2
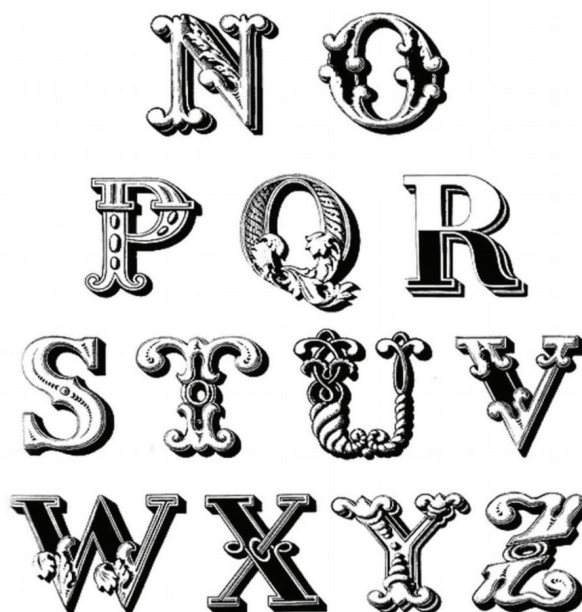
Fig 3

Fig 5

Fig 4

— — — — — — — —

TASK 2: **Sketching and colouring the italic letters**

1   Select the italic letter chart to draw the sketch of letters.

2   Fix the drawing paper on the drawing board and draw the border line.

3   Draw the vertical and parallel lines on the paper.

4   For pre-practice, sketching the letters in double stroke italic free hand capital lettering and numerical on the white paper as Fig 1.

5   Draw the sketch of italic letters on the drawing sheet as shown in Fig 2.

6   Prepare the colour for colouring the italic letters.

7   Clean the brush tip and touch the tip in colour.

8   Touch the colour on the lettering sketch as shown in Figs 3 to 6.

9   Ensure all the italic letters are coloured as specified method.

10 Practice to draw and colouring numericals and italic letters in your drawing note book as shown in Figs 1 to 6.

Fig 1

Fig 2

Fig 3

Fig 4

Fig 6

Fig 5

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Marking practice on wood

Objectives: At the end of this exercise you shall be able to
• **oblique sawing across the grain**
• **plane a wooden piece to obtain surface flatness**
• **check the flatness and squareness with try square.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Bench stops	- 1 No.
• Carpenter pencil	- 1 No.	• Wet grinder	- 1 No.
• Four fold wooden rule	- 1 No.	• Oil stone	- 1 No.
• Try square	- 1 No.	**Materials**	
• Jack plane	- 1 No.		
• London screw driver	- 1 No.	• Hard wood 60x25x250mm	- 1 No.
Equipments/Machineries		• Banian cloth	- as reqd.
		• Soap oil	- as reqd.
• Work bench with vice	- 1 No.		
• Wood marking gauge	- 1 No.		

PROCEDURE

Oblique sawing across the grain (Fig 1)

1 Place the job against bench stop.

2 Hold the plane with the right hand, keeping the index finger on the side.

3 Place the palm of left hand on the toe of the plane thumb and fingers on the side. (Fig 1)

Fig 2

Fig 1
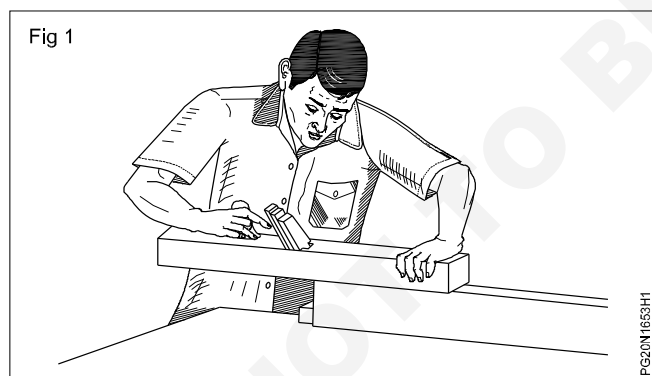
4 Stand near the bench with left foot forward at 70° with the neck and the right foot at a convenient distance.

5 Place the plane straight on the job and give forward stokes. (Fig 2)

6 At the begining of stroke exert more pressure with left hand as the stroke proceeds, gradually the pressure by the left hand is reduced, more pressure comes to the right hand. The main object is to keep the plane always horizontal. (Figs 3 & 4)

7 Release the pressure on the back stroke and merely draw the plane to the first position.

Fig 3

AT THE START OF THE STROKE

Fig 4

AT THE END OF STROKE
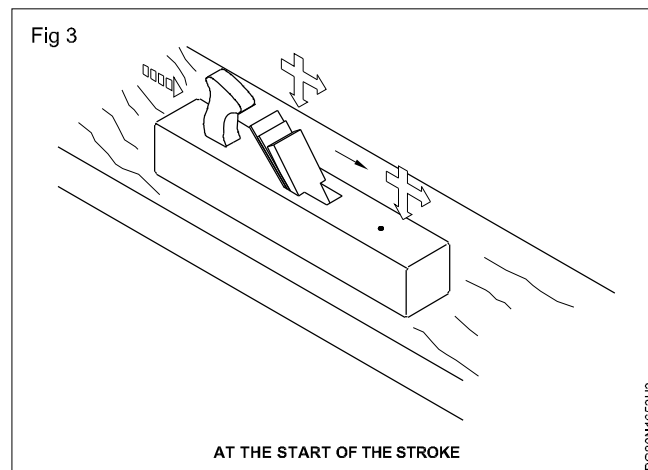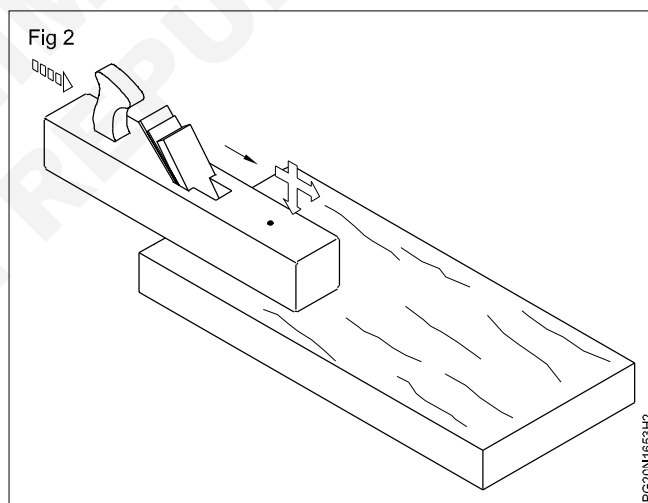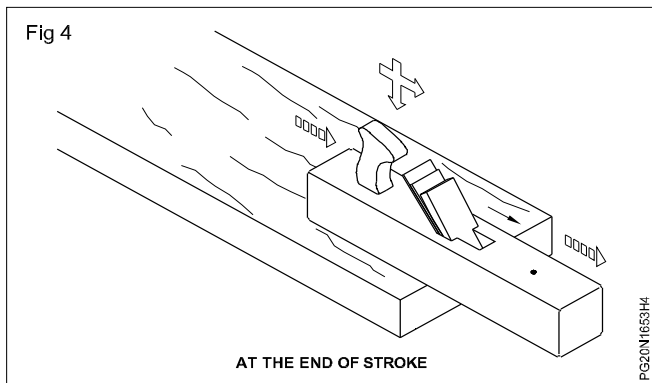
8 Check the flatness of the surface occasionally with try square or straight edge

9 Repeat the procedure till the surface becomes flat.

Use marking gauge for marking on job

Objective: At the end of this exercise you shall be able to
• **mark the job using marking gauge.**

Marking sequence

Pin piece

• Hold the pin piece horizontally in the vice.

• Mark 50mm from right end using scriber and trysquare. (Fig 1)

Fig 1
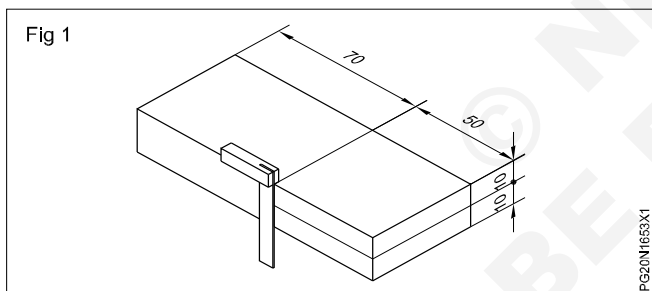
• Scribe with try square a line from 50mm line at the top to the centre line. (Fig 2)

Fig 2

SHOULDER LINE
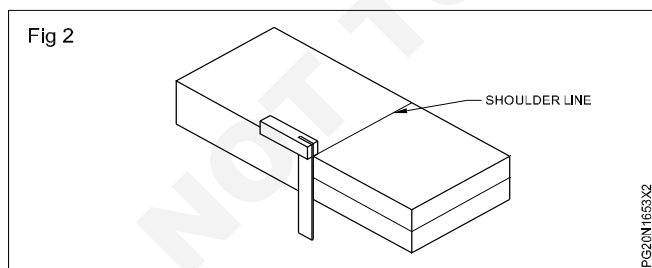
• Mark the centre line 10mm with marking gauge in the face edge right end, and in the back side end as shown in Fig 3.

Socket piece

• Hold the socket piece horizontally on the vice.

• Mark centre line on the face side with try square.

• From centre line measure and mark 25mm on both sides with try square. (Fig 4)

10 Clean the job and clean the bench and tools.

> **Precautions**
>
> 1 **Do not give pressure by right hand when you start the planing.**
>
> 2 **Do not put pressure by left hand at the end of the stroke.**

11 Try to plane the wood uniformly.

12 Do not plane continuously without checking the surface.

13 Do not take a big cut for finishing.

> **Keep the plane when not in use on its side and not on its cutting edge.**

Fig 3

CENTER LINE

Fig 4

• Set 10 mm in the marking gauge and holding the stock on face side, scribe a 10mm centre line on the face edge as in Fig 5.

Fig 5
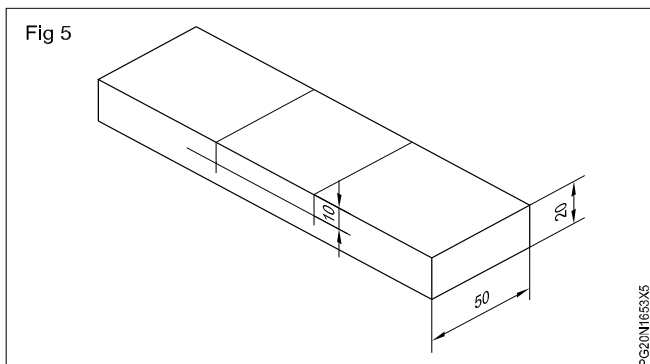
Practice on holding and sawing the different size of wood

Objectives: At the end of this exercise you shall be able to
• **select the wood**
• **hold the wood with work bench and mark the job**
• **sawing the different size of wood.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Work bench with vice	- 1 No.
• Carpenter pencil	- 1 No.	• Carpenter vice	- 1 No.
• Try & square	- 1 No.	**Materials**	
• Straight edge	- 1 No.	• Different size of wood	- as reqd.
• Saw sets	- 1 No.	• Banian cloth	- as reqd.
• Oil stone	- 1 No.	• Soap oil	- as reqd.
• Rip saw	- 1 No.	• Saw blade	- as reqd.

PROCEDURE

Marking and sawing the different size of wood

1 Select the different size of word.

2 Clean the wooden piece on all sides by sand stone.

3 Check whether the material is within required size and mark the job as per requirement.

4 Hold the job firmly and vertically in the carpenter's vice vertically leaving 150mm above the vice and parallel to jaws.

5 Set and sharp the saw. Grip the saw handle with right hand index finger along the side. (Fig 1)

6 Place the saw on marked line at an angle of 65°.

7 Hold the handle to form an angle of 65° with job.

8 Move the saw forward and backward with even pressure to form a saw cut using left hand thumb as a guide.

9 Saw to a depth of 400mm on marked line of the job.

10 Repeat the sawing for the other marked lines.

Fig 1

WOODEN PIECE

HANDLING THE SAW
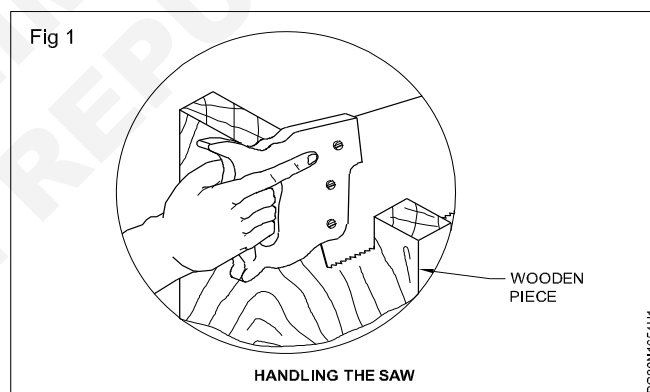
Skill Sequence

Clamp the job in carpenter's vice and cutting wood as per marking

Objectives: This shall help you to
• **clamp the job in carpenter's vice**
• **marking the ripping**
• **sawing along the grain on horse or trestles**
• **marking the oblique sawing**
• **mark the curve sawing.**

Clean the jaws of carpenter's bench vice, by cleaning wire brush making it free from saw dust.

Open the jaws of the carpenter vice by turning the handle anti-clock-vice direction.

Open the jaws wide enough to hold the job vertically.

Hold the job vertically 150 mm above the vice, and parallel to jaws. Close and tighten the jaws to hold job firmly in the vice. (Fig 1)

Do not over tighten the job.

Keep the waste wooden pieces on both the sides of the jaws while sawing.

SAWING ON CARPENTER BENCH VICE
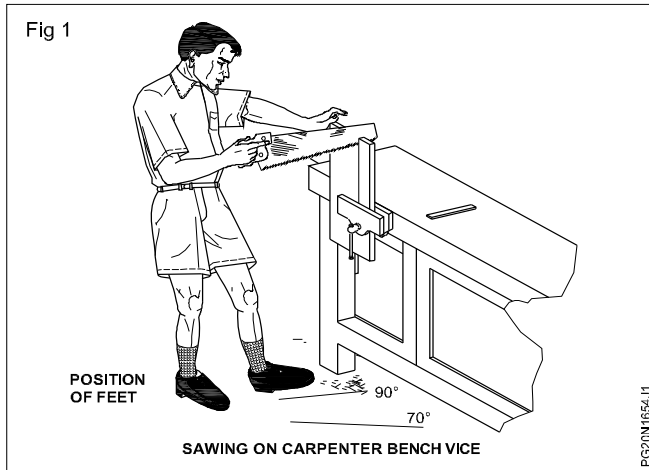
Marking

Place the job horizontally on the work bench.

Use the carpenter's pencil, folding rule and straight edge to mark 50mm from the left of the job.

Continue marking at intervals of 50mm to length of 400mm.

Repeat the procedure on end side, and back side keeping the try squares on the edge of the end side. Mark the line with straight edge. (Fig 2)

FOOT RULE

MATERIAL: HARD WOOD
200 x 25 x 450 - 1 No.
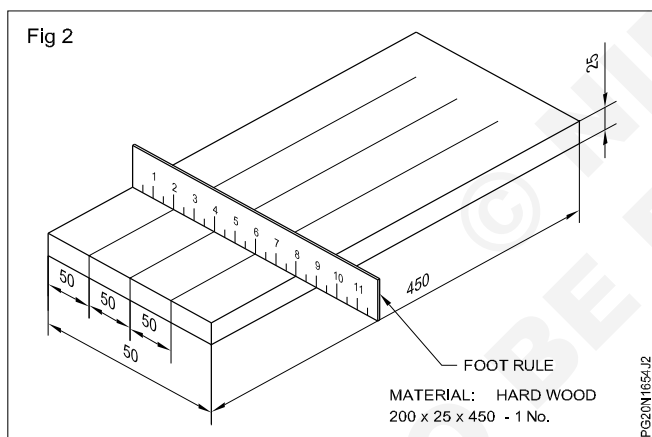
Mark the job as per drawing.

Place two trestle (saw horse each other as shown in (Fig 3).

Place the wooden piece on the trestles (Saw horse). Put your right knee on the wooden piece.

Keep your left leg steadily on the floor. (Fig 5)

The saw should be kept at an angle of 60° and use the full blade length. (Fig 3)

The saw should be held tightly with out shake.

Begin the sawing operation by keeping rip saw on marked lines of wooden piece.

Each piece measure 60 x 25 x 1000mm.

Care must be taken to see that saw does not cut the saw horses.
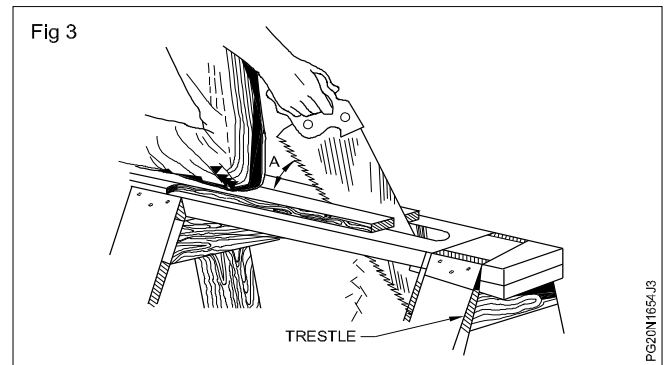
TRESTLE

Sawing across the grain on horse or trestles

Check the wooden piece size using folding rule

Mark the job by using try square, folding rule and pencil. (Fig 4)

MATERIAL: HARD WOOD
100x25x200
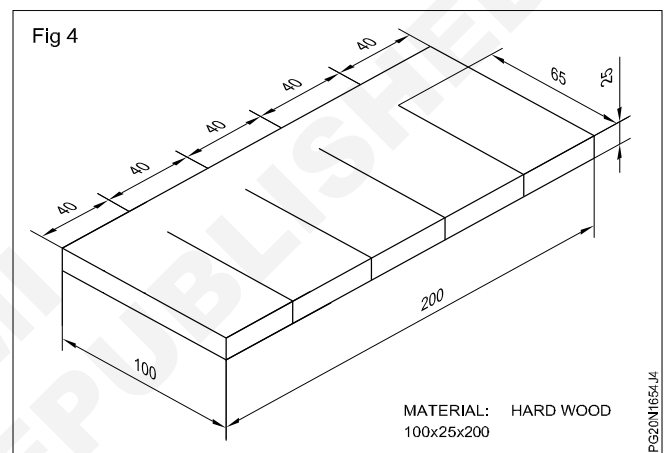
Take the cross-cut saw and sharpen it, and keep it ready for sawing.

Hold the job on the trestle firmly fixing with your knee (Fig 5)
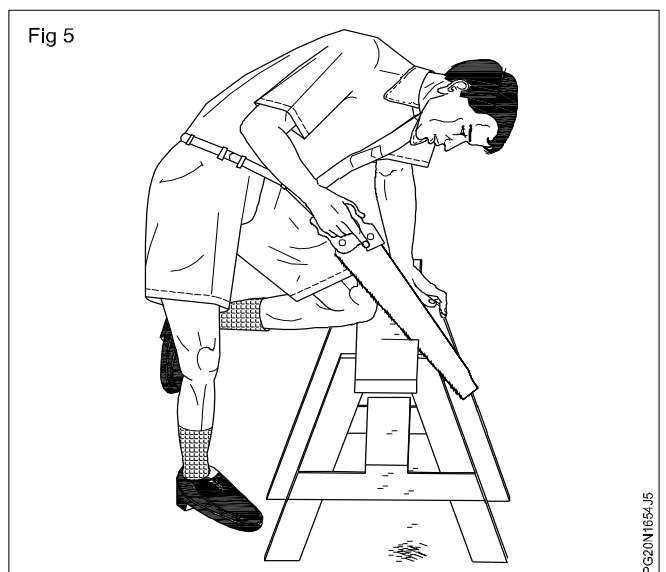
Hold the saw at an angle of 45° on the lines marked.

Start sawing the job by pushing and pulling back the saw with uniform pressure.

Use gentle strokes at the end to avoid tearing of wood.

When sawing across the grain the free hand to be brought across to hold the cut piece.

The saw can be tested for its vertical line with try square.

While finishing use mild strokes to avoid tearing of wood.

> **Note: The sighting eye should be directly above the saw.**
>
> **The saw, wrist, elbow and shoulder should all be in one line.**

Repeat the same procedure for other three lines.

Oblique sawing across the grain

Check the wooden piece for its size using folding rule.

Mark the job as per sketch with the bevel square, pencil and try square.

Mark the angles 60°, 45°, and 30° line across the grain.

Hold, the job in the carpenter's vice with 50mm side upwards.

Tighten the job.

Hold the Tenon saw on 60° line and start sawing with uniform pressure to a depth of 35mm.

Hold the Tenon saw on 45° line and start sawing to a depth of 40mm. (Fig 6)

Fig 6
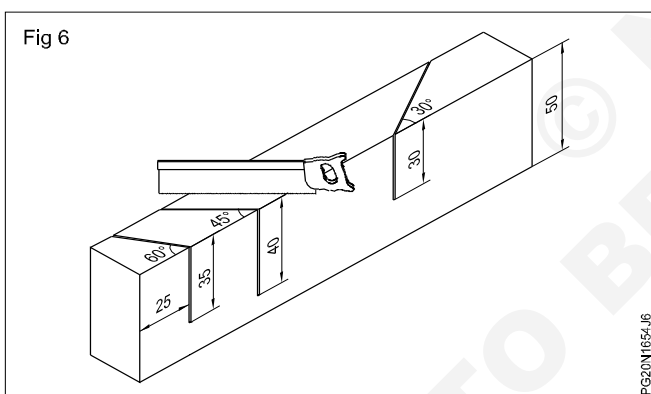
Hold the Tenon saw on 30° line and start sawing to a depth of 30mm. (Fig 7)

Fig 7
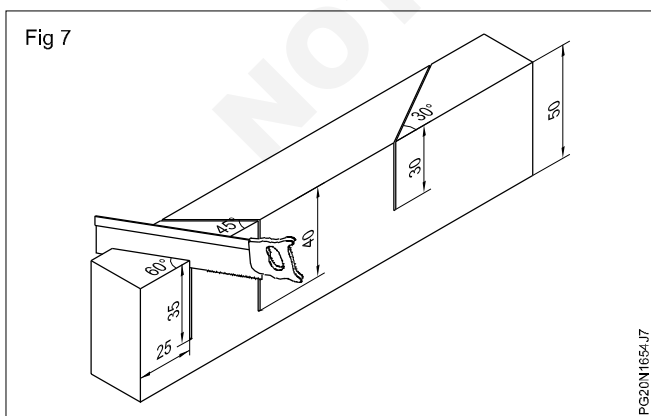
Hold the bevel square close to the face side and mark 60° at a distance of 25mm from left.

Hold the try square close on the face side and mark 90°, line from the 60° angle mark at a distance, 25mm from left and to the depth of 35mm.

Repeat the same procedure for 45° and 30° angles also.

Curving sawing

Check the job for flatness and squareness with try square.

Mark the lines on both sides of the job with the help of wing compass, folding rule and support piece.

Hold the job on work bench with the face side of 150 mm facing upwards by using `G' clamp.

Set the saw on marked line.

Start sawing the semicircle from the face edge, half portion from right and half from left and complete it using compass saw. (Fig 8)

Fig 8

SAWING WITH COMPASS SAW
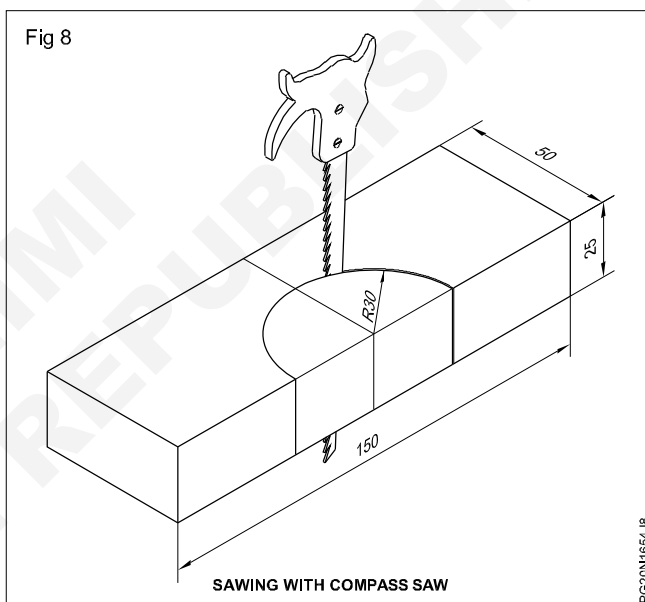
Hold the job in the position of corner B is upwards.

Set the compass saw on marked lines of R 30 and start sawing from any of the face edge and complete it carefully.

Hold the job so that the corner C of radius 25mm is upwards. keep the saw on the marked lines.

Start sawing slowly with the compass saw and complete it.

Place the job horizontally free from dust and dirt.

Measure the centre point length wise.

Place the wing compass on the centre (A) and draw the semicircle of radius 30mm on both sides with the help of support piece.

Draw perpendicular line from point D and F to join DE and FG.

Now DE = FG = 25mm (thickness). (Fig 9)

Fig 9
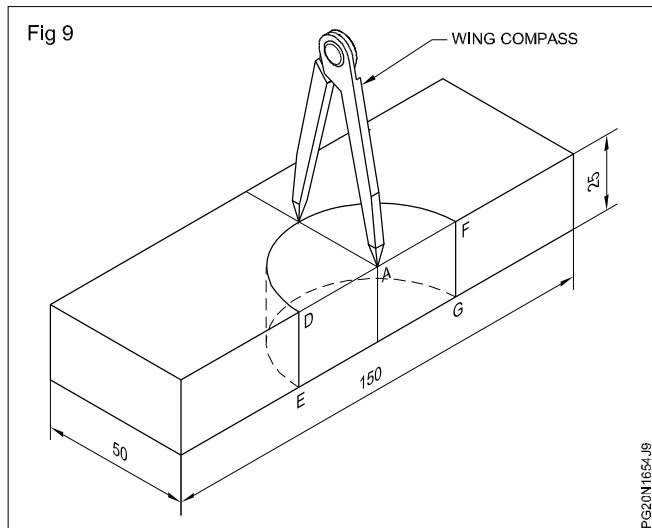
Keep the job as it is. Place the wing compass on the point B and draw the arcs of 25mm on both sides joining P and K using the guide piece. (Fig 10)

Draw and complete the corner circle, on the edge side and back side.

Draw perpendicular KH and PJ.

KH = PJ = 25mm.

Place the wing compass on the point C and draw the arcs of 30mm on both sides joining X and Z (Fig 11). Draw perpendicular lines XY and ZN.

Fig 10

Fig 11
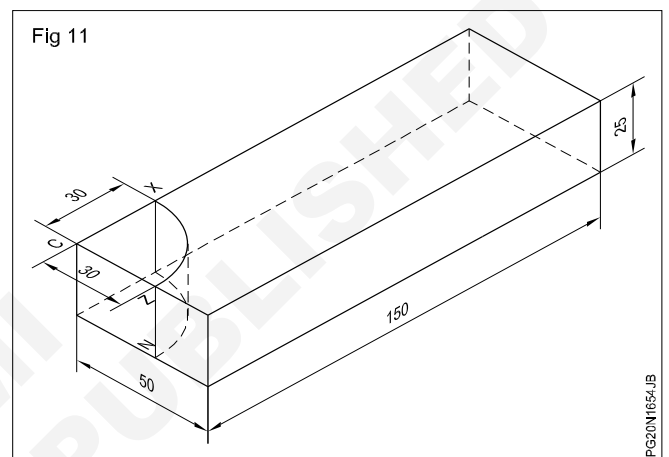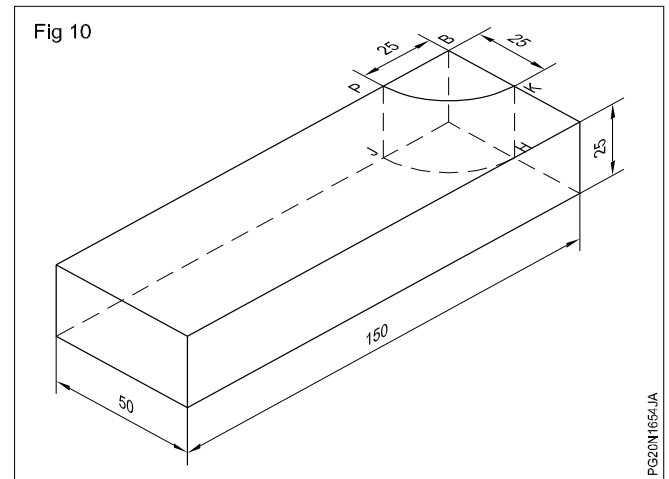
Practice on teeth setting and sharpening of different saw

Objectives: At the end of this exercise you shall be able to
• **teeth setting the saw**
• **sharpening the saw teeth.**

Requirements

Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Cotton waste	- as reqd.
• Saw blade	- 1 No.	• Soap oil	- as reqd.
Equipments/Machineries		• Brush	- as reqd.
• Carpenter vice clamp	- 1 No.		
• Work bench	- 1 No.		

PROCEDURE

TASK 1: **Setting the saw and sharpening the saw teeth in sequence**

1 Topping a saw (Fig 1)

• Fix the saw in the saw vice if required by keeping a waste wooden piece on both the sides of jaws.

• Set the flat in the grooved wooden block to level all the teeth by running a fine flat file, along the length of the saw teeth.

• The file must be kept flat and passed lightly, over the tops of the teeth and levelled.

Fig 1
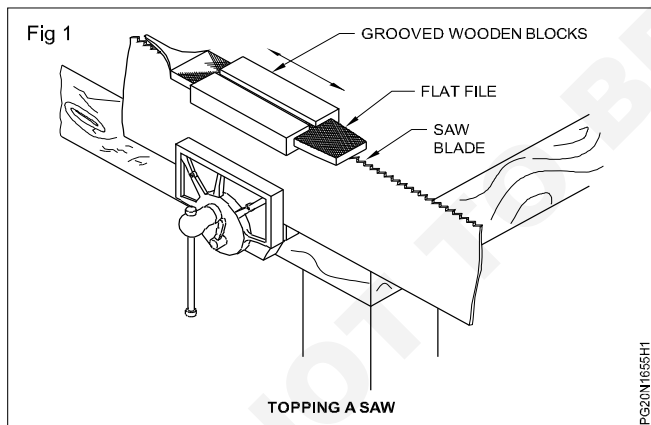
2 Re - Shaping (Fig 2)

• File all the teeth to their correct shape and size with slim taper triangular saw file,

• Press firmly against each gullet, and held at right angles across the blade. Make all the teeth the same shape, the front edge being 70° to 80° to the line of the teeth.

• Maintain the same grip throughout filing.

• File each gullet until teeth of the finished side hits a point and half the flat on the next teeth is filed away.

Fig 2
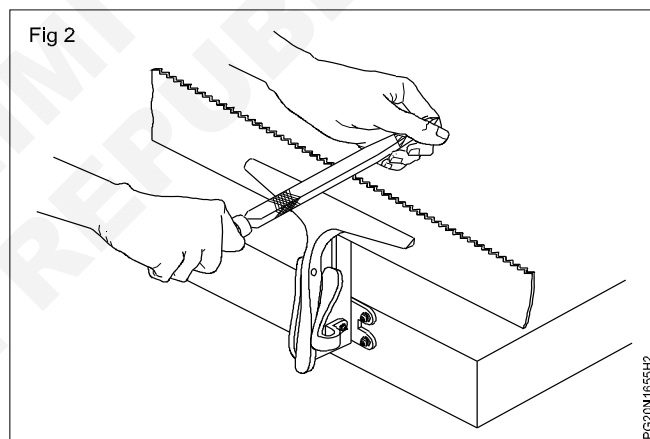
• At the end of the reshaping process, the teeth should all be in one and the same level and shape.

Saw setting (Fig 3)

Fig 3
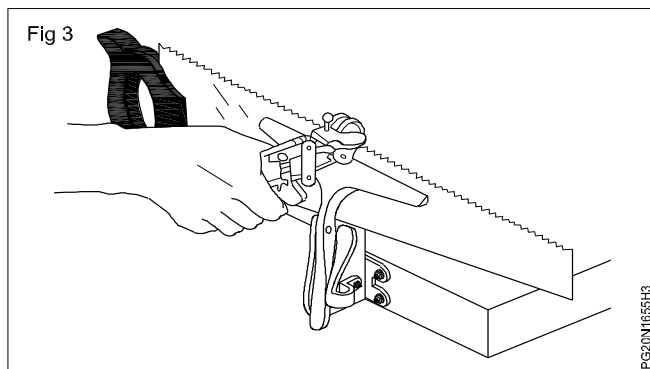
• When a saw is being set the blade should be fastened into the saw clamp.

• When one row of the teeth has been set, the saw is reversed in the clamp and then the other row is bent.

4 Setting (Fig 4)

Fig 4
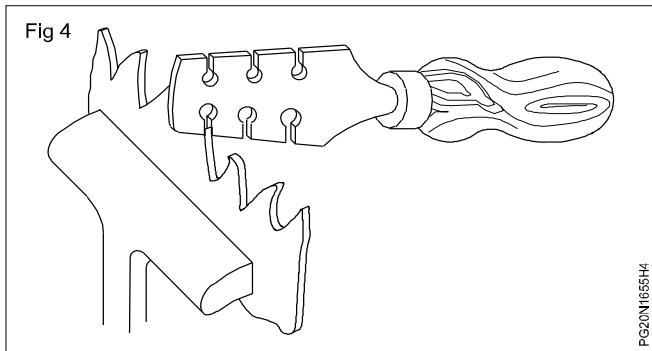
- The notched saw setting

- Notched setting operation consists of bending over the teeth alternately to one side and then to the other.

- The notched saw set demands more practice than the pilers.

5 Piler saw set (Fig 5)

Fig 5
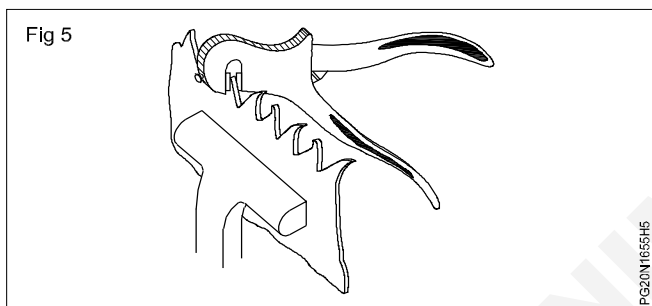
- The pilers can be adjusted to the size of the teeth.

- Bend every teeth about two-thirds of its length, and to the same degree side way.

- Total thickness of saw set should be 1½ times the saw thickness.

- Thickness of the blade. (Fig 6)

- Total width of the set blade.

Fig 6

TOTAL WIDTH OF THE SET BLADE

THICKNESS OF THE BLADE
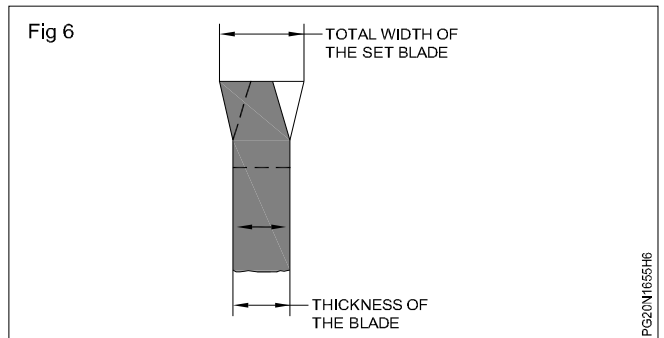
6 Sharpening (Fig 7)

Fig 7
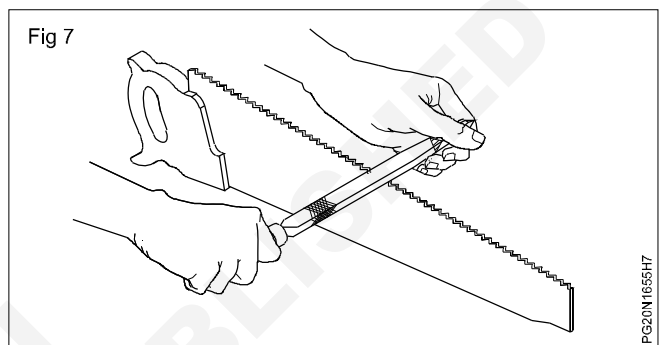
- Select a tapered triangular saw file with slightly round comer.

- Start sharpening at the point of the saw.

- Sharp the tooth of the saw at 30° to 45°.

- Hold the file at 90° both vertically and horizontally while filing the tooth of the saw.

- Remove the burr produced by the file by passing an oil stone lightly along the side of the teeth.

- Check the saw teeth.

— — — — — — — —

Practice on tennening half cut on wooden border

Objective: At the end of this exercise you shall be able to
• **make a half cut on wooden border.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Hand saw	- 1 No.
• Firmer chisel	- 1 No.
• Steel rule	- 1 No.
• Marking pencil	- 1 No.

Equipments/Machineries

• Carpenter table vice	- 1 No.

• Carpenter table	- 1 No.
• Marking pencil	- 1 No.

Materials

• Wood	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.
• Wooden marker	- as reqd.

PROCEDURE

TASK 1: Tenning half cut on wooden border

1 Check the wooden pieces for its size

2 Plane it to size of 48 × 48 × 250mm = 2 No's.

3 Check the flatness and squareness of face side and face edge of the piece.

4 Hold the pieces in carpenters. vice with side and face edge of the both pieces.

5 Holding the stock of marking gauge against the face edge of the job, mark 24 mm line. (Fig 1)

6 Keeping the stock of try square against face side mark 200mm. (Fig 1)

7 Square the marked lines on the edges of the job.

8 Hold the job with face edge upwards in the vice. (Fig 2)

9 Make a saw kerf first close to 24 mm line and 75 mm line from left using tenon saw. (Fig 2)

Fig 2
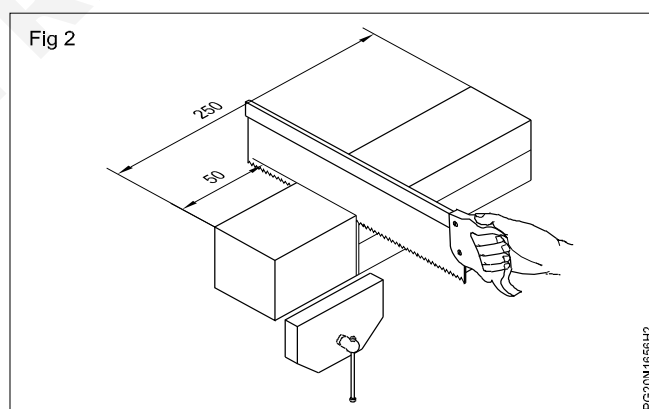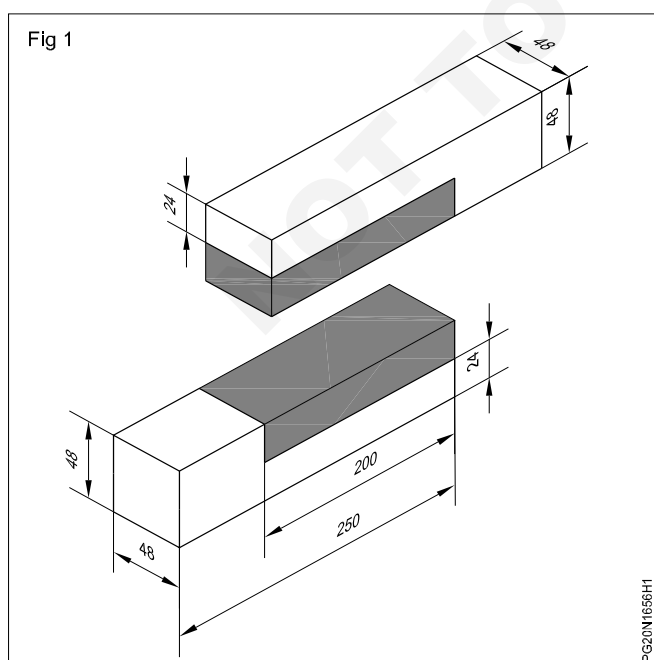
10 Saw upto a depth of 24 mm.

11 Hold the job vertically and cut off the shaded portion using Hand saw/Tenon saw as shown in Fig 3.

12 Clean the surface of the saw-cut portion using firmer chisel.

13 Repeat the same procedure for other piece.

14 Finish the edge using firmer chisel. (Fig 4)

15 Keep the piece on the work bench.

16 Mark the position of drill hole on the job using hand drill.

Fig 1

Fig 3
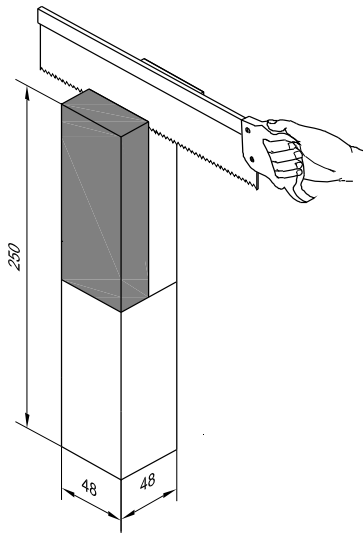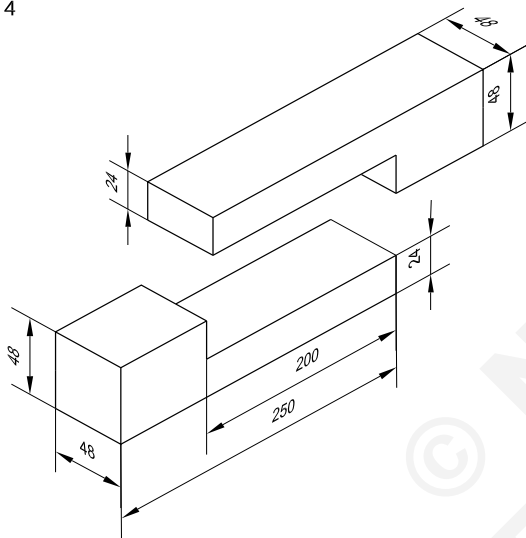
Fig 4

17 Drill 3mm holes on the marked lines with a hand drill and counter sink. (Fig 5)
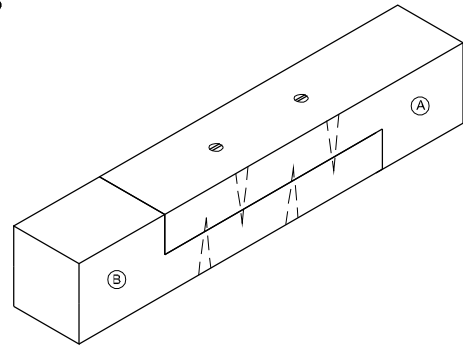
Fig 5

18 Repeat the same procedure on the other piece also.

19 Apply glue on half lap and shoulder surfaces of the blocks evenly with a brush.

20 Keep A block over B block and move it front and back for the uniform spread for the glue. (Fig 5)

21 Clamp it if necessary using 'G' clamp.

22 Fix 40x8mm screws drive it to a depth 40mm on both top and bottom surface.

23 Similarly drive the other screw in the job.

24 Allow the glue to dry. Remove the clamp.

25 Finish the surfaces of the job using smoothing plane.

26 Check the squareness and flatness of the job. (Fig 5)

— — — — — — — —

Practice on setting of planers and sharpening on plane blade

Objectives: At the end of this exercise you shall be able to
• **grinding the plane blade**
• **sharpening the plane blade.**

Requirements		
Tools/Instruments		**Materials**

• Trainee's tool kit	- 1 No.	• Cotton waste	- as reqd.
• Plane blade	- 1 No.	• Soap oil	- as reqd.
• Oil stone	- 1 No.		

Equipments/Machineries

• Grinder	- 1 No.

PROCEDURE

TASK 1: **Grinding the plane blade**

1 Select the jack plane.

2 Remove cutting iron, cap iron and the wedge from the jack plane by slightly striking by hammer. (Fig 1)

3 Select the grinding wheel.

RELEASING THE PLANE
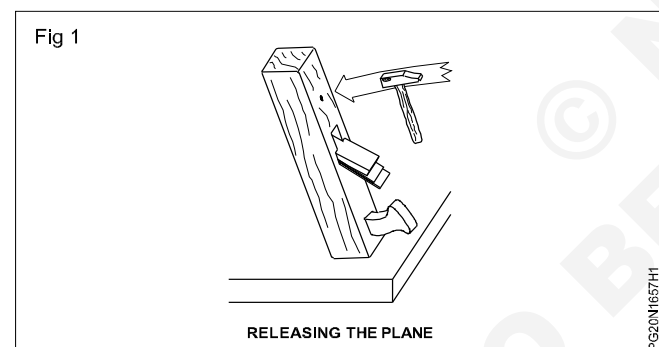
4 Check the grinding wheel for cracks.

5 Ensure that there is enough coolant in the container. Lower the protecting shield near the tool rest.

6 Adjust the tool rest 2mm closer to the wheel, if necessary.

7 Switch on the grinder machine.

8 Hold the cutting bevel across of the cutting iron must at an angle of 20° to 25°. (Fig 2)

GRINDSTONE OR EMERY WHEEL
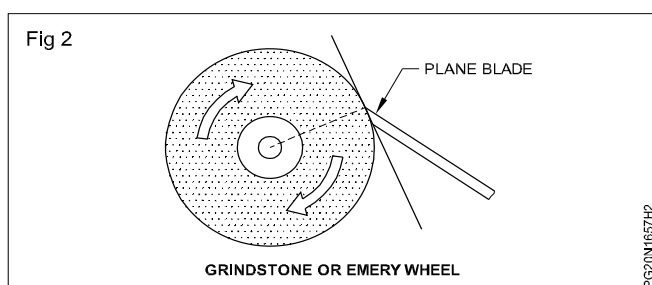
9 Rest the body of the cutting iron on the tool rest allow the point to touch the wheel.

10 Keep the pressure as minimum as possible to prevent excessive heating of the cutting bevel.

11 Finish the grinding of cutting iron with oil stone

12 Place the blade until the cutting edge is parallel on the stone. (Fig 3)

CUTTING IRON SHARPENING
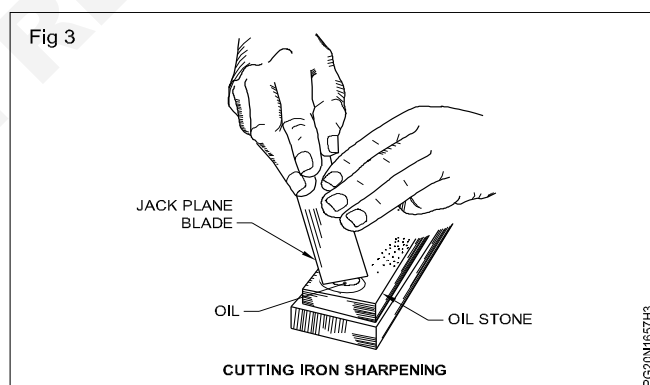
13 Move the blade backward and forward on width of the stone until a burr is formed on the flat side of the blade.

14 Turn the blade over and hold it perfectly flat on the stone. Rub from side to side until burr has disappeared to get fine cutting edge. (Fig 4)
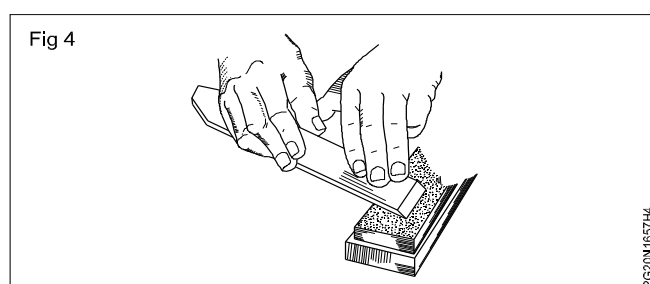
15 Reset the cap iron, cutting iron and the wedge of jack plane. (Fig 5)

16 Set the cap iron and cutting iron keeping a gap of 1mm.

17 Dip the cutting iron in a coolant frequently.

> **Avoid blue colour from cutting edge I.C annealing effect**

Fig 5
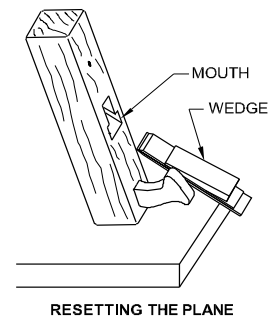
RESETTING THE PLANE

Skill sequence

Setting of planner blade

Objective: This shall help you to
• **sharpening of cutting iron with oil stone**
• **set the planner blade.**

Sharpening of a plane blade is necessary to produce a keen cutting edge for good surface finish, and perfect planing with minimum effort.

Sharpening and honing : The process of sharpening is carried out on oilstone by rubbing the blade with its bevel down, maintaining a constant and correct angle, 25° to 30°.

This rubbing is continued until a burr or wire edge is produced.

The burr is removed by rubbing the back of the flat face of the plane blade on the oilstone, keeping its bevel up.

During sharpening, oil is used to minimise the heat caused due to friction and to float off the metal particles from the pores of the oilstone so as to prevent clogging of the oilstone.

Setting the planer blades/cutters

Place the blade in the slot of the cutter head. (Fig 1)

Fig 1

BLADE WITH 1mm PROJECTION

CUTTER HEAD SLOT

USING ONLY TWO CUTTER
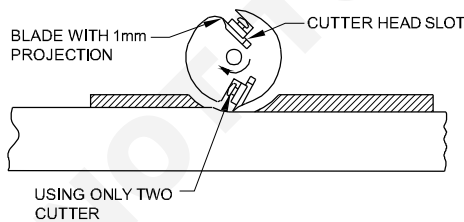
Set the blade with 3 mm projection outside from the cutter head and parallel to the cutter head using cutter lock bar.

Check the projection of the cutter.

Tight the blade on the cutter head with bolt using allen spanner. (Fig 2)

Test the projection of the blade edges by rotating the cutter head.

> **Precautions**
> • **Keep the lead behind the plane**
> • **Do not force the plane to cut rapidly**

Generally two cutting blades are bolted to a cutting block.

• Moonted on the body of the plane.

• Depth of cut up to 6mm.

Fig 2

CORRECT TABLE ADJUSTMENT

TESTING THE PROJECTION OF THE BLADE

— — — — — — — —
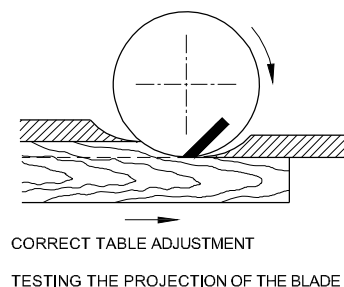
Practice to plane on different wooden surface

Objectives: At the end of this exercise you shall be able to
• **set the plane for planing**
• **set the jack plane blade**
• **plane wooden piece to face side and face edge**
• **care and use of plane.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Plane	- 1 No.

Equipments/Machineries

• Carpenter table	- 1 No.
• Table clamp	- 1 No.

Materials

• Cotton waste	- as reqd.
• Soap oil	- as reqd.
• Wood	- as reqd.

PROCEDURE

TASK 1: **Plane the face side, face edge**

1 Set the jack plane for planing.

2 Place the job on the work bench or hold the job on the carpenter's vice with face side up.

3 Keep the packing piece between the job and the vice.

4 Keep the job horizontally flat in the vice.

5 Start planing the face side with jack plane.

6 Check its flatness with try square.

7 Mark the face side on the job using pencil.

8 Place the face edge up and hold it in the vice with packing piece.

9 Plane it along the face edge.

10 Check its squareness and flatness of the job.

11 Mark the face edge on the job using pencil.

12 Gauge to the required width of 100mm on both sides using the marking gauge from the face edge. Plane down the gauge lines. Test for straightness and squareness. (Fig 1)

13 Set the marking gauge 21mm for the required thickness.

14 Gauge to the required thickness of 21mm from the face side using marking gauge on both the edges. Plane down the gauge lines. Test for flatness. (Fig 2)

Note: While planing keep the left foot in forward position and parallel to the work bench. Right foot obliquely under the work bench. Right fore arm should be in line with the plane.

Left hand is held on the front part of the plane. Planing should be in the direction of grain.

Fig 1

Fig 2
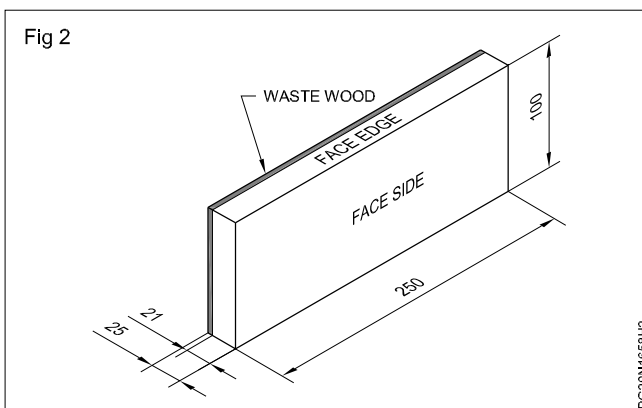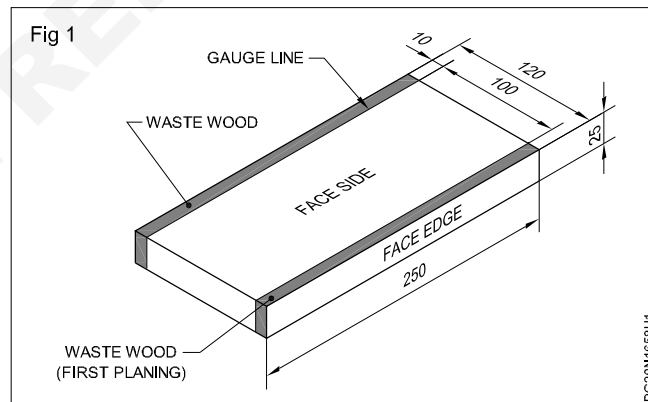
Skill Sequence

Plane setting on the wooden surface

Objective: This shall help you to
• **setting the job and plane.**

Place the job against bench stop.

Hold the plane with the right hand, keeping the index finger on the side.

Place the palm of left hand on the toe of the plane thumb and fingers on the side. (Fig 1)

Fig 1

Stand near the bench with left foot forward at 70° with the neck and the right foot at a convenient distance.

Place the plane straight on the job and give forward stokes (Fig 2)
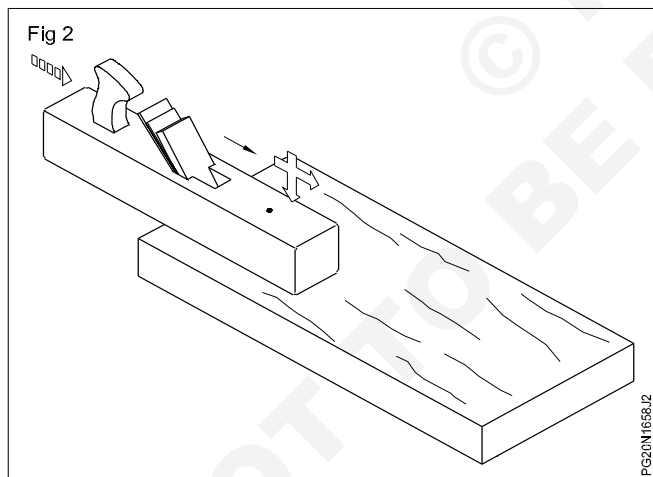
Fig 2

At the begining of stroke exert more pressure with left hand as the stroke proceeds, gradually the pressure by the left hand is reduced, more pressure comes to the right hand. The main object is to keep the plane always horizontal. (Figs 3 & 4)

Release the pressure on the back stroke and merely draw the plane to the first position.

Check the flatness of the surface occasionally with try square or straight edge

Fig 3

AT THE START OF THE STROKE

Fig 4
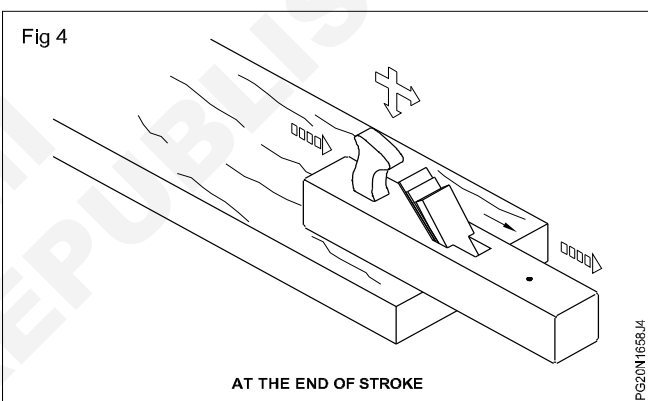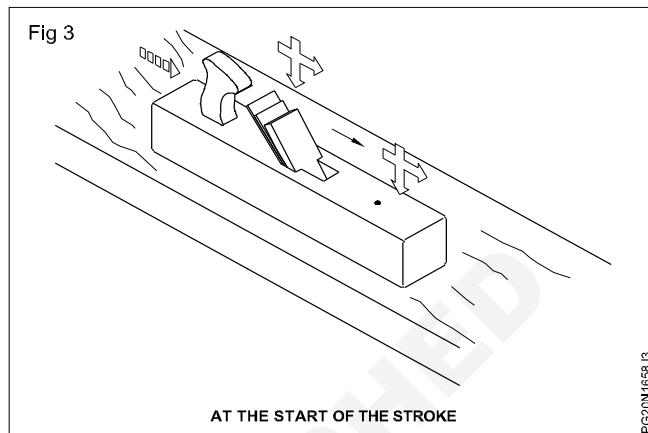
AT THE END OF STROKE

Repeat the procedure till the surface becomes flat.

Clean the job and clean the bench and tools.

> **Precautions**
>
> 1 **Do not give pressure by right hand when you start the planing.**
>
> 2 **Do not put pressure by left hand at the end of the stroke.**

Try to plane the wood uniformly.

Do not plane continuously without checking the surface.

Do not take a big cut for finishing.

> **Keep the plane when not in use on its side and not on its cutting edge.**

A jack plane is used to plane the wood to the required wooden shape and size.

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Practice to chiselling slots on thick wood

Objectives: At the end of this exercise you shall be able to
• **chiselling slots on thick wood**
• **identify the different types of chisel**
• **chiselling across the grain**
• **mark the piece**
• **chiselling across the grain and along the grain.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Work bench	- 1 No.
• Planes	- 1 No.	• Grinding machine	- 1 No.
• Carpenter chisel	- 1 No.	• Oil can	- 1 No.
• Try square	- 1 No.	**Materials**	
• Marking gauge	- 1 No.		
Equipments/Machineries		• Wood	- as reqd.
		• Cotton waste	- as reqd.
• Carpenter vice	- 1 No.	• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Identify the chisels and uses (Fig 1)**

Instructor shall display and demonstrate the tools and explain the different types of chisels.

1 Trainees will note down all the displayed tools names.
2 Record it in table 1.
3 Get it checked by the instructor.

Fig 1
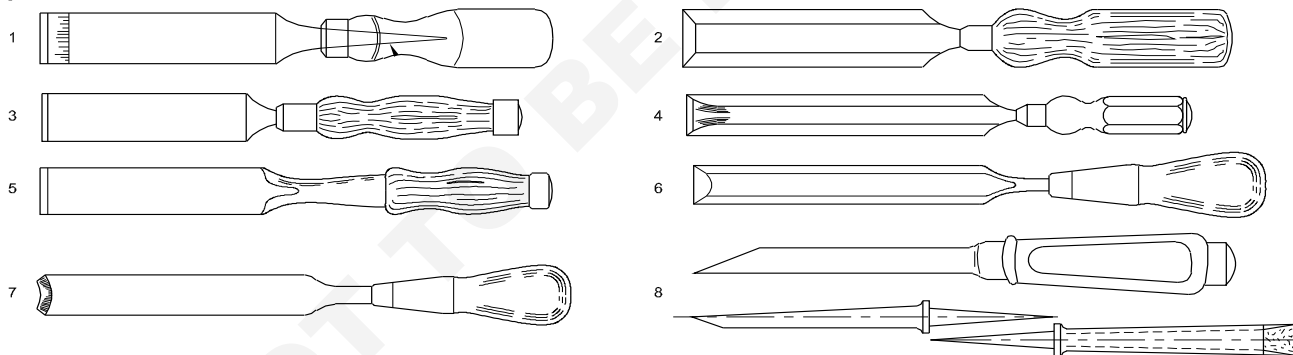
Table 1

Fig. No	Name of the chisel	Uses
1		
2		
3		
4		
5		
6		
7		
8		

TASK 2: **Chiselling slot on thick wood**

1 Grind and sharpen the firmer chisel.

2 Plane the job to the required size of 50x22x150mm.

3 Hold the job on the vice and check it wiht try square for its flatness.

4 With scriber and try square mark out lines at a distance 50mm and 100 from left side.

5 Hold the tenon saw on the line marked and saw it to a 50mm and 100mm from left side.

6 Repeat the procedure for the other side and saw it to a depth of 11mm.

7 Hold the firmer chisel in your right hand on the handle and guide the blade with left hand.

8 Control the movement of the chisel with thumb and fore finger.

9 Push it on the space to be cut.

10 Start a chiselling away from you the bevel of the chisel turned upwards.

11 Chisel in an inclined direction up to middle of the portion. (Fig 1)

Fig 1
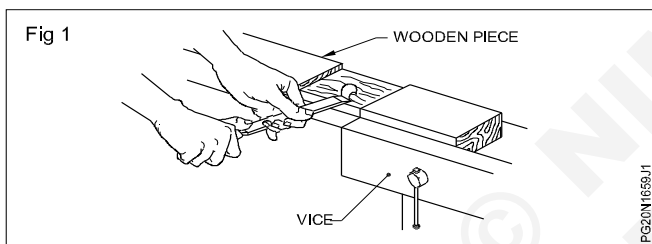
Safety precaution

• **Never hold your hand or finger before the cutting edge.**

• **Never use a chisel without a proper handle.**

12 Reverse the work piece so that the back side comes to front and hold in the vice.

13 Chisel the waste material away from you up to middle portion.

14 Repeat the chiselling as shown in Fig 2.

Fig 2
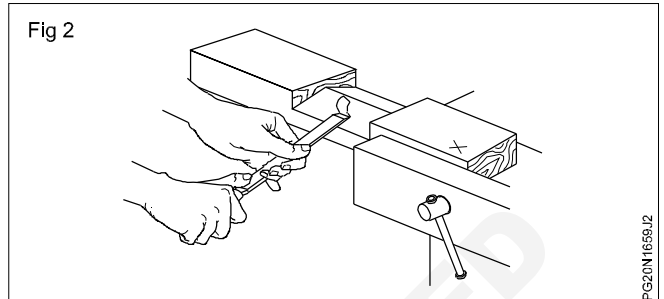
15 Start chiselling slowly to make flat portion.

16 Repeat the procedure for the other side. Saw it to a depth of 10mm.

17 Smooth the bottom and side walls with firmer chisels. (Fig 3)

18 Finish the job.

Fig 3
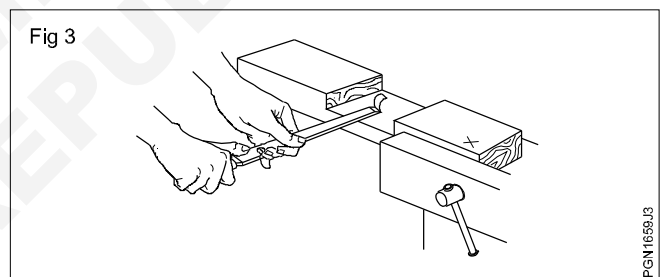
TASK 3: **Mark the job for chiselling across the grain**

Marking sequence

1 Hold the job 160x60x25 on the bench or vice.

2 Plane it to size 160x50x22.

3 With try square and steel rule mark 5mm, 105mm and 155mm from one end of the job. (Fig 1)

Fig 1
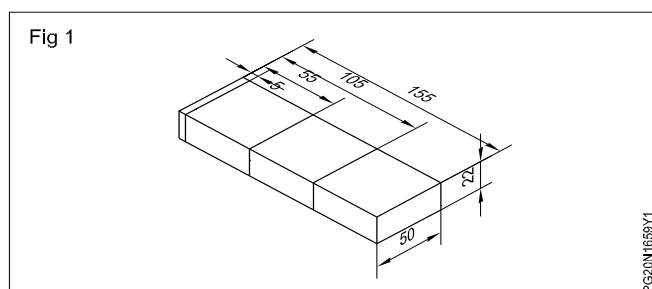
4 Hold the stock of the try square closely in contact with face edge and mark lines with scriber and wooden rule at the distance of 5mm, 55mm, 105mm & 155mm on all four sides. (Fig 2)

Fig 2
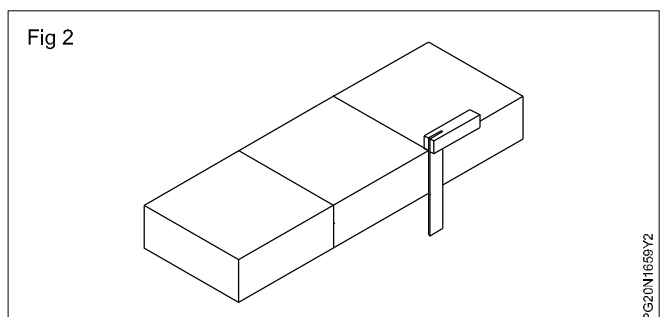
5 Set the marking gauge to 11mm and scribe on the middle of face edge and its opposite side. (Fig 3)
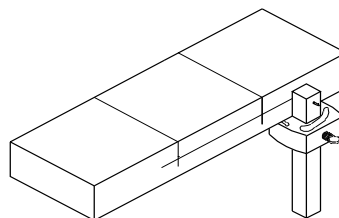
Fig 3

— — — — — — — — —

TASK 4: Chiselling across the grain and along the grain

1 Check the raw material for its size

2 Plane the job to the required size of 50x22x290mm

3 Mark the measurement on the job as per the drawing. (Fig 1)

Fig 1
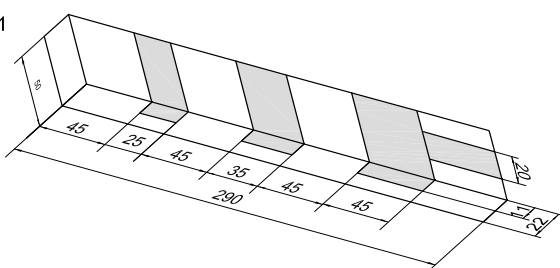
4 Hold the job in the vice.

5 Cut the shoulder line down to the centre line (Depth 11mm) with ten on saw.

6 Keep the tenon saw at 90° to ensure cutting at right angles.

7 Cut on waste side of the shoulder line. (Fig 2)

Fig 2
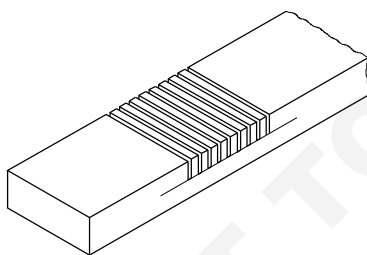
8 With the tenon saw make several saw cuts in between the shoulder lines almost to the centre line.

9 Place the job flat on the work bench.

10 With the help of firmer chisel and mallet, remove the surplus material on both sides preventing splitting of wood.

11 Chisel out excess wood little by little starting from the top and bottom. (Fig 3)

11 Smooth the bottom (Trench) portion with firmer chisel. (Fig 4)

12 Repeat it for the other trenches also.

Fig 3
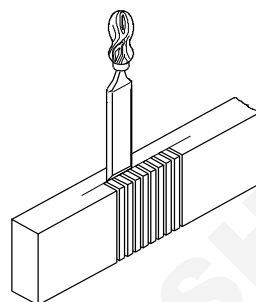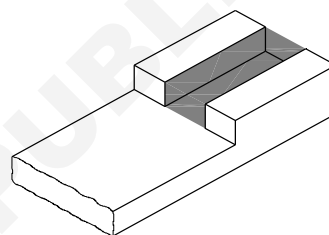
Fig 4

Chiselling along the grain

Use a 20mm firmer chisel to chisel out the waste wood.

13 Make several saw cuts with Tenon saw on the lines marked. (Fig 4)

14 Chisel cut waste material in middle portion.

15 Hold the firmer chisel on the shoulder line and slowly tap with mallet.

16 Chisel cut the excess wood in the middle slowly by striking from one edge to the other.

17 Smooth the bottom (Trench) with firmer chisel and finish it. (Fig 5)
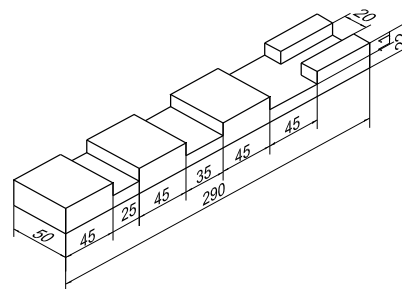
Fig 5

— — — — — — — — —

Practice to drilling on wood with different drilling tool

Objective: At the end of this exercise you shall be able to
• **drilling on wood with gilmlet, hand drill, portable electrical drilling machine.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.

Equipments/Machineries

• Hand drilling machine	- 1 No.
• Electrical drilling machine	- 1 No.
• Gilmlet	- 1 No.

Materials

• Wood	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Drilling on wood with gilmlet**

1   Check the wooden piece size using folding rule.

2   Mark the locating drilling holes by using folding rule, marking gauge, try square as per the given measurement. (Fig 1)

Fig 1
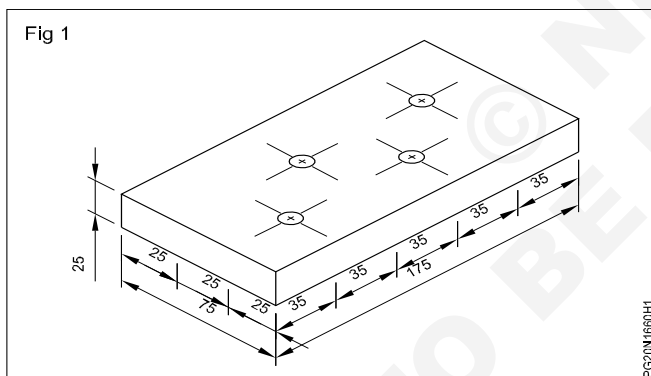
3   Hold the wooden work piece in vice firmly. (Fig 2)

Fig 2
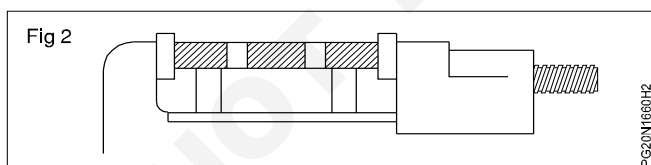
4   Set the gilmlet on locating the position and rotate in clockwise direction to make the small holes. (Fig 3)

Fig 3
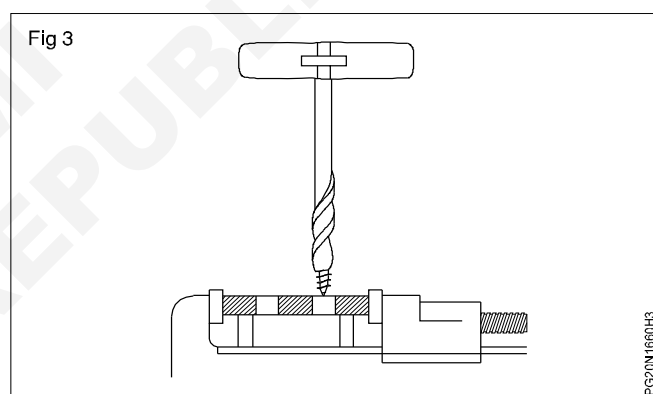
5   Similarly repeat the above process to make the small holes as marking on the wood.

6   Use the gilmlet for boring small holes for screws and nails apply on the wood joints.

Care should be take not to damage the threaded point of gilmlet.

Note: Instructor should be display and demonstrate the gilmlet application on wood for small holes making on marking points.

— — — — — — — —

TASK 2: **Drilling on wood with portable electrical drilling machine**

Instructor shall display and demonstrate the portable electrical drill machine.

1   Check the size of the wooden piece using folding rule.

2   Mark to locate the centres for the hole as per drawing using try square and folding rule. (Fig 1)

3   Centre punch mark the located drill centres

4   Mount the job in a bench vice Fig 2.

5   Select the drill bit and fix on drill chuck with chuck key.

6   Place the drill bit on punched mark of the wooden piece.

Fig 1

Fig 2
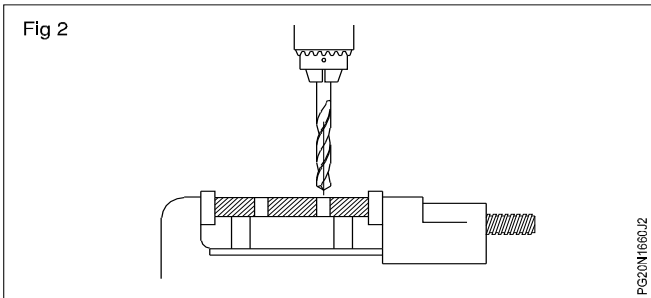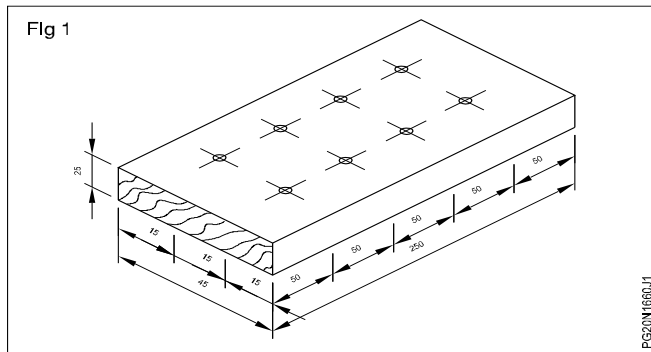
7   Switch on the drilling machine

8   Drill the through hole. (Fig 3)

Fig 3
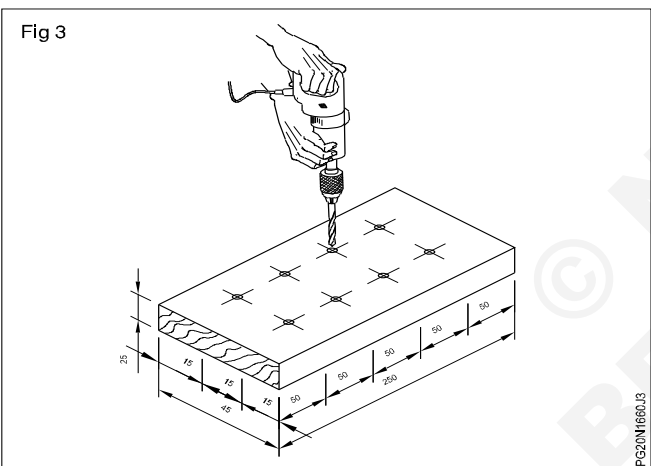
9   Give the pressure evenly while drilling to get full depth.

10 Similarly repeat the same process to drill other holes.

- - - - - - - -

TASK 3: **Set the portable drilling machine**

1   Drilling hole on wood by hand drilling machines. (Fig 1)

2   Check the wooden piece size by using measuring tool.

3   Plane the wood piece and check the flatness of wooden piece by straight edge.

4   Mark the drilling points on wooden piece carpenter marking pencil.

5   Hold the wood piece on carpenter vice firmly.

6   Prepare the hand drilling machine for drilling a small diameter holes upto 6mm on wooden piece.

7   Set the drill on hole marking point of wooden piece.

8   Rotate the hand drill slowly tell yet the desired size and depth of the hole.

Make sure the drill or bit is secured in the chuck. Remove chuck key.
Allow the motor to attain full speed before commencing to drill.

Drilling

11 Select a drill bit as per the size. (Fig 4)

Fig 4
SELECTION OF DRILL BIT
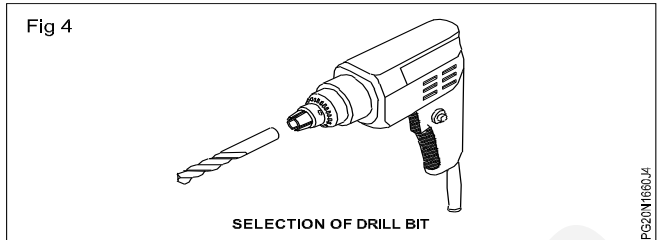
12 Insert the key into chuck hole and rotate anti-clockwise to open the jaws. (Fig 5)

Fig 5
INSERT THE KEY INTO CHUCK
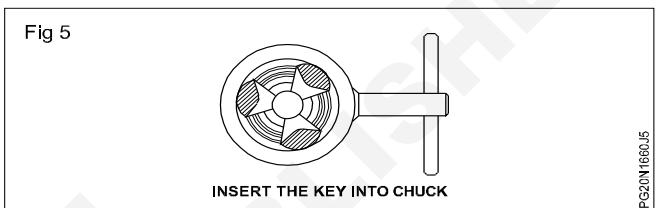
13 Tighten the jaws firmly by rotating the key handle clockwise. (Fig 6)

14 Place the drill bit on marked point of the job.

15 Hold the drilling machine vertically to the job.

16 Switch on the machine and drill a hole on marked point of the job.

17 Give the pressure evenly while drilling to get full depth.

Fig 6
TIGHTENING JAWS FIRMLY

Fig 1

Identify and check different types of pipes

Objectives: At the end of this exercise you shall be able to
• **identify the different types of pipe**
• **identify the standard pipe fittings.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Different size pipes	- as reqd.
• Pipe manual	- 1 No.	• Cotton waste	- as reqd.
• Measuring taps	- 1 No.	• Soap oil	- as reqd.
• Pipe chart	- 1 No.	• Pipe fittings	- as reqd.
Equipments/Machineries		• Hacksaw blade	- as reqd.
• Pipe cutter	- 1 No.		

PROCEDURE

TASK 1: **Identify the common types of pipes according to material (Fig 1)**

1 Instructor should be laid out the different types of pipe on the ground floor shop.

2 Ask the trainee's to identify the pipes as per pipe chart.

3 Identify the galvanized iron pipes.

4 Identify the mild steel pipes.

5 Identify the C.I. soil pipes.

6 Identify the copper pipes.

7 Identify the aluminium pipes.

8 Identify the brass pipes.

9 Identify the PVC pipes.

10 Identify the rubber pipes.

11 Identify the plastic pipes.

12 Identify the stone ware pipes.

13 Identify the UPVC pipes.

14 Identify the concrete pipes.

Fig 1

concrete pipes   stone ware pipes   pvc pipes

— — — — — — — —

TASK 2: **Check the size of pipes**

1 Refer the pipe manufactures pipe specifications

2 Use the measuring tape or any other measuring instrument to measure the dia, thickness length of the pipes.

— — — — — — — —

TASK 3: **Identify the different types of standard pipe fittings**

1 Instructor should be layout the standard pipe fittings on the work bench and ask the trainee's to identify the fittings.

2 Identify the coupling, socket and reducer. (Fig 1)

Fig 1

(a) COUPLING

(b) ORDINARY SOCKET
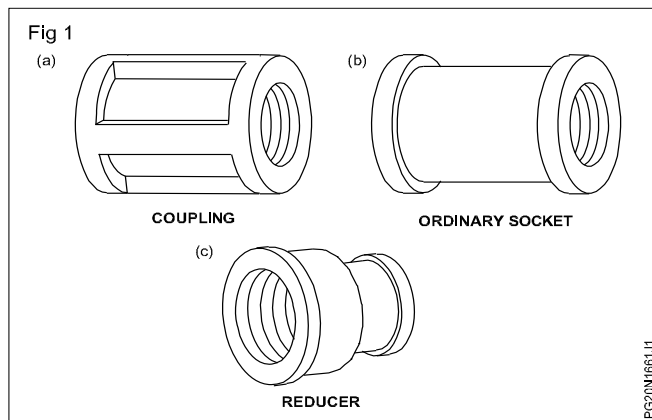
(c) REDUCER

3 Identify the reducer elbow. (Fig 2)

Fig 2

(a)   (b)   (c)
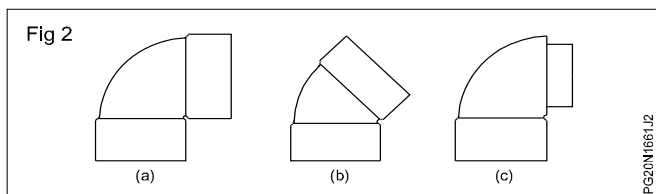
4 Identify the three-way elbow. (Fig 3)

Fig 3
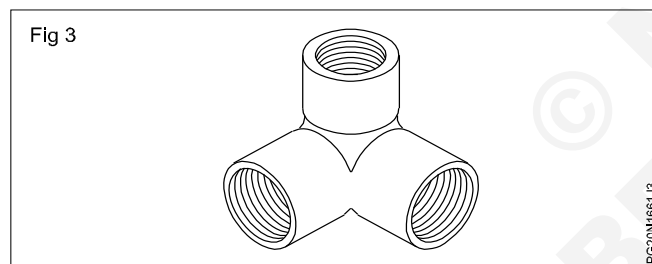
5 Identify the tee three way coupling. (Fig 4)

Fig 4
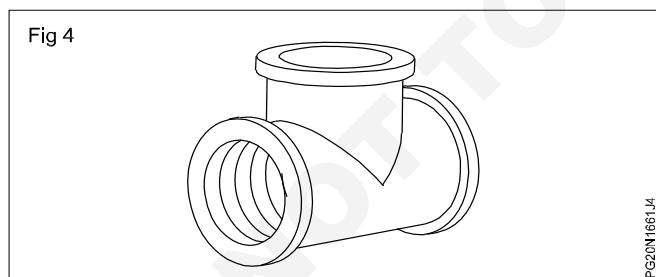
6 Identify the four way coupling. (Fig 5)

Fig 5
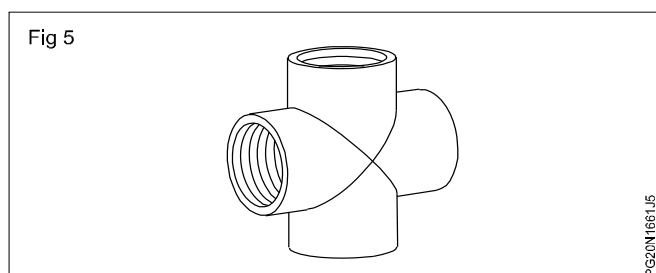
7 Identify the pipe union. (Fig 6)

Fig 6
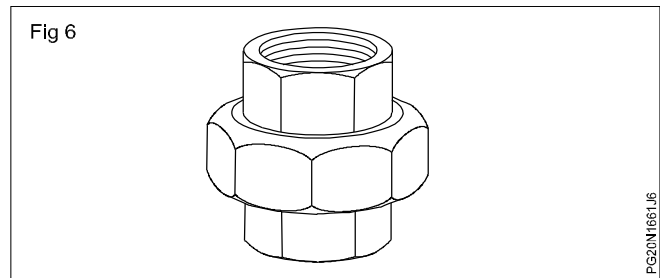
8 Identify the pipe special fittings. (Fig 7)

Fig 7
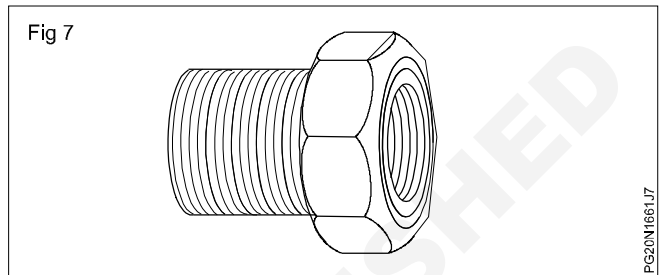
9 Identify the pipe nipples. (Fig 8)

Fig 8
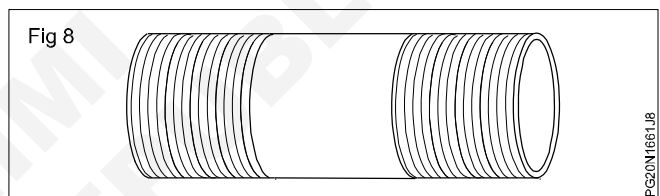
10 Identify the hexagonal nipple. (Fig 9)

Fig 9
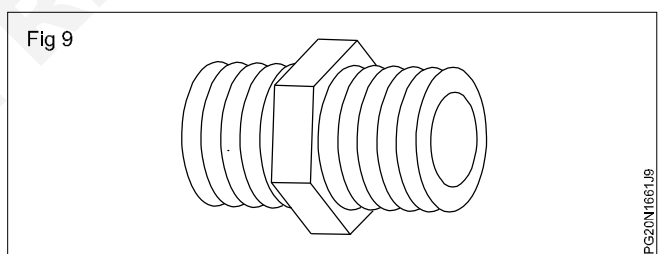
11 Identify the plug. (Fig 10)

Fig 10
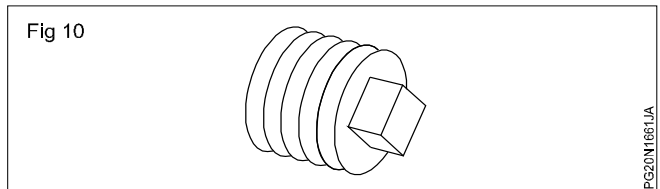
12 Identify the cap. (Fig 11)

Fig 11
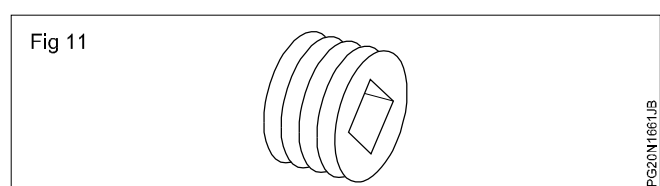
13 Identify the ferrule. (Fig 12)

Fig 12
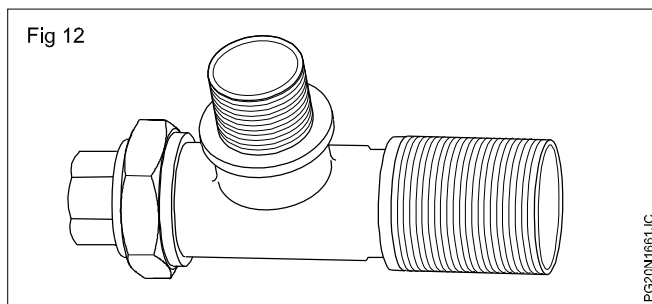
14 Identify the bend. (Fig 13)

Fig 13
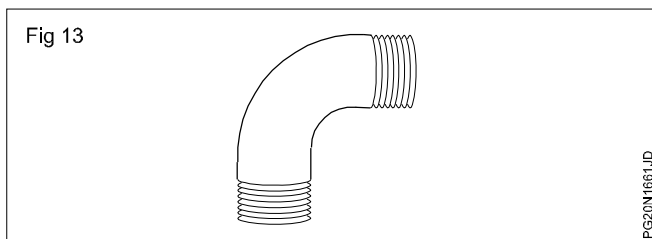
15 Identify the union elbow. (Fig 14)

Fig 14
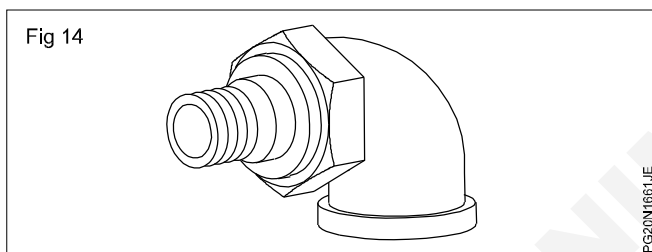
16 Identify the elbow male + female. (Figs 15,16, 17 & 18)

Fig 15

Fig 16

Fig 17
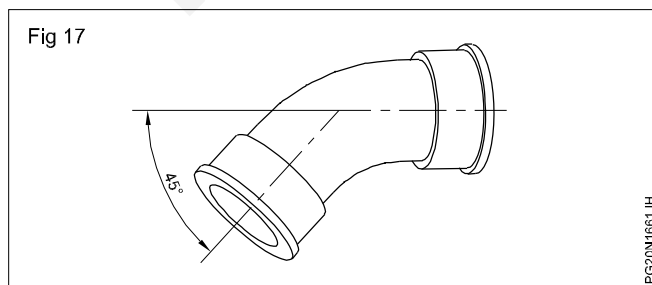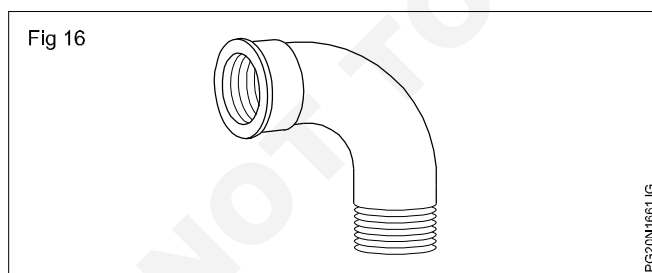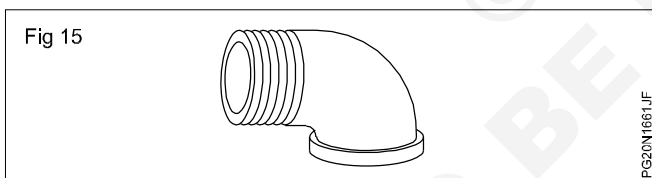
Fig 18
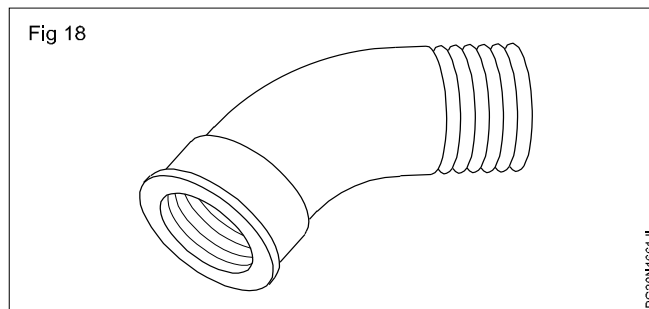
17 Identify the offsets union. (Fig 19)

Fig 19
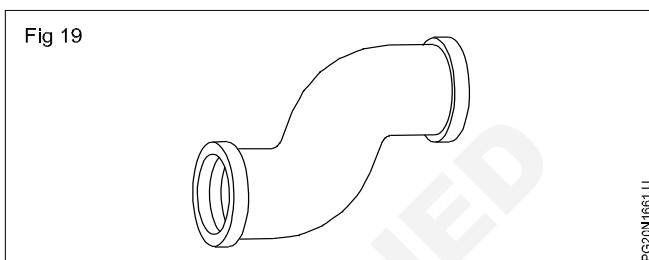
18 Identify the gasket type union. (Figs 20, 21 & 22)

19 Identify the eccentric reducer.

Fig 20

VARIOUS UNION ELBOWS AND UNION TEES

Fig 21

GASKET TYPE UNION

Fig 22

— — — — — — — —
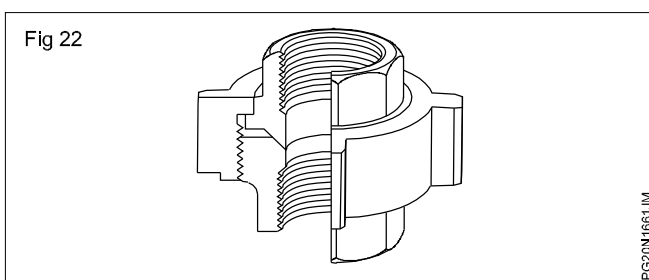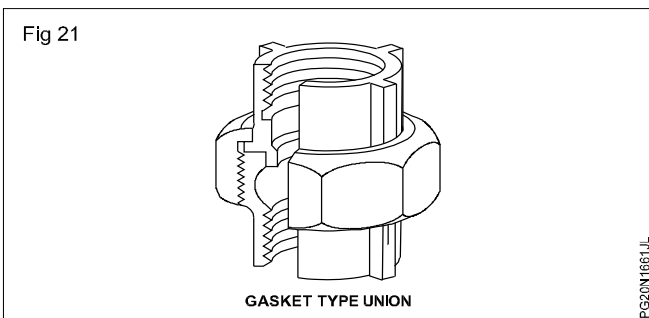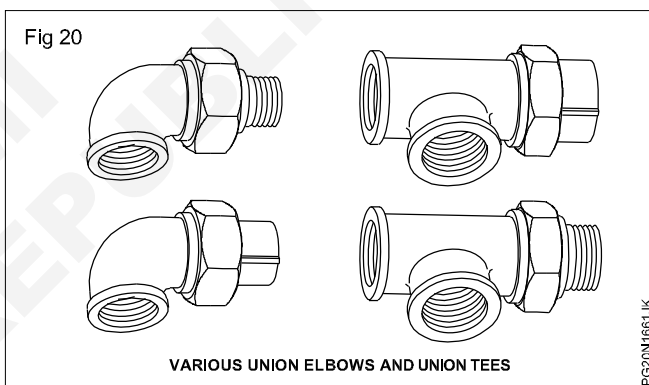
Practice on pipe cutting and threading

Objectives: At the end of this exercise you shall be able to
• **hold the pipe in pipe vice**
• **mark the pipe length as per given measurement**
• **cut the pipe with pipe cutter or hacksaw blade.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Hacksaw	- 1 No.
• Marker	- 1 No.
• Pipe cutter	- 1 No.

Equipments/Machineries

• Pipe vice	- 1 No.

• Work bench	- 1 No.

Materials

• Different variety of pipes	- as reqd.
• Hacksaw blade	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

1 Marking the required length S.S.2

• Measure length for cutting as per drawing.

• Wrap a sheet of rectangular size paper at marked place around the pipe. (Fig 1)

Fig 1
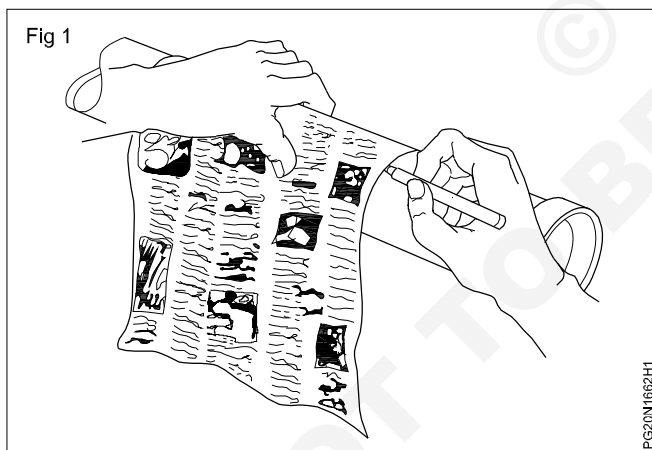
• Bring the edges of paper together.

• Mark around the edge of paper with pencil.

2 Cutting G.I. pipe S.S.3 (Fig 2)

• Mark the place of cutting S.S.2.

• Make a small "V" groove on cutting line with help of knife edge file.

• Fix fine tooth blade in hacksaw.

• Hold hack saw handle in right hand.

• Hold hack saw frame in left hand.

Fig 2
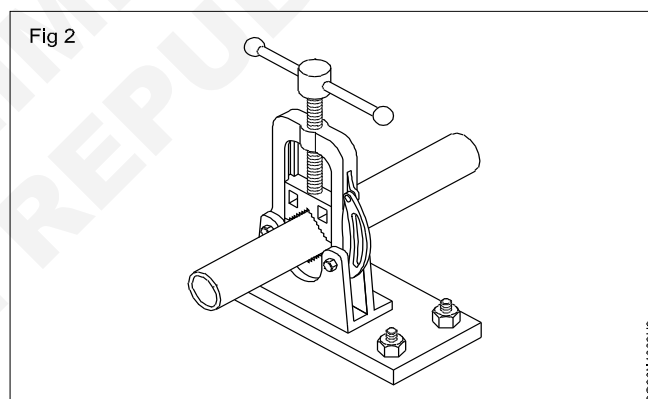
• Move the blade to and fro on the marked groove @ 40 - 50 stroke per minute for full length of blade. (Fig 3).

Fig 3
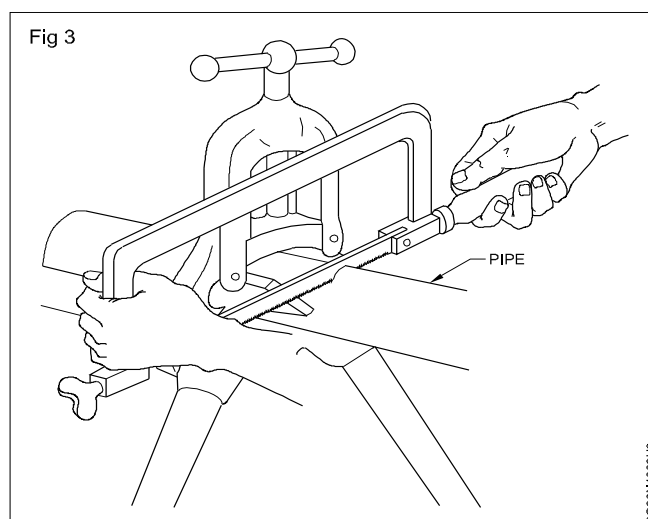
PIPE

- Apply coolant during cutting the pipe.

3 Cutting large diameter pipes

- Rotate the pipe after cutting half depth.

- Repeat the procedures.

4 Cutting with pipe cutter

- Fix the pipe in pipe cutter. (Fig 4)
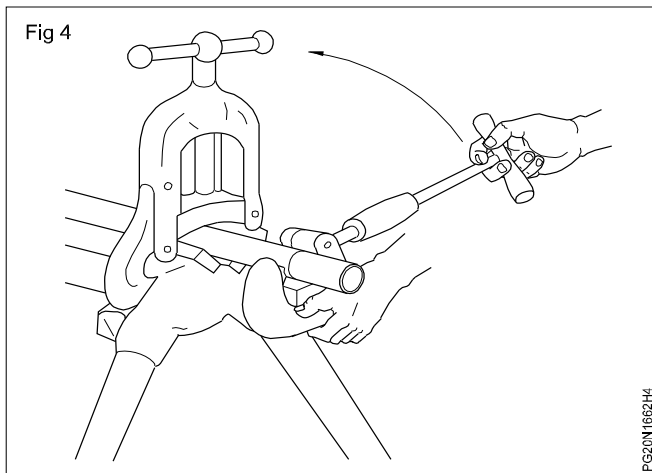
Fig 4

- Rotate the handle to adjust the cutter till 3 wheels are in contact with pipe. (Fig 5)

Fig 5
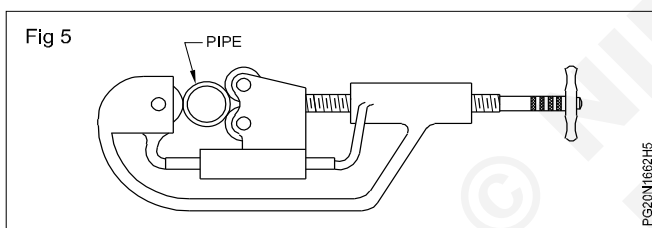
- Rotate the pipe cutter around the pipe.

- Check whether cutting wheel is sitting exactly on scribed line after one or two turns.

- Put extra pressure on cutting wheel after two or three turns.

- Continue the procedure.

- Support the pipe with free hand to avoid fall of pipe. (Fig 6)

Fig 6
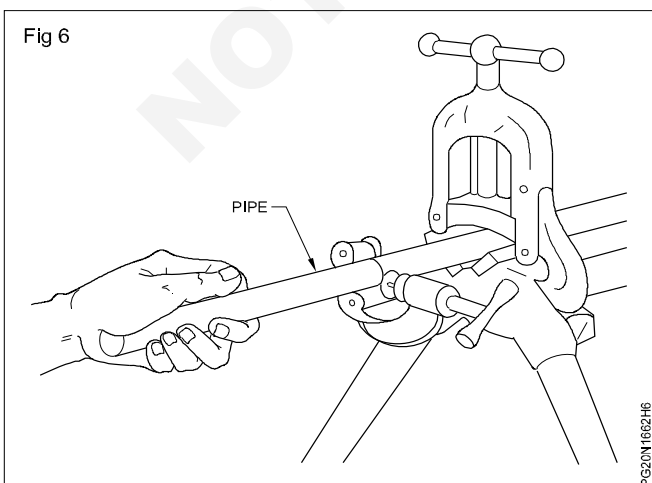
- Continue the procedure till it is cut. Check the squareness of end. (Fig 7)

Fig 7
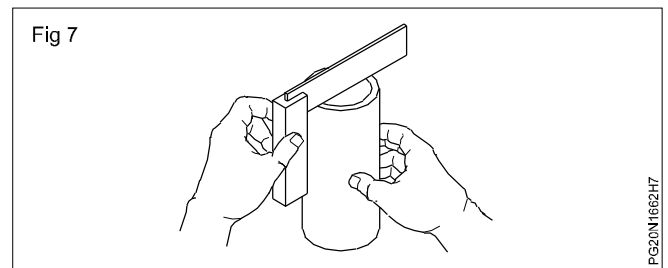
- File square by using a half round file. (Fig 8)

Fig 8
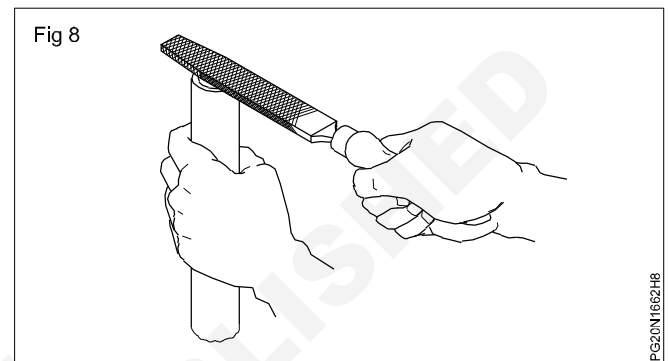
- Check condition of cutter.

- Clean it throughly.

5 Cutting the cast iron pipe

- Measure accurately length of pipe required.

- Make square round the pipe.

- Place the pipe over wooden "V" block.

- Cut the pipe along the mark. (Fig 9)

Fig 9
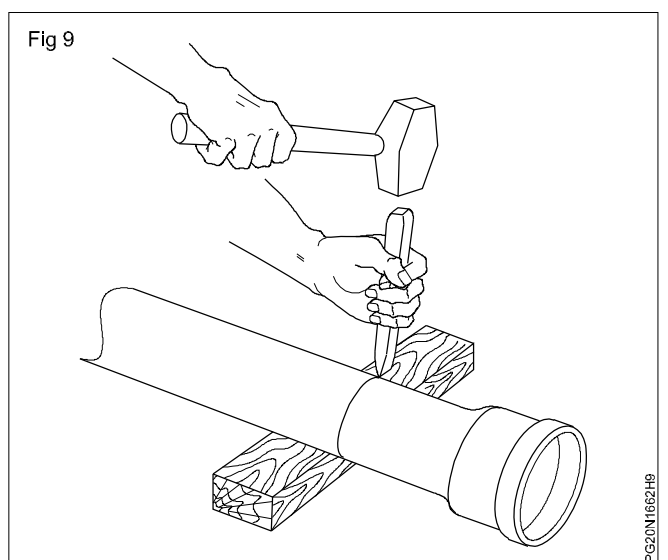
- Tap the end of pipe after 3 or 4 cut around the pipe. (Fig 10)

- Rotate the pipe if the cut does not break.

- Repeat cutting and taping till pipe is cut.

Fig 10
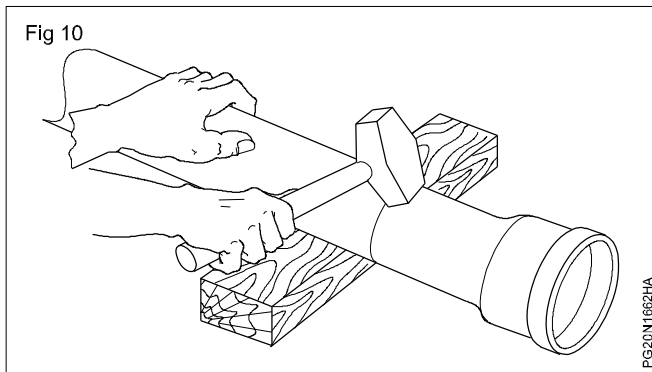
- File the edge with flat file. (Fig 11)

Fig 11
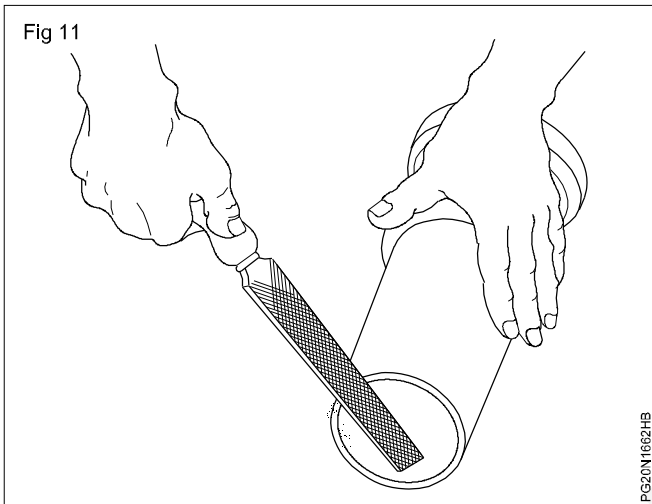
6 Pipe cutting

- Fix the die in the die stock and place the leading side of the die opposite to the step of the die stock.

- Place the loading side of the die on the chamber of the work.

- Make sure that the die is fully open by tightening the centre screw of the die stock.

- Open the vice and insert pipe into pipe vice, close and tighten the pipe vice.

- Fix the die on the pipe to be threading.

- Start the die square to the pipe centre line.

- Apply heaver pressure and rotate the die stock evenly in the clock wise direction to advance the die on the pipe. (Fig 12)

- Cut slowly and reverse the die for a short distance in order to break the chips.

Fig 12
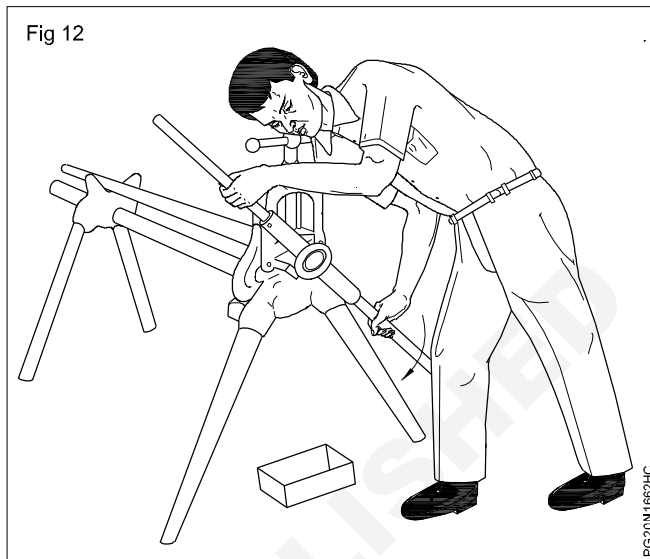
- Increase the depth of the cut gradually by adjusting the outer screws.

- Remove the die stock and clean off the thread with a wire brush and cloth.

- Check the pipe thread with thread pitch gauge.

Note
- **Use a cutting lubricant while pipe thread cutting**
- **Too much depth of thread cut at one time will spoil the threads and it can also spoil the die.**
- **Clean the pipe die frequently to prevent the chips from clogging and spoiling the thread.**

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Practice on different types of pipe joint/fittings of different materials

Objectives: At the end of this exercise you shall be able to
• **jointing the G.I. pipe fittings with G.I. pipe using thread seal**
• **jointing cast iron flangs, gun metal valve and CP. Bip cock**
• **jointing PVC pipe fittngs by using solvent cement.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• G.I. pipe	- as reqd.
• Hack saw	- 1 No.	• PVC pipe	- as reqd.
• Steel rule	- 1 No.	• Cotton thread	- as reqd.
• Steel tape	- 1 No.	• Sealing compound	- as reqd.
		• Soap oil	- as reqd.
Equipments/Machineries		• Cotton waste	- as reqd.
• Hammering drilling machine	- 1 No.	• Pipe fittings	- as reqd.
		• Brush	- as reqd.
		• Lubrication oil	- as reqd.

PROCEDURE

TASK 1: **GI pipe fittings by using GI socket elbow and pipe unions**

1 Select the suitable GI pipe size as per your job need.

2 Select the appropriate hand tools and pipe fitting materials.

3 Fix the G.I. pipe in pipe vice and cut the pipe bits as required size for your job work.

4 Use the hacksaw blade to cut the pipe. (Figs 2 & 3)

5 File the pipe edges to flat with flat file and remove burrs on the pipe edges (Fig 4) and check the pipe flatness with try square. (Fig 5)

6 Make a threads on the G.I. pipe ends with BSP die stock and dies. (Fig 6)

7 Apply thread seal on the pipe threads with shellac. (Figs 7 & 8)

8 Joint the cast iron flange with globe valve by using pipe vice and pipe wrench. (Fig 9)

9 Connect the pipe line from the globe valve. (Fig 1)

10 Connect the G.I. pipe bend, elbow and pipe unions as per given job drawing.

Fig 1

1.G.I.PIPE "C" CLASS
2.C.I.ROND FLANGE
3.C.I.OVAL FLANGE
4.FLANGE BOLT AND NUT WITH METAL WASHERS
5.G.I. RIGID COUPLING
6.RUBBER GASKET
7.GIOBE VALVE
8.BIB-COCK
9.G.I.BEND
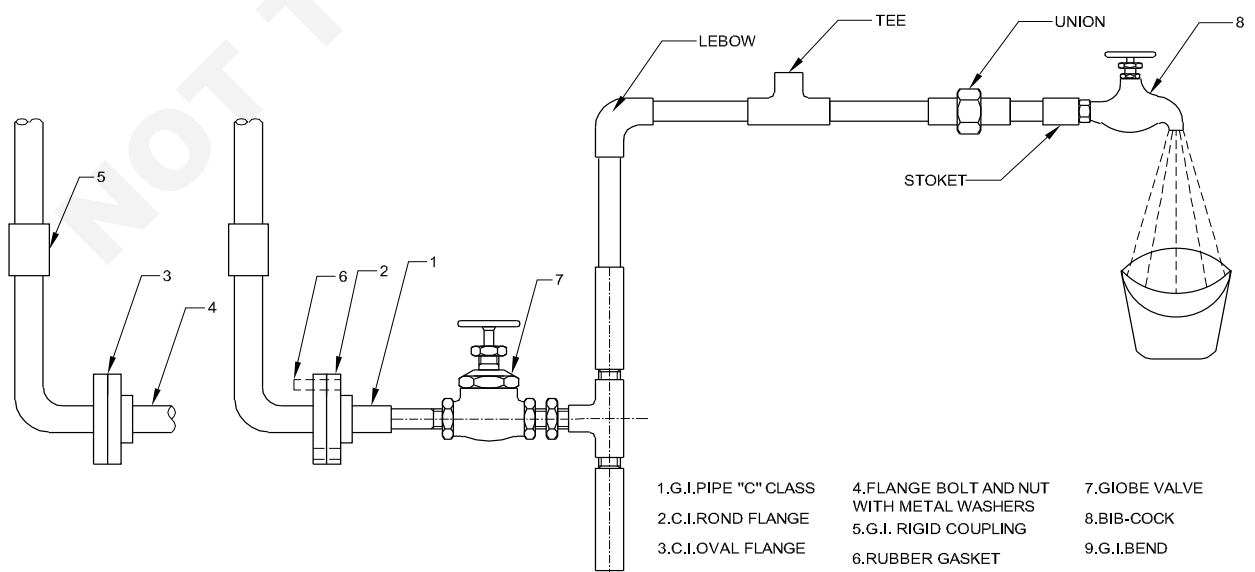
11 Connect the C.P bibcock. (Fig 1)

12 Ensure the pipe joints are well tighten.

13 Clean the work pieces with cotton waste.

14 Clean the work place with brush.

15 Clean the hand tools.

> **Note:** Grip the G.I. pipe into the G.I. fittings up to five thread through hand and remaining threads through pipe wrench upto eight threads.
>
> While threading operatin use lubrication oil frequently should not overtight the flanges, globe valve and bib-cock exceeding the threads in the fittings.

Fig 2
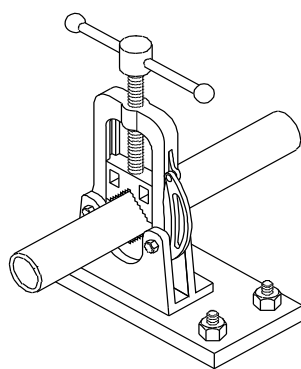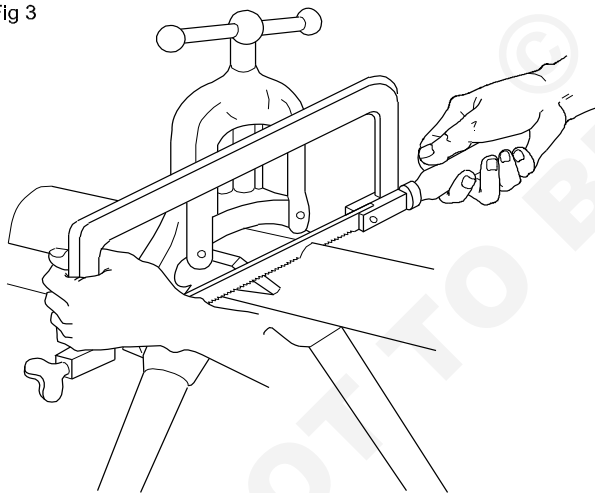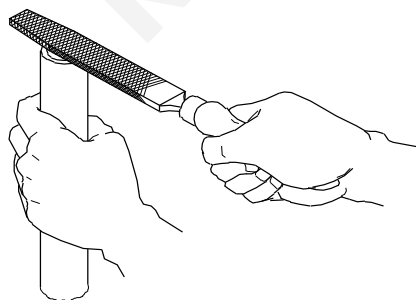
Fig 3

Fig 4

Fig 5
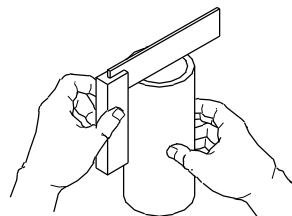
Fig 6
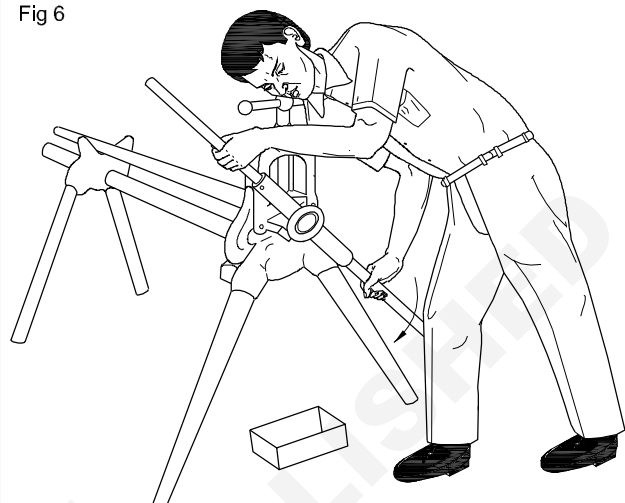
Fig 7
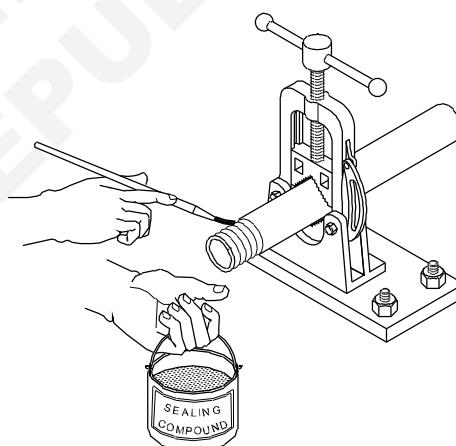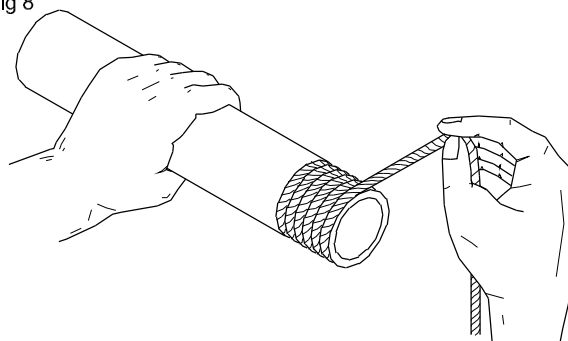
Fig 8

Fig 9

— — — — — — —
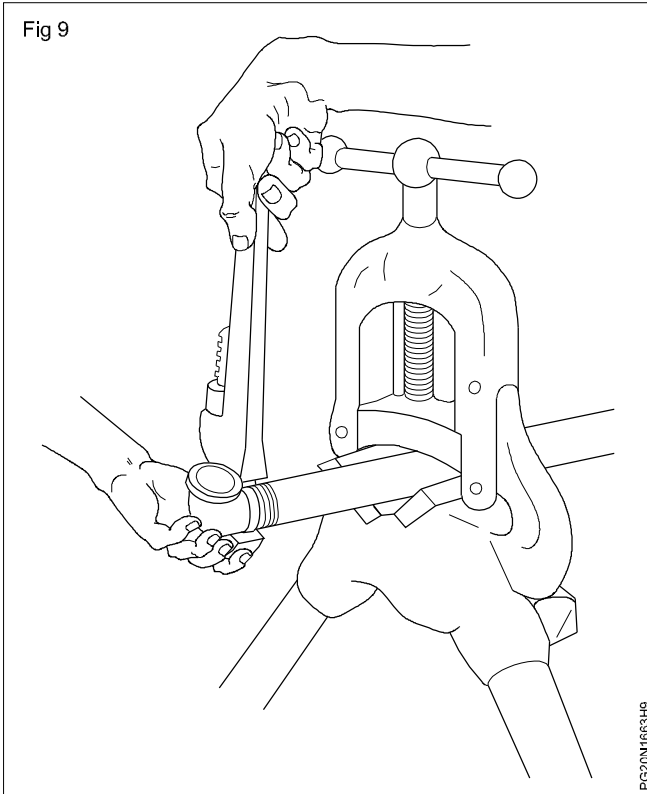
TASK 2: **PVC pipe fittings by using cement solvent (Fig 1)**

1 Study the drawing.

2 Select the pipe fittings & required materials.

3 Hold the pipe in a pipe vice.

4 Marking the pipe as required length.

5 Cut the pipe as given length.

6 Chamber the edge of the pipe to be inserted at an angle of about 150 to 1/3 rd the wall thickness using a coarse file.

7 Make sure that the spigot and socket are throughly cleaned and are completely dry.

8 Insert the pipe into the socket without seal ring and mark along the pipe, after it is fully inserted.

9 Apply solvent cement to the chamfered end of the pipe, right upto the marking made on spigot or socket end of the fitting.

10 Push the pipe firmly into the socket unit the gap between the mark on the spigot and socket is about 10mm to allow for thermal expansion, if any.

11 Check the joints.

> **Solvent cement is flameable material so proper care is needed.**

Safety

1 Use proper tool.

2 Turn only 45º after the apply solvent cement.

3 Uniformly apply solvent cement.

4 Don't touch the sprit solvent cement on our eye and head.

Fig 1

— — — — — — — —
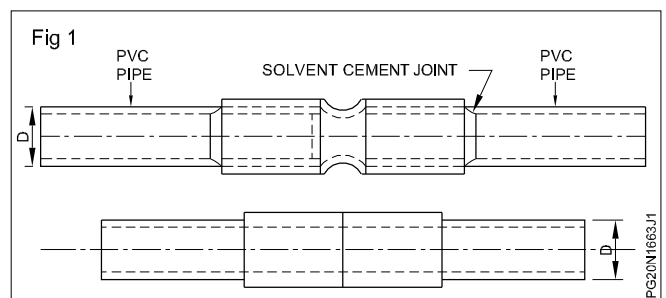
Practice on make a simple lap joint

Objective: At the end of this exercise you shall be able to
• **make a simple lap joint.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Hacksaw blade	- 1 No.
• Hacksaw frame	- 1 No.
• Measuring tape	- 1 No.
• Steel rule	- 1 No.

Equipments/Machineries

• Work bench with vice	- 1 No.
• Pipe vice	- 1 No.
• Pipe cutter	- 1 No.

Materials

• G.I. pipe	- as reqd.

PROCEDURE

TASK 1: **Make a simple lap joint (Fig 1)**

1 Select the suitable G.I. pipe.

2 Clean the pipe with cotton cloth.

3 Measure the pipe and mark the lap cutting area by marker.

4 Fix the pipe on the vice and tighten it.

5 Fix the hacksaw blade on the hacksaw frame.

6 Hold hacksaw hands in right hand.

7 Hold the hacksaw frame in left hand.

8 Move the hacksaw blade to cut the marked area on the pipe.

9 Ensure the pipe lap cutting is properly cut by hacksaw.

10 Clean the cutting burrs by filing with flat file.

11 As same above steps use to cut the another pipe lap.

12 Now connect the two pipes lap joint and sure both pipes lap are jointed properly.

13 Use the welding process for pipe joint.

14 Use the pipe lap couplings to joint the pipes.

> **Note: Consult your instructor to proper guide line to make a simple lap joint.**

Fig 1

— — — — — — — —
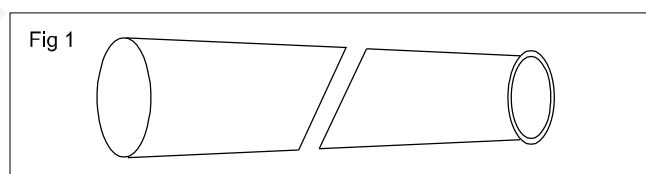
Practice on make a simple mitred half lap joint

Objective: At the end of this exercise you shall be able to
• **make a simple mitred half lap joint.**

Requirements		
Tools/Instruments		**Materials**
• Trainee's tool kit — 1 No.		• G.I. pipe — as reqd.
• Hack saw — 1 No.		• Hacksaw blade — as reqd.
Equipments/Machineries		• Cotton waste — as reqd.
		• Soap oil — as reqd.
• Work bench with vice — 1 No.		• Flux — as reqd.
• Pipe vice — 1 No.		• Brazing rod — as reqd.
• Gas welding unit — 1 No.		

PROCEDURE

TASK 1: **Make a simple mitred half lap joint**

1 Select the pipes.

2 Measure the pipe length and mark the half lap joint cut on both pipes.

3 Cut the pipes as required length.

4 Fix the pipe on the pipe vice.

5 Prepare the hacksaw frame with blade.

6 Hold the right hand on hacksaw handle.

7 Hold the left hand on the hacksaw frame.

8 Cut the pipe as per marked on the pipe with help of hacksaw blade.

9 Remove the cutting burrs by flat file filing process.

10 Ensure both pipes mitred lap cutting is properly cut in lapping shape.

11 Fix the both pipe joint and joints are properly seated in position as shown in Fig 1.

12 Use pipe brazing to joint the pipe.

Fig 1

— — — — — — — —
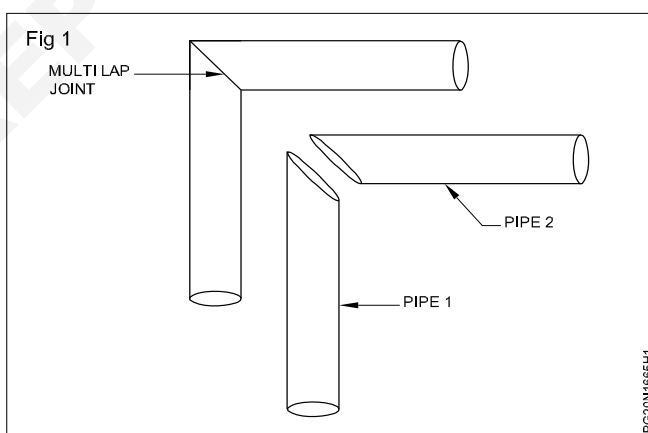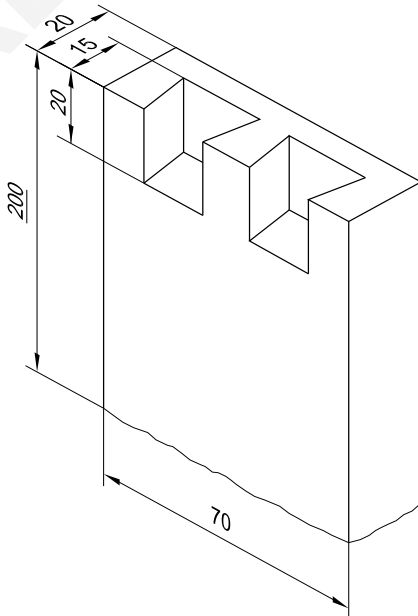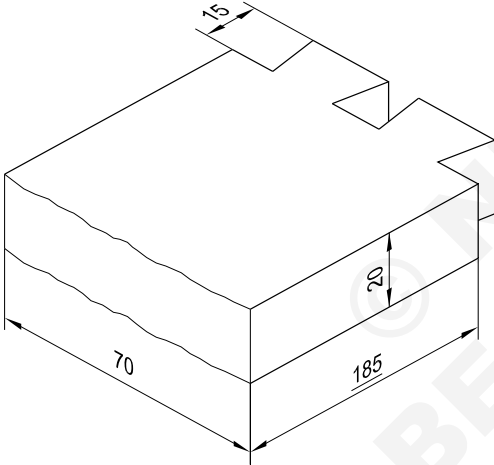
Practice on make a simple dovetail joint

Objective: At the end of this exercise you shall be able to
• **make a simple dovetail joint.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Carpenter vice	- 1 No.
• Hacksaw	- 1 No.	**Materials**	
• Hand saw	- 1 No.		
• Wood chisel	- 1 No.	• Hacksaw blade	- as reqd.
Equipments/Machineries		• Cotton waste	- as reqd.
		• Soap oil	- as reqd.
• Work bench with bench vice	- 1 No.		

2	75 x 25 x 225mm		VEN TEAK WOOD			1.6.66
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.

SCALE 1:2		TOLERANCE ±2.0 mm	TIME 6hrs
	LAPPED DOVE-TAIL JOINT	CODE NO. PG20N1666E1	

PROCEDURE

TASK 1: **Make a simple dovetail joint**

1 Select the suitable wood pieces to cut dovetail joint.

2 Measure the both places of wood.

3 Check the wooden pieces for its size of 75x25x225mm 2 Nos.

4 Plane it to the required size of 70x20x225mm - 2 Nos. and make the face edge square to face side.

5 Check the trueness of size and squareness of the pieces by using Try - square.

6 Mark and cut the plank lengths of 200mm - 2 Nos. (Fig 1)

Fig 1
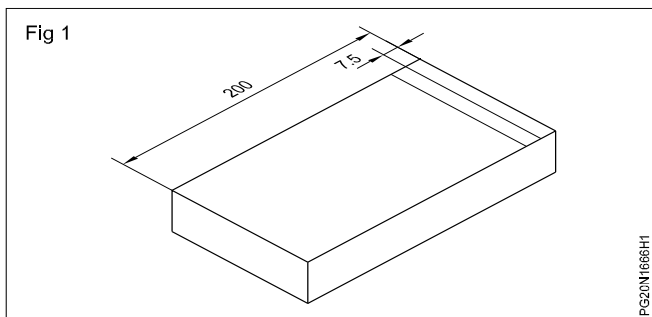
7 Saw off the waste end and finish it to square.

8 On the face side mark out distance of 7.5 mm at the right end.

9 On these lines markout 10mm, 20mm, 10, 20 and 10mm as shown in Fig 2.

Fig 2
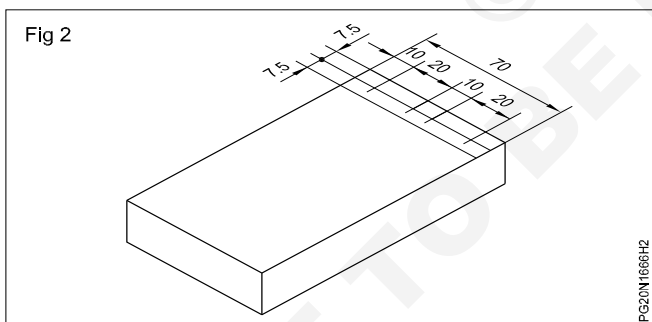
10 Make a simple drawing to get a pitch angle one in six to which a bevel square can be set. (Fig 3)

11 A bevel square is set to the required angle. (Fig 4)

Fig 3

Fig 4
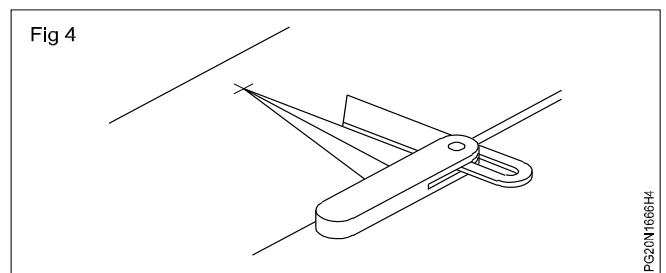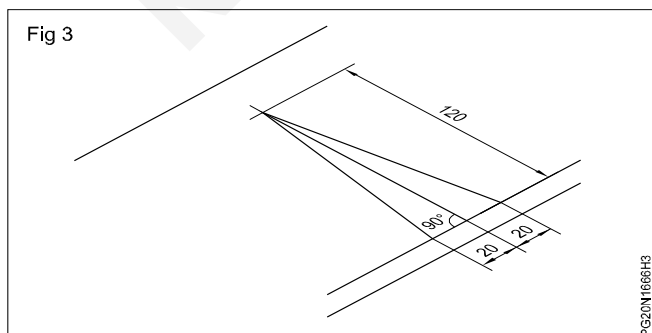
12 Set the bevel square on the work piece and mark with marking knife the dove tail angles (Fig 5a).

13 With try square mark lines across the end grain (Fig 5b).

14 Mark the waste areas using pencil (end grain).

15 From the squared lines on the end grain draw oblique lines on the reverse side also. (Fig 5c)

16 Mark the waste areas using pencil (face side).

Fig 5
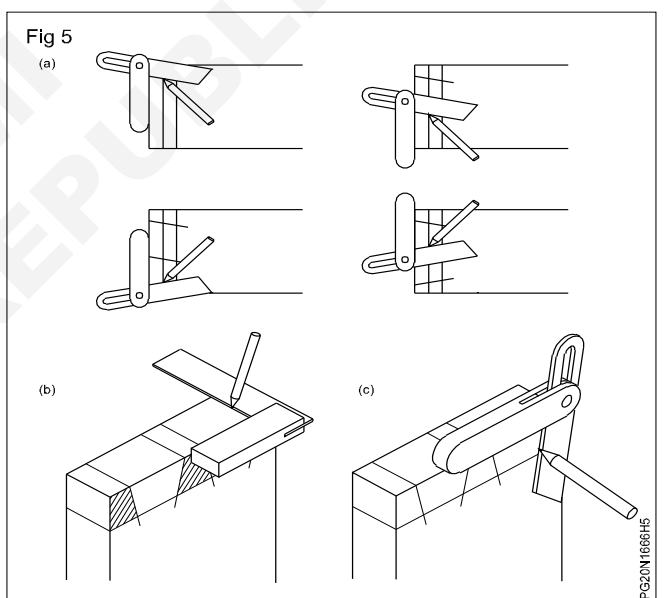
17 Hold the marked piece in the carpenter's vice.(Fig 6)
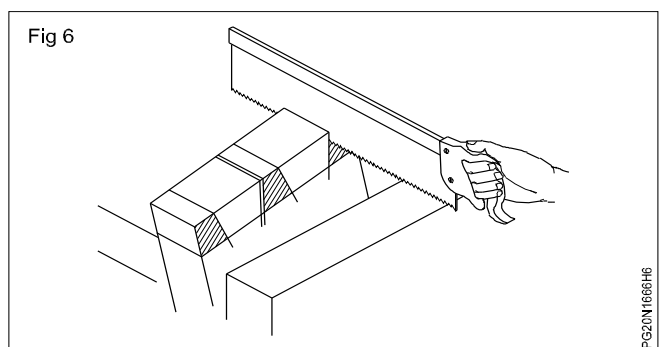
Fig 6

18 Hold the dovetail saw square to the marked lines. (Fig 6)

19 Hold the piece so that the dovetail angle is vertical to the base to facilitate straight sawing.

20 Lay the job on a scrap wooden plank.

21 Chisel off the wastes away in thin layers. (Fig 7)

Fig 7
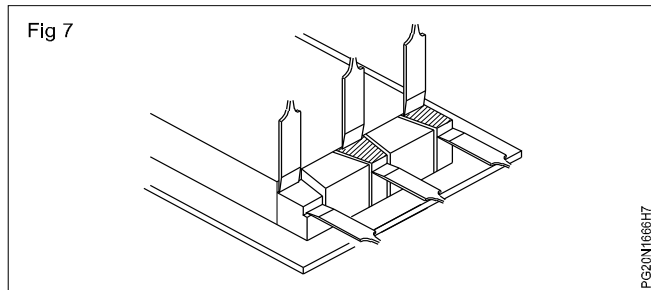
22 Work down until half of the thickness.

23 Reverse the work piece.

24 Continue cutting and chiselling from the reverse side. (Fig 8)

Fig 8
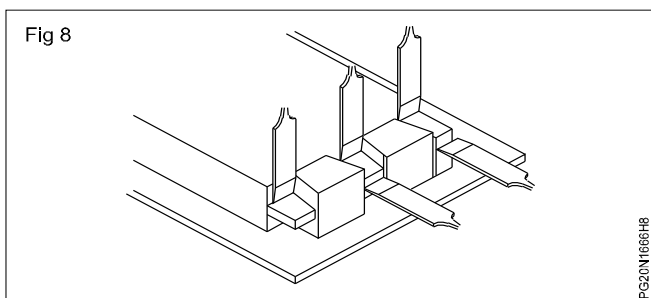
25 Finish the surface and smoothen the walls.

26 Hold the other piece (socket piece) on the carpenter's vice.

27 Keep the position the first piece on top of the second piece. (Fig 9)

Fig 9
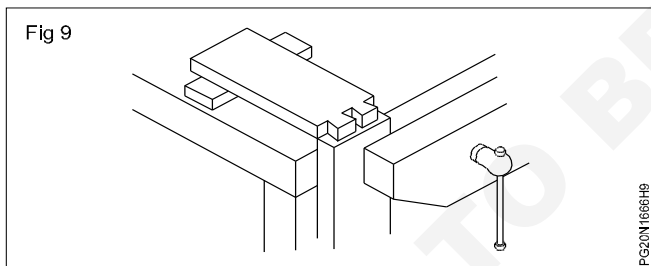
28 Scribe a round the dovetail pins on the end grain of the second piece.

29 Remove it from the vice.

30 Square down all the marked lines. (Fig 10a)

31 Mark the waste areas.

32 Hold the piece in the vice and saw in the position shown in Fig 10b up to the gauge line. (Fig 10b)

33 Lay the work piece on a scrap wood.

34 Cut and chisel the wastes away in thin layers. (Fig 11)

35 Check and correct by smoothening the walls. (Fig 12)

36 Do not cut away beyond the marking lines.

37 Assemble the pieces together properly.

Fig 10
(a)
(b)
GAUGE LINES

Fig 11

Fig 12
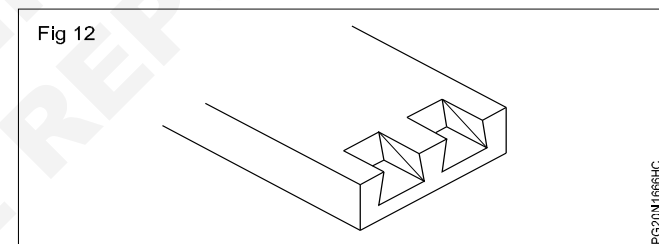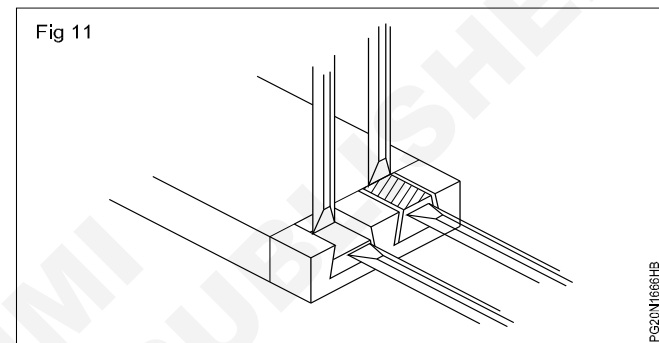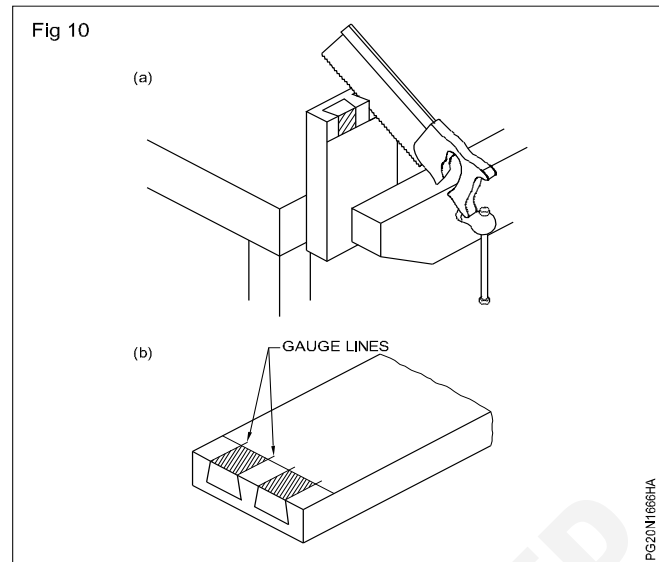
38 Use a batten piece and mallet while assembling. (Fig 13)

39 Check the joint for the squareness and evenness. (Fig 14)

Fig 13

Fig 14
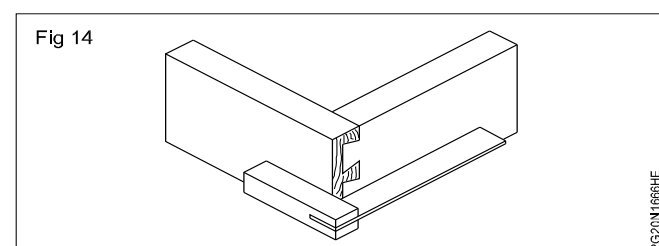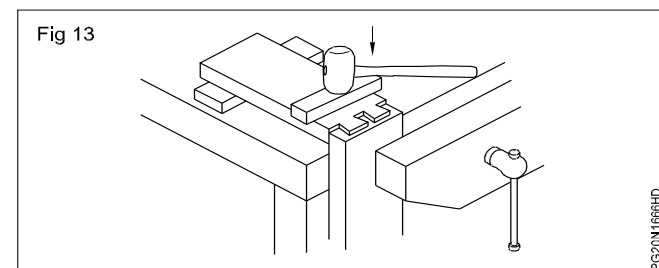
Practice on joint fitting with nails, screw, glue

Objectives: At the end of this exercise you shall be able to
• **joint fitting with nails, screws, glue.**

Requirements		
Tools/Instruments		**Materials**
• Trainee's tool kit - 1 No.		• Wooden pieces - as reqd.
• Straight edge - 1 No.		• Screws - as reqd.
• Wood marking gauge - 1 No.		• Nails - as reqd.
• Try square - 1 No.		• Glue - as reqd.
• Planner - 1 No.		• Fevicol - as reqd.
		• Cotton waste - as reqd.
Equipments/Machineries		• Soap oil - as reqd.
• Carpenter vice - 1 No.		
• Work bench - 1 No.		
• Drill machine - 1 No.		

PROCEDURE

TASK 1: **Joint fittings with screws and nails**

1 Check the wooden pieces for its size using four fold wooden rule.

2 Plane it to size of 90 x 20 x 450 -2 Nos using jack plane.

3 Check the squareness of the face side and face edge using straight edge and try square.

4 Check the trueness of the corners for its angle and size with try square.

5 Hold both the wooden plank in the carpenters' vice.

6 Set the marking gauge to half the thickness of wood.

7 Holding stock of the marking gauge against to the face side scribe the gauge line in the middle of the face edge. (Fig 1)

Fig 1
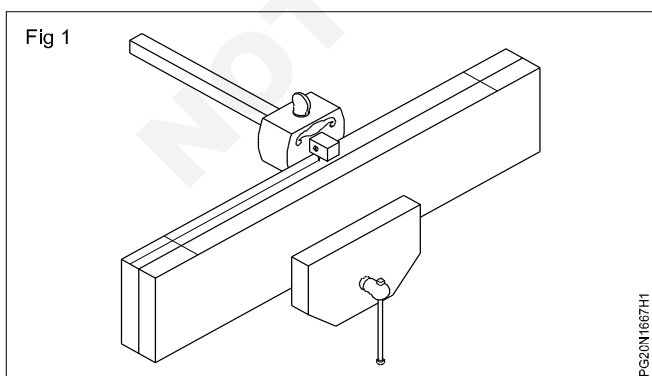
8 Mark the position of screw hole at the distances of 50, 225 and 400 mm by pencil marks. (Fig 2)

Fig 2
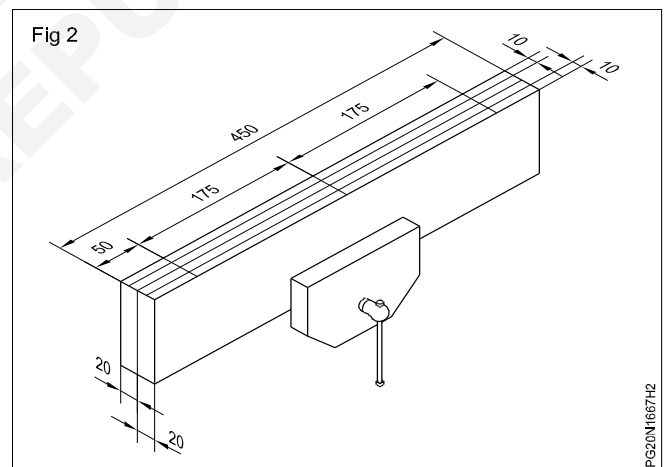
9 Hold the hand-drill in the left hand and keep it square to the marked points of the screws.

10 Hold the plank in the vice tightly for drilling holes.

11 Fix a depth stop the drill bit to the required depth of the screw.

12 Make 3 pilot holes of dia 2mm at 50,225 and 400mm with hand drill as shown in the sketch to a depth of 25 mm (plank b). (Fig 3)

13 Hold the wooden plank A with its face side in the vice.

14 Chop of the slot in tringular shape using firmer chisel and mallet upto the required thickness of screw. (Fig 4)

Fig 3

18 Clamp parts A and B at equal levels (Fig 5)

Fig 5

19 Fix the 35 x 8 screw drive 60° in triangular slot shape it to a depth of 25mm on the B plank.

20 Similarly drive the other 2 screws in the plank B.

21 Allow the fevicol to dry.

22 Remove the "T" clamp from plank.

23 Check the flatness of the plank using straight edge.

24 Finish the surface of the joint using the smoothing plane. (Fig 6)

Fig 6

Fig 4

15 Make a 3 pilot holes of 3mm dia for triangular slots.

16 Apply fevical on the face edges of both planks uniformly.

17 If need use the nail fittings to increase the wood joints.

— — — — — — — —
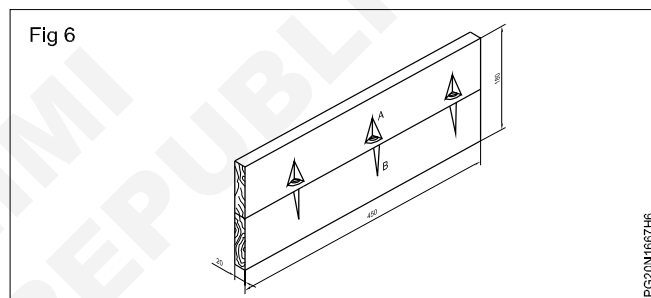
TASK 2: **Joint fitting with glue or Fevicol**

1 Check the wooden pieces for its size using four fold wooden rule.

2 Plane it to size of 90 x 15 x 450mm - 2 Nos using jack plane.

3 Check its flatness, squareness and trueness of the face side and face edge using Try square and winding strip.

4 Keep one piece over the other and check the alignment. (Fig 1)
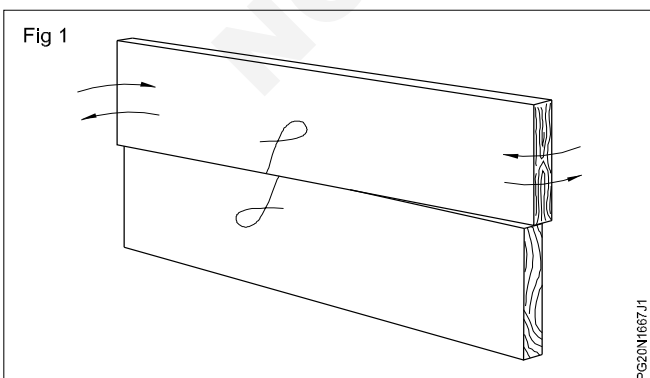
5 Hold the straight edge on the back of the two pieces and check the flatness.

6 If not square, plane the higher side of the part and finish it.

7 Hold the two pieces in the vice keeping edge side upward and make parallel to each other.

8 Apply fevicol on the face edges of both the plank uniformly. (Fig 2)

Fig 1

Fig 2
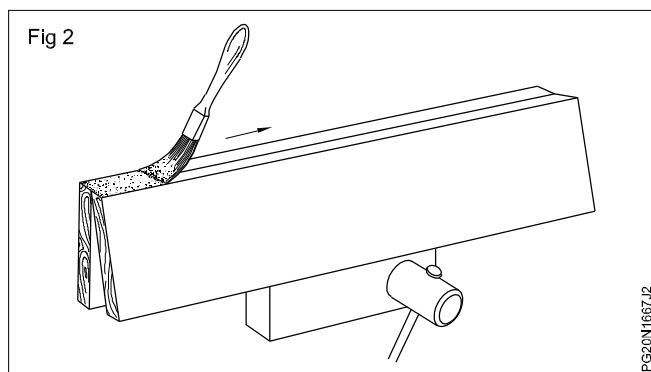
9   Take the upper piece and put it on the bottom piece.

10 Rub it three or four times to squeeze the fevicol into the grains. (Fig 3)

Fig 3
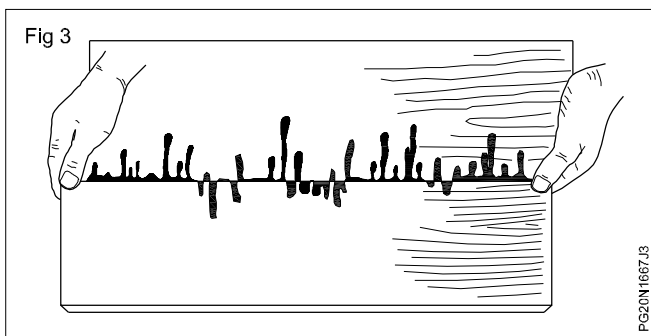
11 Keep the two planks pressed in a `C' clamp on both right and left sides. (Fig 4)

12 Allow the fevicol to dry.

13 Remove the `C' clamp from plank.

14 Finish the surface of the joint using the smoothing plane. (Fig 5)

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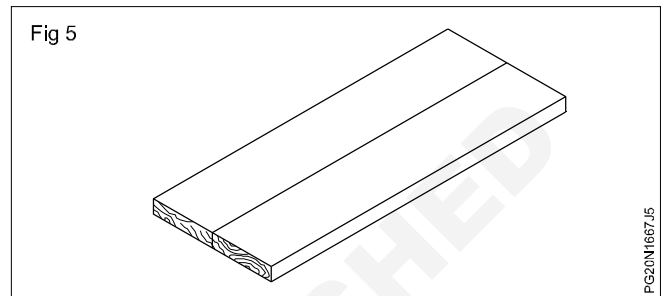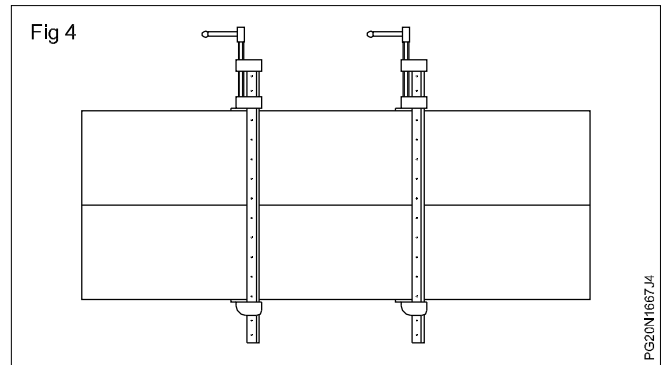
TASK 3: **Joint the planks with glue**

1   Plane the planks with the rebate plane.

2   Check the squareness and flatness of planks.

3   Hold the plank flatly and keep the rebate of the second plank just.

4   Keep both the planks together and check its alignment.

5   Apply glue on the rebate part of both the planks and fix both the planks along its rebate. Just move to and fro to spread the glue evenly. (Fig 1)

Fig 1

BAR CLAMP

6   Clamp it in a bar clamp and tighten it (Fig 1)

7   Allow glue to dry. Remove the clamp, finish the joint using smoothing plane.

8   Check the flatness of the job using straight edge. (Fig 2)

Fig 4

Fig 5

Fig 2

— — — — — — — —
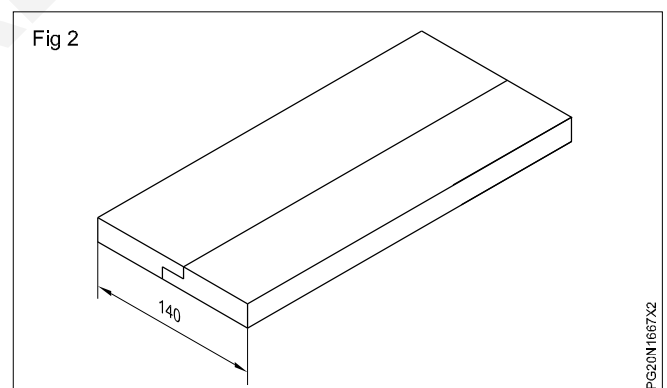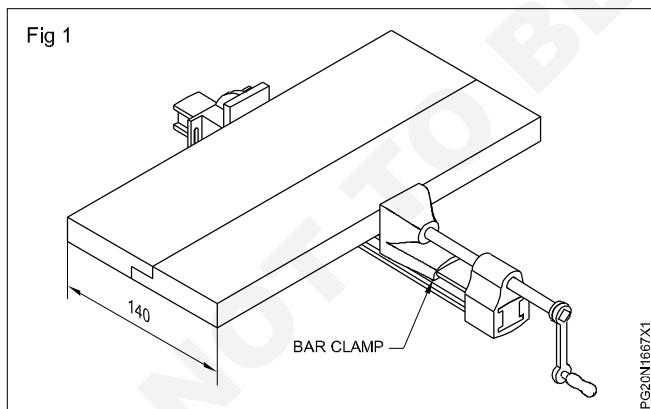
Practice on marking of straight lines, circles, various geometrical shapes and cutting the sheets with snips

Objectives: At the end of this exercise you shall be able to
• **planish the sheet metal by a wooden mallet and tinman's anvil stake**
• **mark off parallel lines by using scriber**
• **marking and cutting of sheet to various geomatrical shapes**
• **cut the sheet metal through straight line as per marking.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Work bench	- 1 No.
• Snip	- 1 No.	**Materials**	
• Steel rule	- 1 No.	• Metal sheet	- as reqd.
• Wooden mallet	- 1 No.	• Cotton waste	- as reqd.
• Tinman anvil stake	- 1 No.	• Brush	- as reqd.
• Straight edge	- 1 No.	• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Planishing of sheet metal mark and cut through straight lines**

1 Planish the job using a wooden mallet and a tinman's anvil stake. (Fig 1)

Fig 1
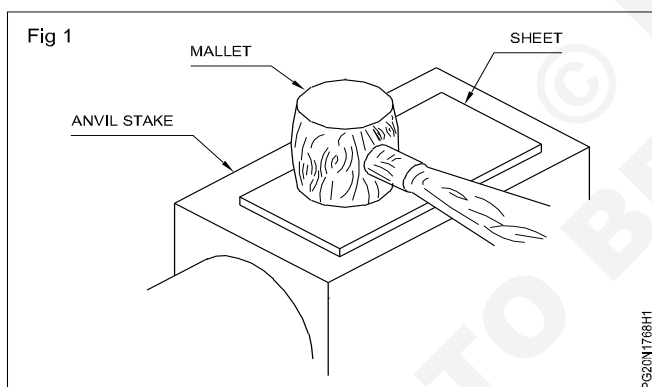
2 Check the size of the sheet using a steel rule. (Fig 2)

3 Place the tinman square as shown in Fig 3. Scribe two straight lines on the outer edges of the tinman's square.

> **While marking a point on the sheet metal mark a "V" shape from the point for easy identification.**

Fig 2

Fig 3
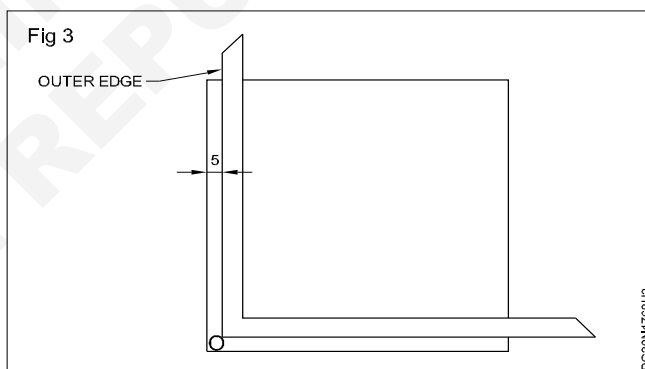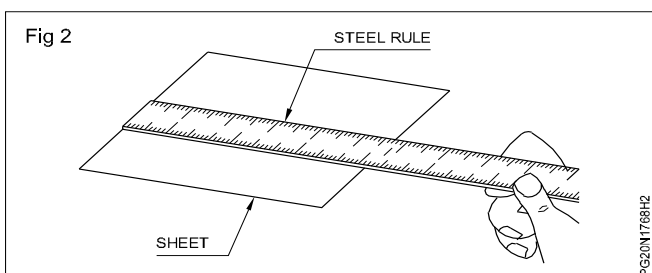
4 Mark a point at 150 mm distance from mark "O" on both lines and name them A and B as shown in Fig 4 using a steel rule and a scriber.

Fig 4
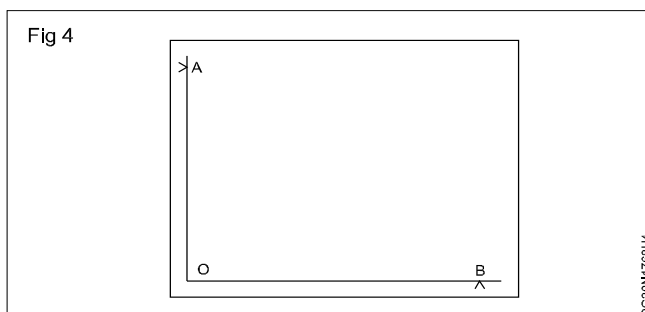
5 Place the outer corner of the tinman's square on "A" and draw a straight line as shown in Fig 5 using a scriber.

6 Place the outer corner of the tinman's square on "B" and draw a straight line using a scriber. Now you get

a square of 150 mm side as shown in Fig 6. Inside this square, mark "V" points at a distance of 65 mm from A & C, and join them by a straight line using a straight edge and a scriber as shown in Fig 7.

Fig 5

Fig 6

Fig 7
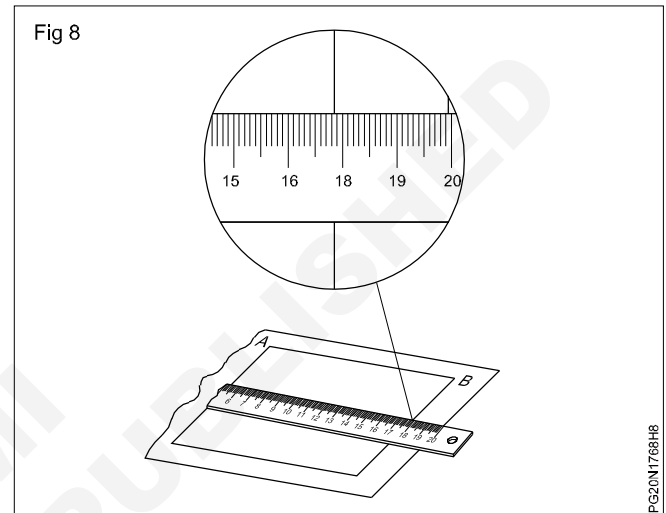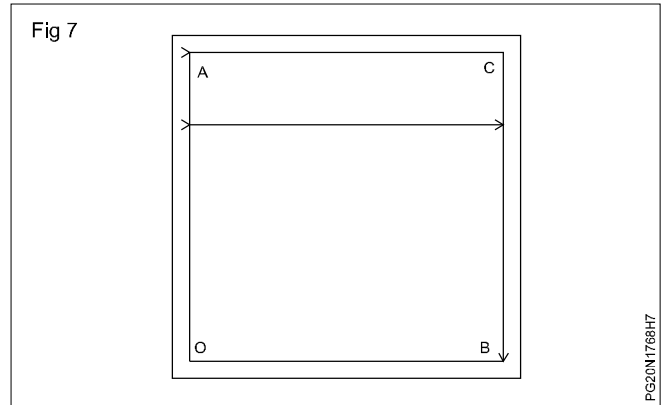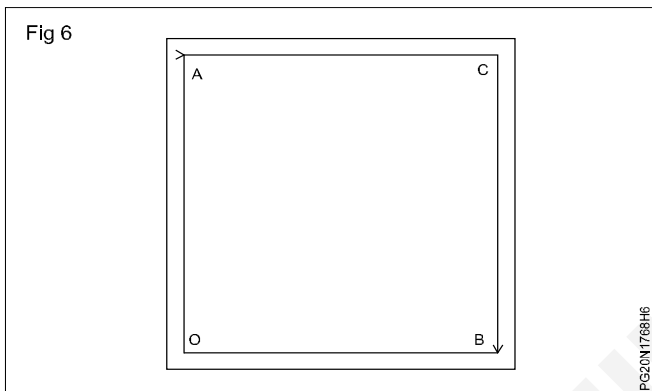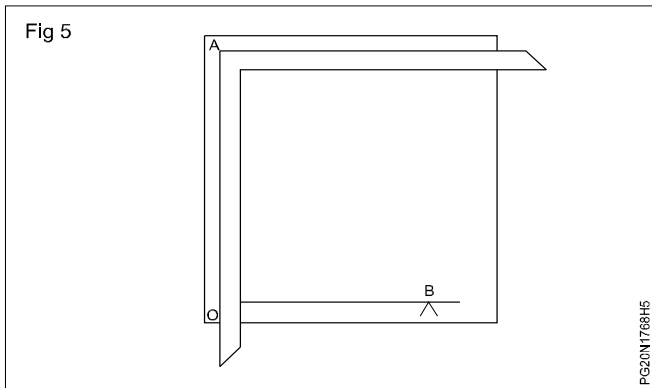
Fig 8

Fig 9

7 In the same way, draw other parallel lines according to the job drawing.

8 Check the lines marked using a steel rule. (Fig 8)

9 Cut along the lines marked using straight snips. (Fig 9)

10 Planish the cut piece and check the dimensions using a steel rule.

11 Accordingly, flatten and check the remaining cut pieces after cutting.

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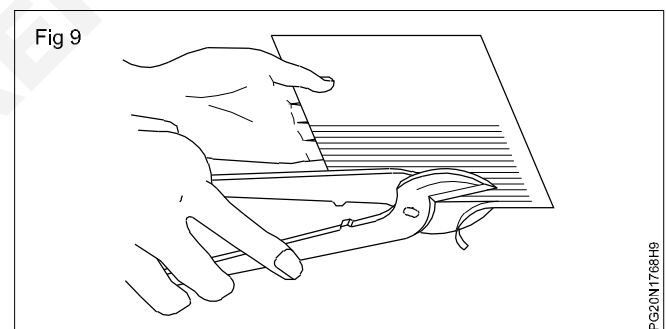
TASK 2: **Flattening the sheet metal**

1 Clean the tinman's anvil stake and the job.

2 Place the job on the anvil stake top. (Fig 1)
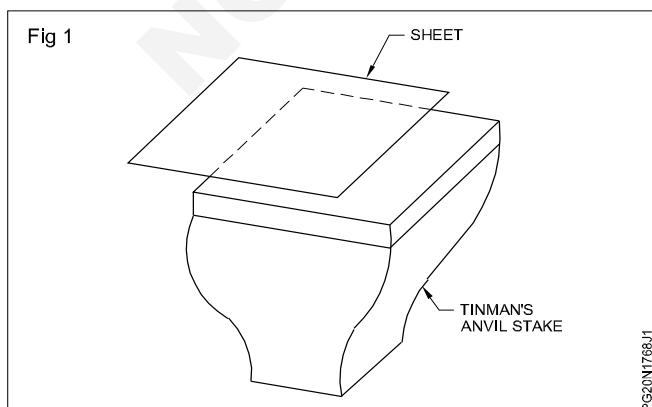
3 If the size of the sheet metal is smaller than the face of the stake, place the sheet somewhere in the middle of the stakeface. (Fig 2)

Fig 1

Fig 2
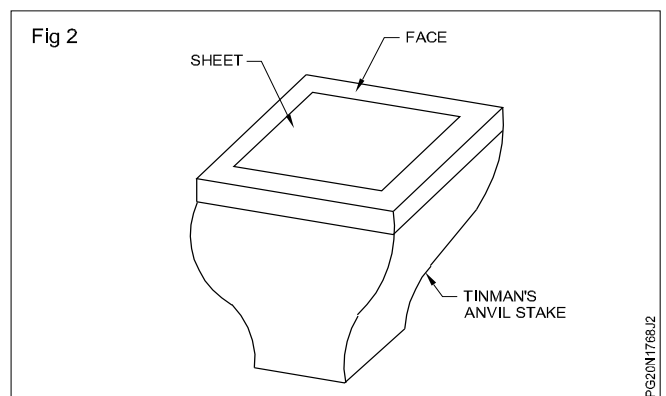
4 If the size of the sheet is bigger than the face of the stake, place the edge of the sheet at the center of the stake face.

5 Strike the sheet with the mallet from front to back and back to front, till the entire surface of the sheet is flat. (Fig 3)

Fig 3

DIRECTION OF BEATING
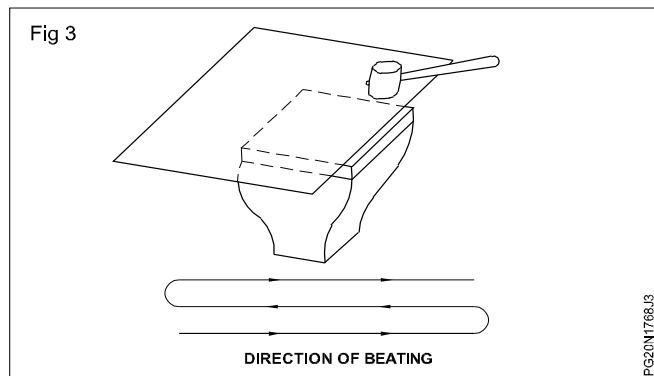
6 Check the flatness of the sheet metal with the edge of the steel rule. While checking the flatness, place the

edge of the steel rule on the surface of the sheet and observe the gap between the steel rule edge and the surface of the sheet metal. (Fig 4)

7 If a gap is not observed, then the sheet is perfectly flat.

8 If a gap is observed, then the sheet is not flat at the points of the gap.

9 Flatten the surface at the points of the gap if a gap is observed.

Fig 4

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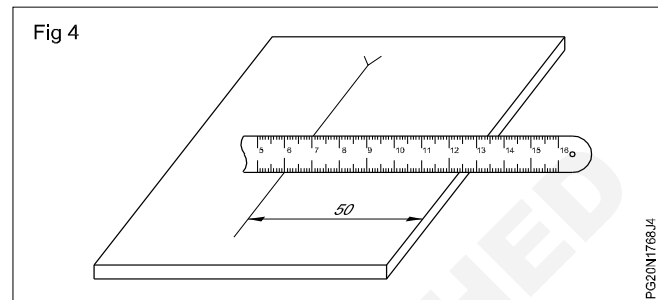
TASK 3: **Measuring and marking the sheet metal**

Measuring

1 Clean the edges of the steel rule using a waste cloth.

2 Place the graduated edge of the steel rule on the workpiece such that the edge is perpendicular to the lines or the edges. (Fig 1)

Fig 1
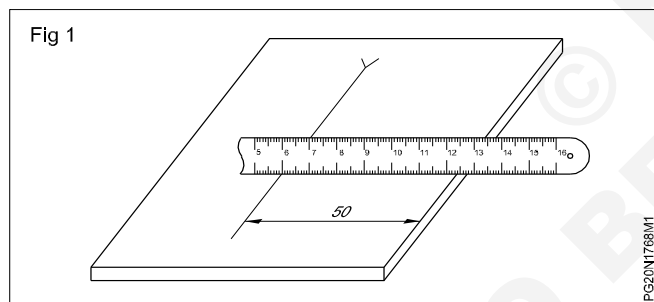
3 Coincide one line with a large graduated line (Centimeter lines) on the steel rule.

4 Taking this as a reference dimension, note the dimension on the scale coinciding with the line/edge between which the distance is to be checked.

5 Determine the distance between the two lines. For example, if 50 mm is the reference dimension and 100 mm is the dimension coinciding with the line between which the distance is to be checked, then 100-50 = 50 mm is the distance between the two lines.

Mark a straight line on the sheet

6 Mark off two 'V' marks from the datum xx at a distance as required for measurement, using a steel rule and a scriber. Datum xx is at right angle to datum yy. (Fig 2)

7 Set the straight edge in between the 'V' marks and press the straight edge with your fingers. (Fig 3)

Fig 2

SCRIBER

DATUM Y
X DATUM
DISTANCE X DATUM
STEEL RULE
Y DATUM

Fig 3
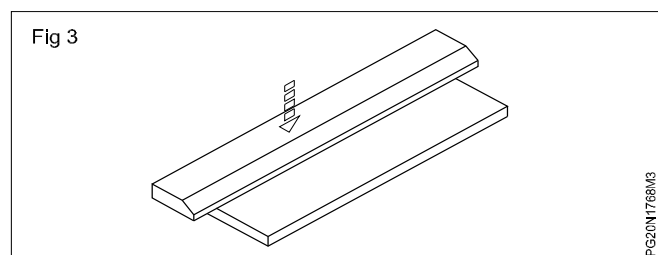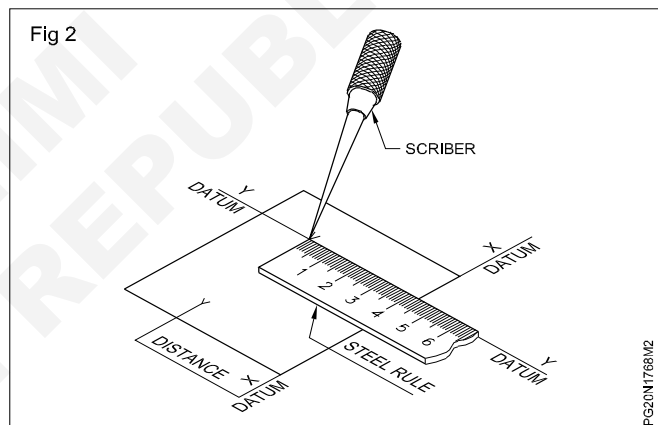
8 While scribing lines, hold the scriber close to the straight edge as shown in Fig 4.

Fig 4
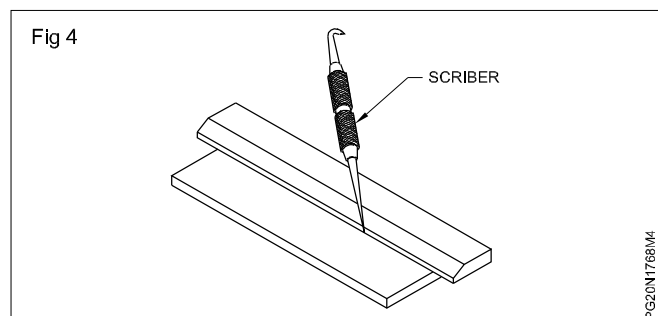
SCRIBER

9   Incline the scriber at an angle of 45° approximately as shown in Fig 5 and scribe a line towards you along the edge of the straight edge.

Fig 5
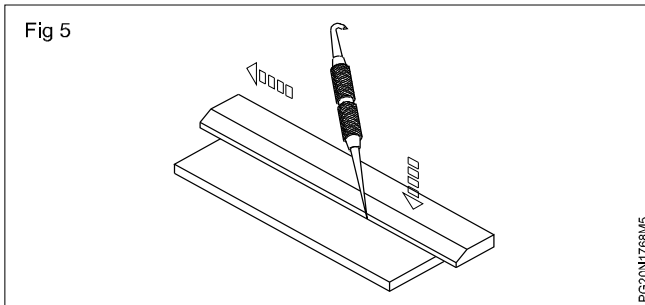
10 If the inclination is opposite from you, it will cause damage to the sheet and will remove the top layer of the metal.

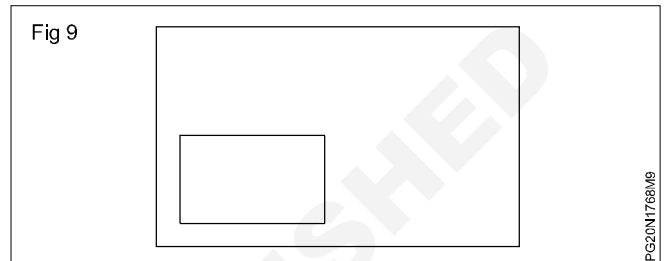11 Don't apply excessive pressure while scribing lines using the scriber to avoid the removal of the metal. (Fig 6)

Fig 6
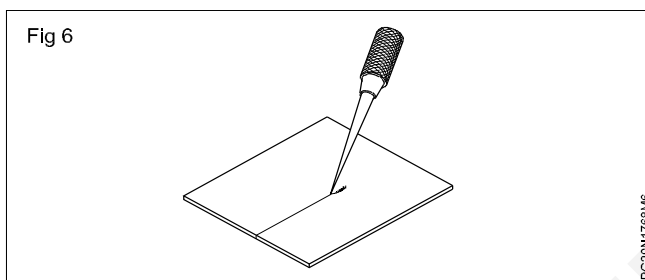
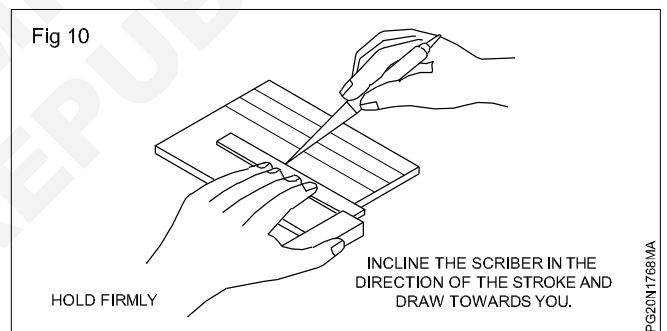12 The line AB is the parallel line to the datum xx (Figs 7 & 8)

Fig 7
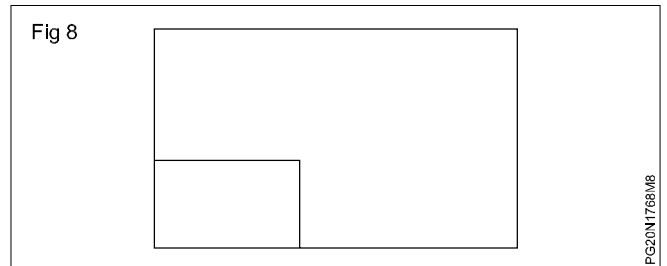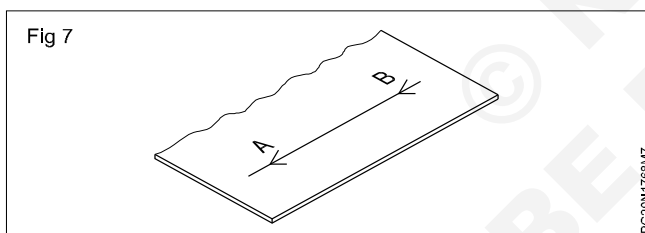
Fig 8

For economical marking

> **To avoid wastage, always scribe lines from left hand bottom corner as shown in Fig 8 but not as in Fig 9.**

Fig 9

> **Draw parallel lines as in Fig 10 as per the dimensions.**

Fig 10

HOLD FIRMLY

INCLINE THE SCRIBER IN THE DIRECTION OF THE STROKE AND DRAW TOWARDS YOU.

— — — — — — — —

TASK 4: **Cutting the sheet metal along straight line by straight snips**

1   Hold the sheet in one hand and with the other hand, hold the snips handle at the end and place the upper blade of the snips on the line by keeping a smaller opening angle. (Fig 1)

Fig 1

CORRECT GRIP OF SNIPS WHILE CUTTING
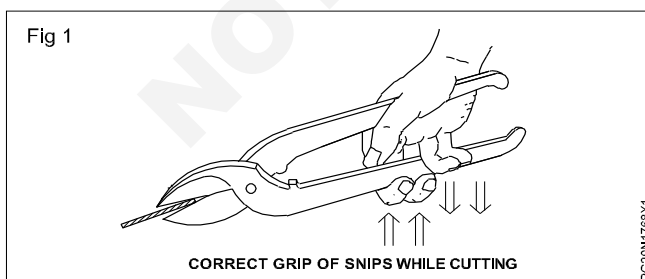
2   Grip the snips so that both the blades are engaged with each other without any clearance between the blades.

3   Maintain the gap in between the blades, to less than 200 (Figs 2 & 3)

Fig 2   LESS THAN 20°

Fig 3   MORE THAN 20°

DO NOT GRIP
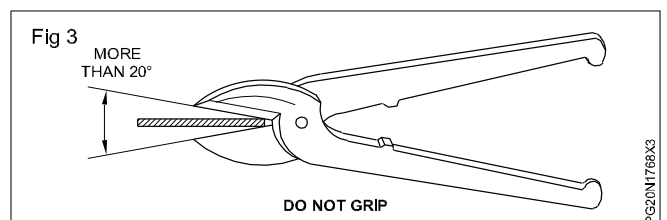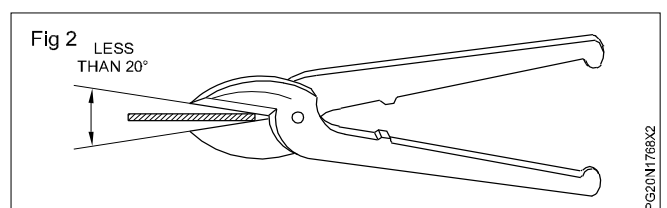
4   Keep the blade perpendicular to the surface of the sheet metal and hold the snips straight (Fig 4).

> **Do not use the full length of the blade for a single stroke.**
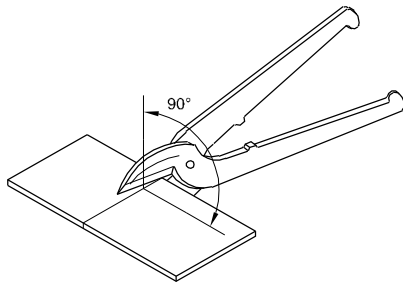
Fig 4

If you use the full length of the blade for a single stroke, the cutting line will not be straight and also the blade corner will damage the sheet. (Fig 5)
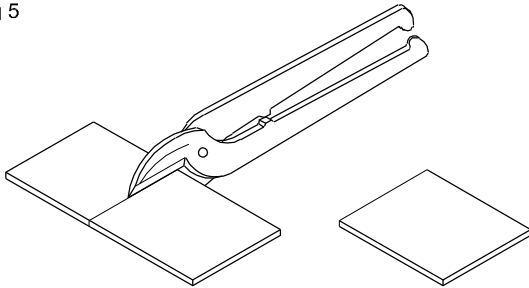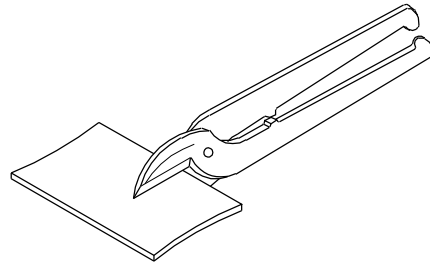

Fig 5

As far as possible, keep a small part of the sheet on the left hand side at the time of cutting the sheet. (Fig 6)
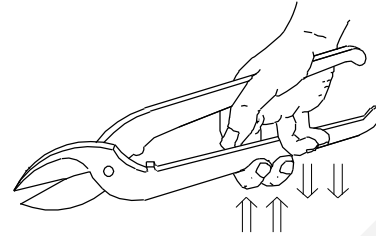
If stops are not provided in snips, care should be taken while cutting the sheet, not to pinch the palm of the hand between the bent ends of the snip handles while closing. (Fig 7)
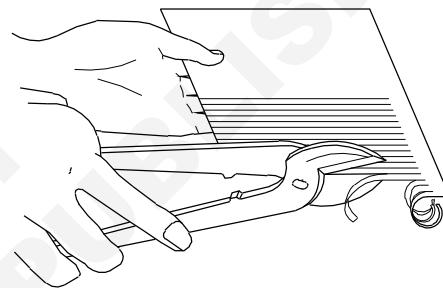

Fig 6

Fig 7

5   Cut the material along the scribed lines. (Fig 8)

Fig 8

TASK 5: **Marking and cutting of sheet to various geometrical shapes**

1   Planish the sheet metal on a tinman's anvil using a mallet.

2   Check the size of the square sheet as per job drawing using a steel rule.

3   Mark a square of 150 mm side using a steel rule, straight edge and a "L" square. Mark the centre line as shown in job drawing.

4   Punch the centre point using a dot punch and 1/2 lb Ball pein hammer.

5   Draw a circle of 60 mm radius from the centre point using steel rule and a wing compass.

6   Mark a hexagon of 50 mm side in the circle as per job drawing, using a compass and a steel rule.

7   Mark a pentagon of 40 mm side within the hexagon as per job drawing using a wing compass and a steel rule.

8   Draw an equilateral triangle of 40 mm inside the pentagon as per job drawing using a divider and a steel rule.

9   Cut these geometrical shapes one by one using straight snips.

Construct a square shape

1   Planish the sheet metal using a wooden mallet and a tinman's anvil stake for better illustration, let us take a sheet of 160x160 mm and construct a square of 150x150 mm.

2   Check the size of the sheet. (160 mm square)

3   Draw a straight line parallel to the base edge at a distance of 5 mm using a 'L' square and a scriber as shown in Fig 1.
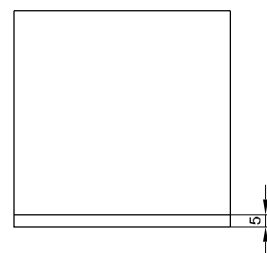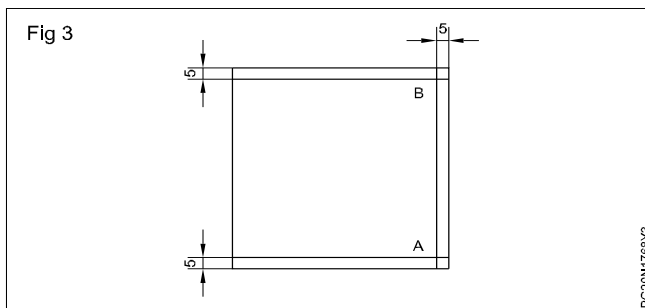

Fig 1
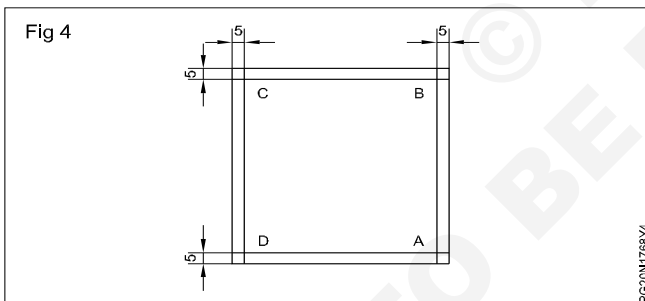
4 Mark a point 'A' at 5 mm distance from the right side and draw a perpendicular line using the 'L' square and a scriber as shown in Fig 2.


Fig 2
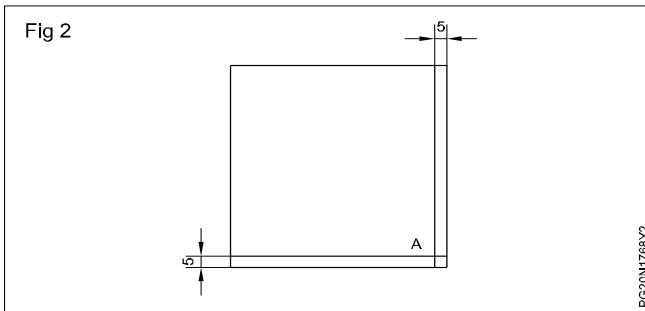
5 Mark a point "B" at a distance of 150 mm from point "A" on this line using the "L" square as shown in Fig 3.


Fig 3

6 Mark a line perpendicular from point 'B' using the 'L' square.

7 Mark a point "C" at a distance of 150 mm from point `B'. (Fig 4)

Fig 4

8 From point 'C', draw a perpendicular line towards base by using the "L" square.

9 Now, this line will cut the base line. Name the meeting point as "D". (Fig 5)

Fig 5
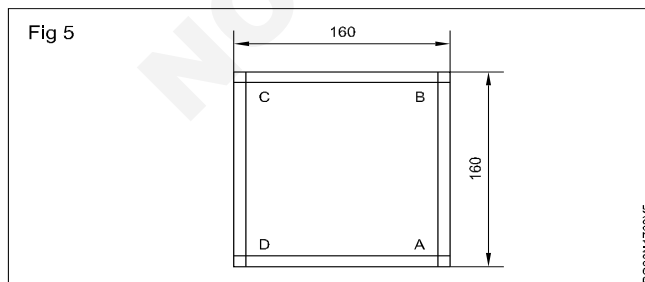
10 Now you will get a square of ABCD.

11 Mark two points at 75 mm on line DA and CB. Join the two points as horizontal centre line as shown in Fig 6.

Fig 6
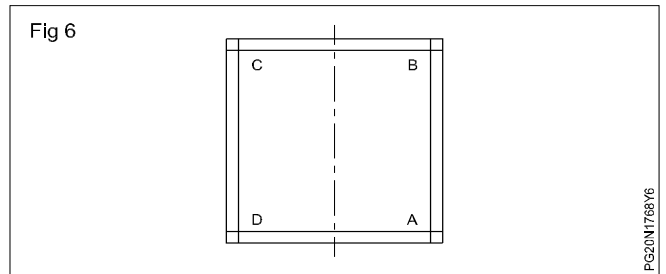
12 Mark the points 75 mm on line AB & CD. Join the two points as vertical centre line as shown in Fig 7.


Fig 7
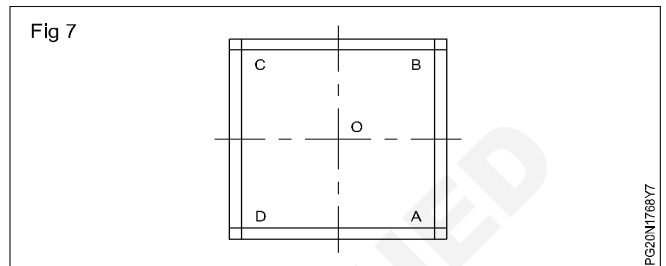
13 Name the meeting point of both on the centre lines as "O".

14 "O' is the centre point of the square.

Construct a circle inside a square

1 Set the wing compass for a given radius using a steel rule tighten the wing nut and check the dimension again.

2 Hold the compass head with the palm of your hand to prevent the compass point from slipping from the centre point. (Fig 8)


Fig 8
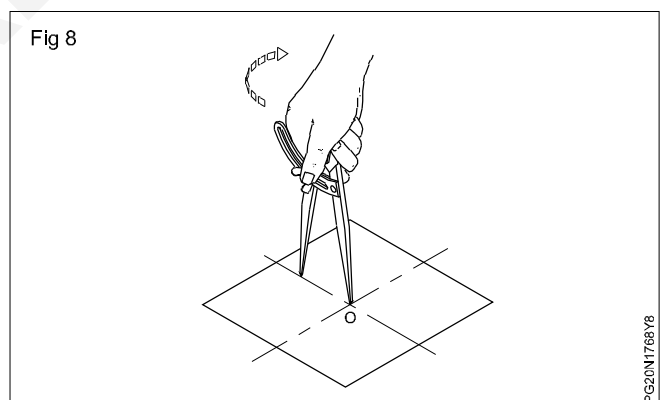
3 Do not press the wing nut.

4 Draw a half circle clockwise from left to right, using thumb pressure. (Fig 9) Change the thumb position of the compass and mark the rest of the circle anticlockwise from left to right. (Fig 10)

5 While marking, tilt the compass slightly in the direction of the rotation to avoid chattering of point..

6 Mark clearly at the first stroke itself.
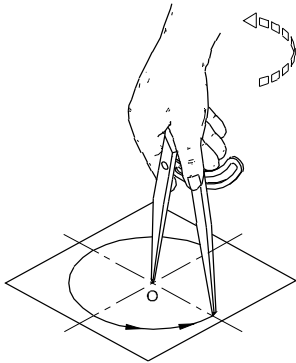
Construct a hexagon inside a circle

1 Draw the circle of a given radius using wing compass.

2 Radius of the circle = side of the hexagon

Fig 9
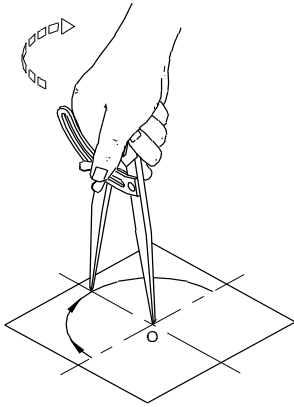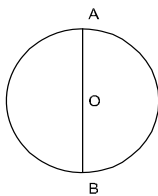

Fig 10

3 Mark points 'A' and 'B' on the circumference of the circle on a line passing through the centre point of the circle. (Fig 11)
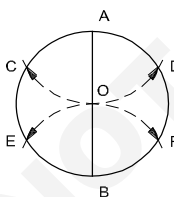

Fig 11

4 From points 'A' and 'B' mark points C,D,E,F on the circle using wing compass taking the radius of the arc as the radius of the circle. (Fig 12)
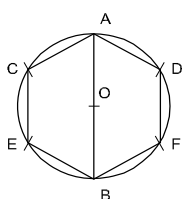

Fig 12

5 Join points A,D,F,B,E&C.

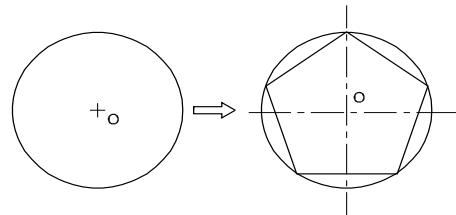6 Now a regular hexagon is inscribed in the circle. (Fig 13)

Fig 13

Construct a pentagon inside a circle

1 Inscribe a pentagon in a circle. (Fig 14)

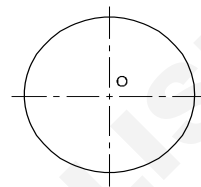2 Take the radius of a circle as 0.833 x the side of the pentagon.

Fig 14

3 Set the wing compass to the given radius by using steel rule.

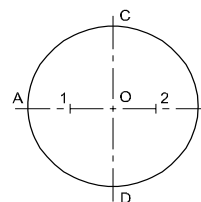4 Draw a circle with "0" as centre by using a wing compass. (Fig 15)

Fig 15

5 Name the horizontal centre line as AB.

6 Divide the line AB into 4 equal parts and number it as shown in Fig 16.

Fig 16

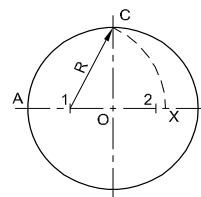7 1 as centre and 1C as radius draw an arc cutting AB i.e horizontal centre line and name it as "X". (Fig 17)

Fig 17
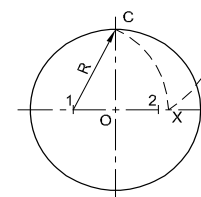
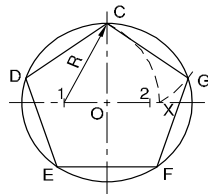8 From "C" as centre, "CX" as radius, draw an arc cutting the circle, and name it as "G". (Fig 18)

Fig 18

9 Taking CG as radius, mark points F,E & D respectively on the circumference of the circle as shown in Fig 19.
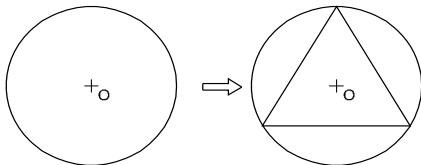
Fig 19

10 Join the points CG, GF, FE, ED & DC.

Now you get a pentagon.

Construct an equilateral triangle inside a circle

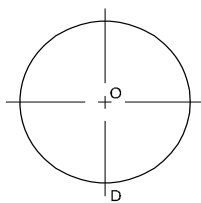1 Inscribe an equilateral triangle in a circle (Fig 20)

Fig 20

2 Take the radius of a circle as 0.58 x the side of the equilateral triangle.

3 Draw the circle with the above radius. (Fig 21)

Fig 21

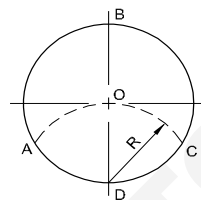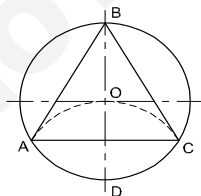4 Draw an arc AC from point D, taking DO as radius. (Fig 22)

Join AB; BC & AC.

Fig 22

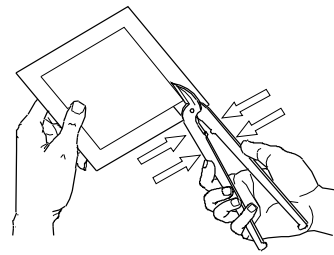5 ABC is the equilateral triangle drawn inside the given circle. (Fig 23)

Fig 23

Cut geometrical shapes

1 Inspect the snips to make sure that the blades are neither too loose nor too tight.

2 Hold the snip in one hand and sheet metal in the other hand. (Fig 24)

3 Open the snips and begin to cut from the edge of the metal.

Fig 24

4 To obtain a clear cut, keep the blade at right angle to the metal being cut.

5 Do not use the full length of the blade while cutting. This prevents small burrs and joggle edges.

6 While cutting always keep the blade on the line, if necessary change the direction gradually according to the shape to be cut.

7 While cutting, move the snips forward and sheet metal towards you along the line of cut. Synchronise this motion to cut in correct shape. Continue this process till the full length is cut as per the marking.

8 For the outside circular cut trim off the excess metal by cutting off the corners as shown in Fig 25.
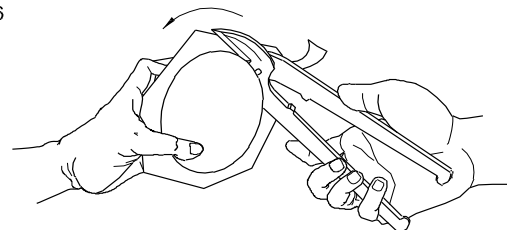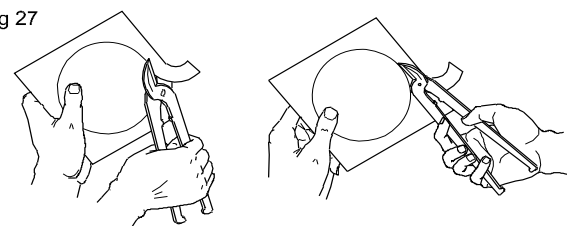

Fig 25
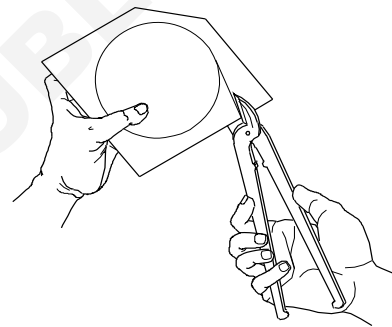
9 Hold the snips such that the blades do not cover the marking line. Take continuous small cuts, rotate the metal uniformly to get a correct circular/curved shape. (Figs 26 & 27)

10 Use straight snips for external circular cutting and bend snips for internal circular cutting.

Fig 26

Fig 27

(a) WRONG   (b) CORRECT

CUTTING OUT A CIRCULAR DISC

Marking out of simple development

Objectives: At the end of this exercise you shall be able to
• **develop and layout the pattern for rectangular box by parallel method**
• **cut straight lines, corners and notches as per the layout.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Straight snip	- 1 No.
• Steel rule	- 1 No.
• Straight edge	- 1 No.

Equipments/Machineries

• Anvil	- 1 No.

Materials

• Metal sheet	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.

45° (TYP)

6

200

100

10

6

354

100

10

INSIDE HEMMED FLANGE

10

100

354

200
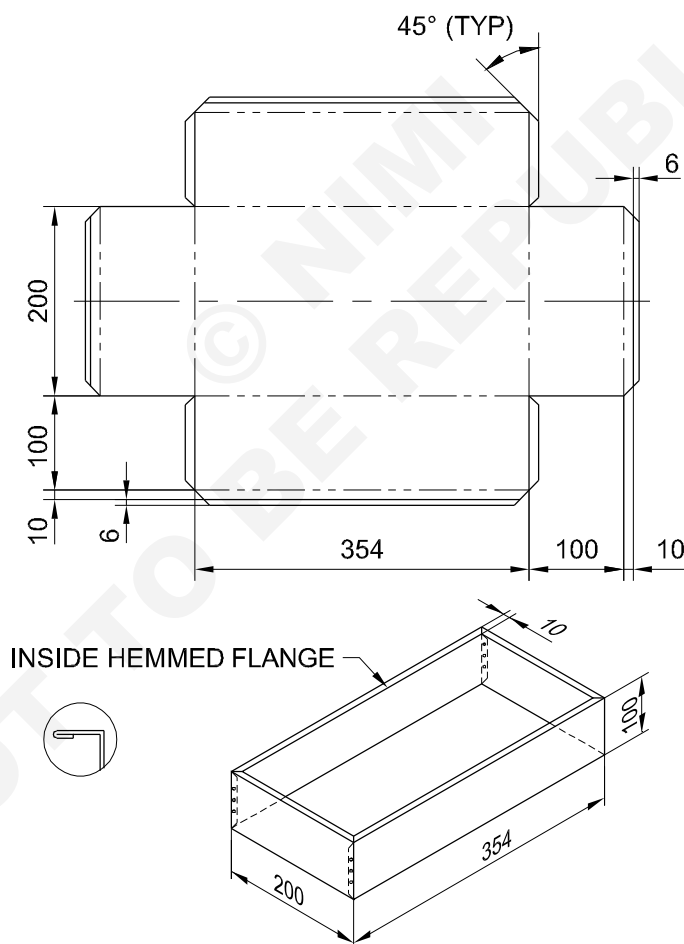
1	ISSH 600 x 450 x 0.61		G.I SHEET			1.7.69
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.

SCALE 1:8	**MARKING AND CUTTING OF SQUARE NOTCHES & PROFILES**	DEVIATIONS ±2	TIME 10h
		CODE NO. PG20N1769E1	

Job Sequence

Marking out of simple development and cutting of square notches

- Check the size of the raw material as per drawing using a steel rule.

- Flatten the sheet metal Tinman's anvil using a wooden mallet.

- Develop and layout the pattern for rectangular box by parallel line method on sheet metal.

- Cut the sheet metal pattern using a straight snip notch and clip corners.

Skill sequence

Developing and cutting

Objectives: This shall help you to
- **calculate the developed length and width**
- **cut the pattern with notches.**

Calculate developed length and width of a rectangular box.

Developed length = Base length + 2 (Side height + flange length + Single hem allowance)

354 + 2 (100+10+6) = 586 mm.

Developed width = Base width + 2 (Side height + flange length + single hem allowance)

= 200 + 2 (100+10+6) = 432 mm

Mark and cut the sheet metal workpiece to the size of 586 x 432 mm maintaining squareness.

Draw the centre lines of the length and width XX and YY. (Fig 1)

Fig 1
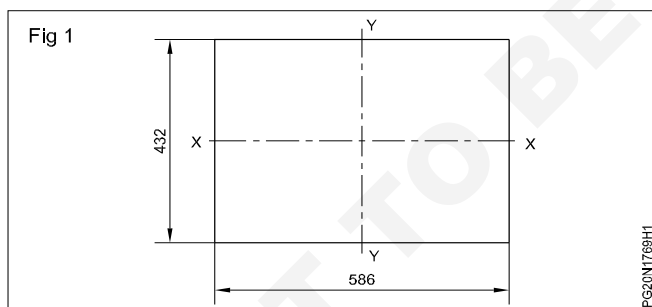
Draw the base length and width at the centre of the workpiece. Mark lines at 177 mm on both sides of YY and 100 mm on both sides of XX. (Fig 2)

Fig 2
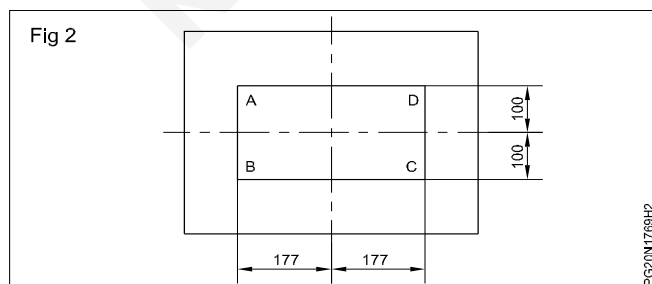
Draw lines for 100 mm height of the four sides of the rectangular box parallel to AB, BC, CD and DA. (Fig 3)

Fig 3
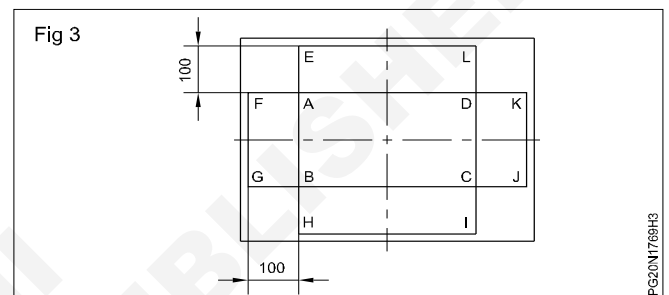
Draw lines for 10 mm flange and 6 mm single hemming allowance on the four sides parallel to FG, HI, JK and LE. (Fig 4)

Fig 4
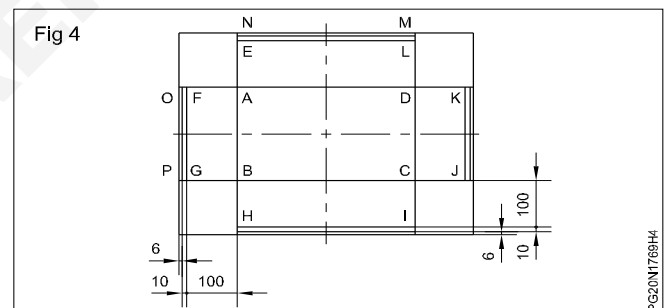
Draw lines for 12 mm lap for the rivetted joint at the corners of the rectangular box parallel to BH, CI, DL and AE. (Fig 5)

Draw lines for 45^0 slant notches at points H,I,J,K,L,E,F and G, A,B,C and D. (Fig 5)

Cut the unwanted area shown in shadow using a straight snip. (Fig 5)

Deburr the edges of the sheet metal pattern using a smooth flat file.

Fig 5
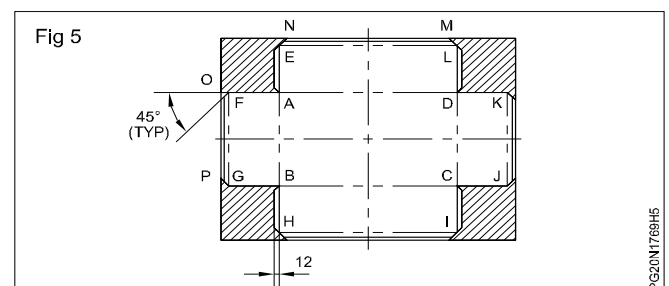
Practice on marking out for flaps for joints

Objective: At the end of this exercise you shall be able to
• **develop and layout the pattern.**
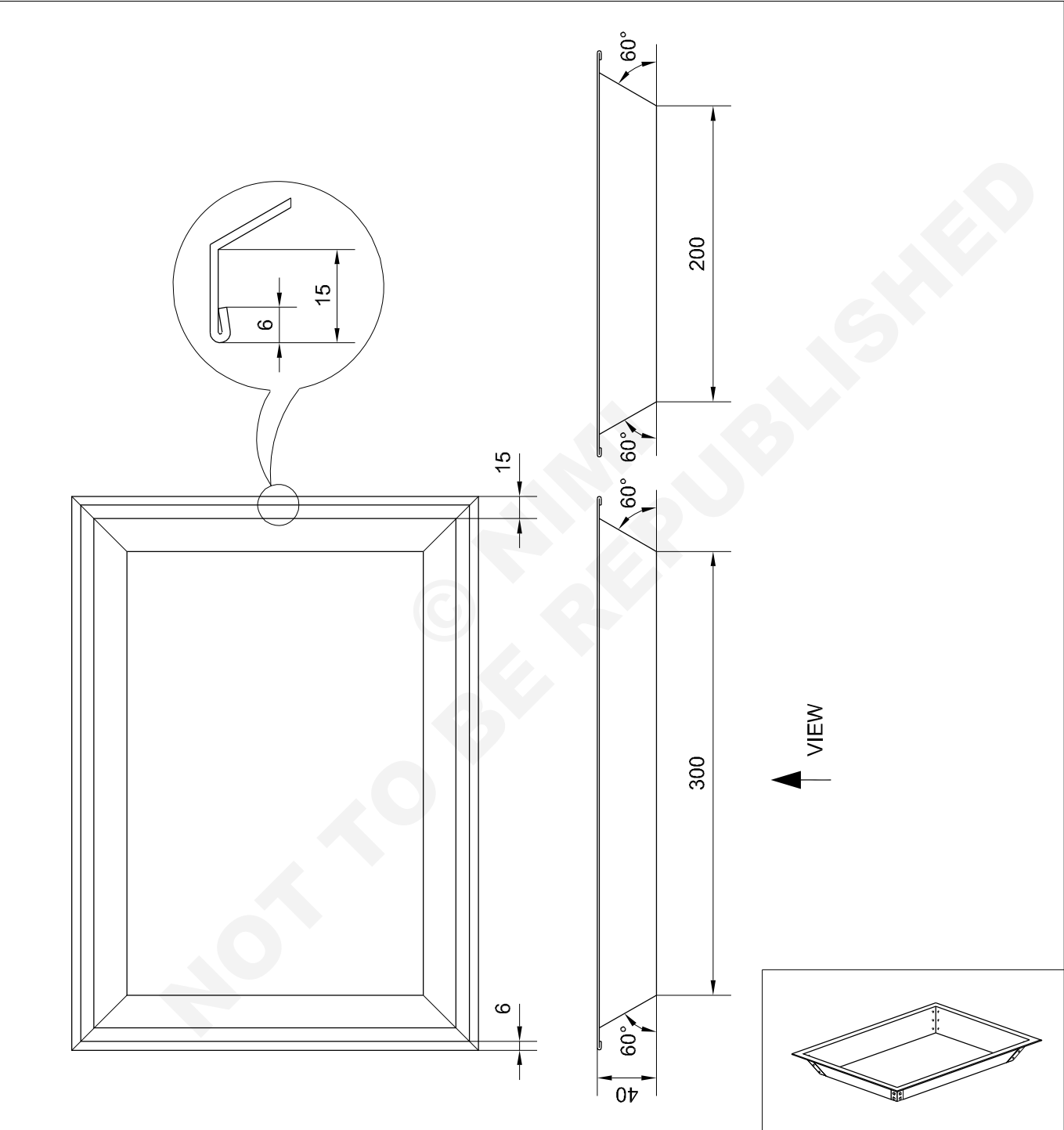
1	ISSH 450 X 350 X 0.61		STEEL SHEET			1.7.70
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.

SCALE 1:4	**MARKING AND CUTTING OF 'V' NOTCHES**	DEVIATIONS ±1	TIME 10h
	& PROFILES	CODE NO. PG20N1770E1	

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Work bench	- 1 No.
• Straight snip	- 1 No.	**Materials**	
• Steel rule	- 1 No.	• Sheet metal	- as reqd.
Equipments/Machineries		• Cotton waste	- as reqd.
• Anvil	- 1 No.	• Soap oil	- as reqd.

Job Sequence

Marking out for flaps for joints

• Select the raw material.

• Check the raw material as per drawing by using steel rule.

• Flatten the metal sheet by using tinman's anvil and wooden mallet.

• Develop the layout pattern by parallel line method on sheet as shown in drawing.

• Cut a sheet metal pattern by using straight snip notch and clip the corner.

• Develop a pattern layout for the tray, considering allowance for the flanges and single hem, on sheet metal by geometrical Construction method using a scriber, steel rule, protractor and divider. (Fig 1)

• Cut the sheet metal as per the pattern layout on the sheet metal using a straight snip.

• Fold 6 mm edges to make single hems on the four sides on the barfolder.

• Fold 15 mm sides at 60° to make flanges on the four sides of the taper tray on the bar folder.

• Fold 46 mm four sides, at 60° as shown in the drawing, using a pair of angle iron, a benchvice, a 'C' clamp and a wooden mallet.

• Check the angle of the tapered sides using a bevel protractor and rectify, if necessary.

PATTERN LAYOUT FOR TAPER TRAY
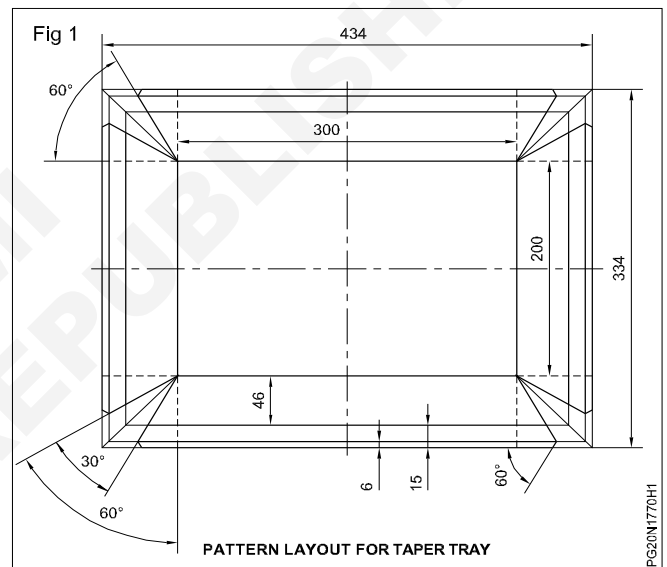
Skill Sequence

Preparing the pattern layout

Objectives: This shall help you to
• **calculate the developed length and width**
• **develop the pattern layout.**

Let us take the same job for better illustration.

Calculate the developed length and the width of a rectangular taper tray.
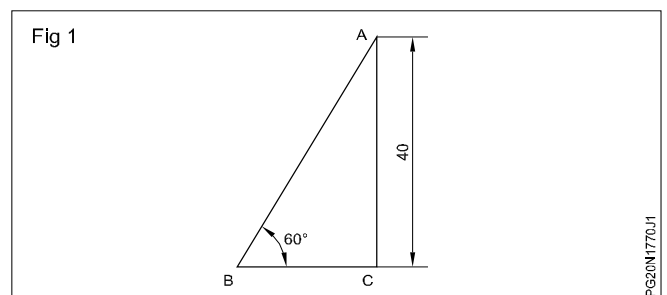
Given

Base length = 300 mm

Base width = 200 mm

Flange length = 15 mm

Let us take the single hem as 6 mm and calculate the slant height

AB is the slant length.

Given AC = 40 mm (Fig 1)

$\sin 60^0$ = AC/AB

0.866 = AC/AB

AB $= 40/0.866$

AB $= 46.1$ mm

Let us take the slant length as 46 mm

Developed length = Base length + 2 (Slant height + flange length + Single hem allowance)

300 + 2 (46 + 15 + 6) = 300 + (2 x 67)

$\qquad$ = 300 + 134

$\qquad$ = 434 mm

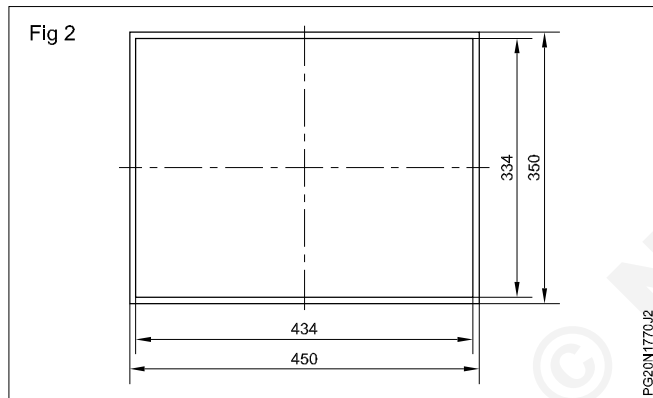Developed width = Base Width + 2 (Slant height + Flange length + Single Hem allowance)

$\qquad$ = 200 + 2 (46 + 15 + 6)
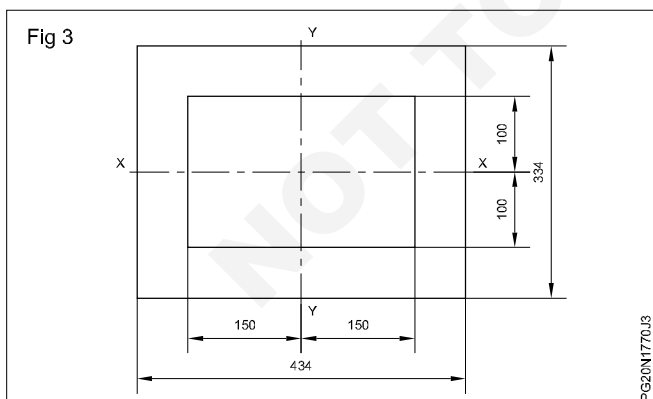
$\qquad$ = 200 + 2(67)

$\qquad$ = 200+ 134

$\qquad$ = 334 mm.

Mark and cut the sheet metal to the size 434 x 334 mm. (Fig 2)

Fig 2

Draw the centre line of length and width XX and YY respectively. (Fig 3)

Draw the base length and width at the centre of the sheet metal workpiece, marking lines at 150 mm on both sides of YY and 100 mm on both sides of XX. (Fig 3)

Fig 3

Draw lines for 46 mm slant height of the four sides of the rectangular taper tray parallel to AB, BC, CD and DA as shown in the Fig 4.

Fig 4
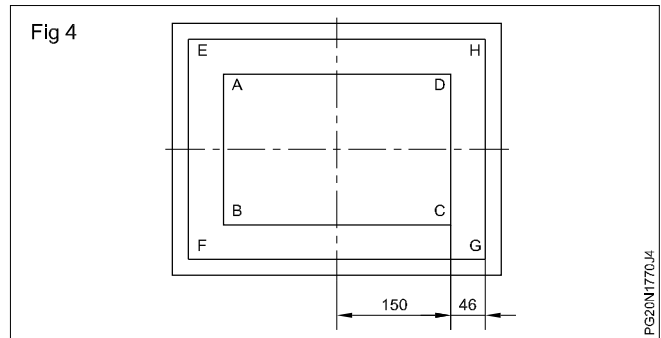
Draw lines for 15 mm flange and 6 mm single hem allowance on the four sides parallel to EF, FG, GH and HE as shown in the Fig 5.

Fig 5
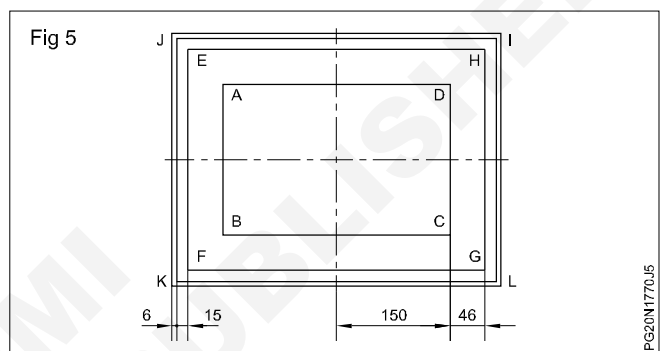
Draw lines at an angle of 30° at points A,B,C,D at both ends of lines AB, BC, CD and DA as shown in Fig 6.

Draw lines at an angle of 60° at points I,J,K,L,M,N,O,P as shown in Fig 6.

Cut the unwanted portion of the pattern shown by shadow in Fig 6.

Fig 6

— — — — — — — —

Practice on making single hem and double hemming

Objectives: At the end of this exercise you shall be able to
• **determine and mark the joining allowances for locked grooved joint**
• **make the locked grooved joint using a hand groover.**

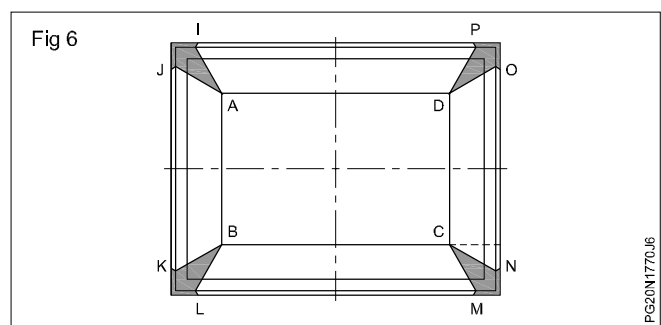| Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Timman anvil	- 1 No.
• Straight snip	- 1 No.	**Materials**	
• Steel rule	- 1 No.	• Metal sheet	- as reqd.

PROCEDURE

TASK 1: **Locked grooved joint (seam)**

1 Mark and cut the raw material into two pieces of size 100 mm x 75 mm each.

2 Flatten the workpieces.

3 Determine the fold size of the given seam.

4 Mark the straight lines for folding on the two sheets using a steel rule and a scriber.

5 Fold the two pieces to an acute angle on the marked line using a hatchet stake steel plate and a mallet to form the hooks.

6 Make the folded widths flat by filling with a scrap band sheet of approximately 1.5 times thickness of sheet and pressing with a mallet to get the pocket for lock.

7 Interlock the folds and press the joint.

8 Using a hand groover lock the joint and finish.

Skill sequence

Marking and forming

Objectives: This shall help you to
• **mark the allowance for double hemming**
• **make double hemming at the edges of a sheet metal using a hatchet stake.**

Determine the fold size for the given width of the seam.

Fold size = Width of the lock - 3 times the material thickness.

New from the fold size determine the total allowance for the locked grooved joint.

Total allowance = (3 x the fold size) + (6 x the thickness of the sheet)

For example, if the width of the lock is 6mm and the thickness is 0.5 mm then, the fold size = 6 - (3 x 0.5) = 4.5mm

The total allowance = (3 x 4.5) + (6 x 0.5) = 13.5+3=16.5mm.

Mark the line at a distance of 1/3rd of the total allowance on one sheet and two lines at a distance of 1/3rd and 2/3rd of the total allowance on another sheet.

For example, if the total allowance is 16.5 mm then, mark the line at a distance of 5.5mm from the edge on one sheet and two lines at a distance of 5.5mm and 11.00mm from the edge on another sheet (Fig 1).

Fig 1
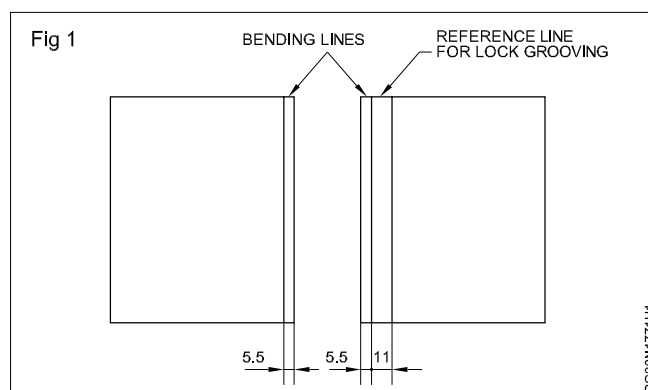
Fold the workpiece to more than 900 on the hatchet stake using a wooden mallet (Fig 2a) and then place the band sheet of 1.5 times the thickness as shown in Fig 2b and flatten the edge using the wooden mallet. This looks like a hook.

Make a similar hook on the other workpiece also.

Interlock and place the workpiece on the dressing plate. (Fig 3a)

Fig 2

(a)   (b)

BAND IRON SHEET OF THICKNESS 1½ TIMES THICKNESS OF SHEET
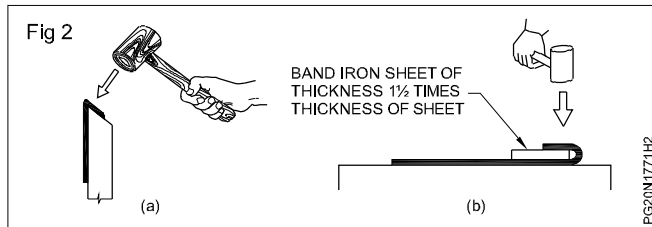
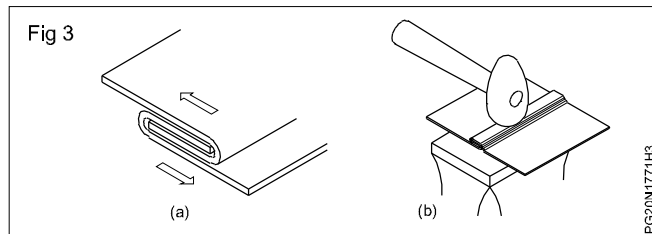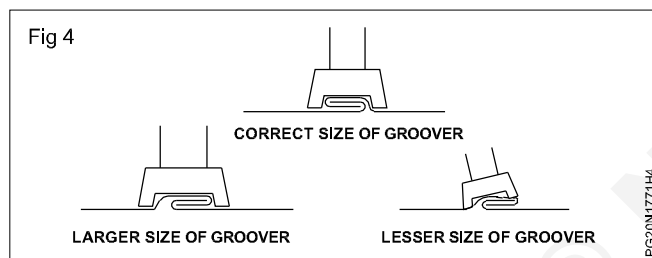While interlocking, ensure that the interlock is parallel and tight at both ends visually.

Press the joint to close down using the wooden mallet, to get the grooved joint (seam). (Fig 3b)

Fig 3

(a)   (b)

Select the hand groover of a given width of the lock (seam). If proper size groover is not used, it may cause improper locking of the grooved joint. (Fig 4)

Place the groover over the fold at one end. (Fig 5)

Fig 4

CORRECT SIZE OF GROOVER

LARGER SIZE OF GROOVER   LESSER SIZE OF GROOVER

Fig 5

LIGHT BLOWS

MOVE PUNCH TO VERTICAL POSITION AFTER INITIAL BLOWS

GROOVING PUNCH

LOCATE GROOVE ON EDGE OF FOLD

SOLID BASE

CLINCHING THE GROOVE

Hold the hand groover in one hand and strike the top of the groover with ball pen hammer by the other hand and clinch the groove. Similarly clinch the groove at the other end.

Advance this work every 1/3 of the groover length, until the entire groove is clinched down. (Fig 6)

Finish the locked grooved joint (seam) with the hand groover and the hammer.

Fig 6

END ALIGNMENT

GROOVING

Practice on knocked up single seam

Objectives: This shall help you to
- **make single seam (paned down joint) using hand tools**
- **make double seam (knocked up joint) using hand tools.**

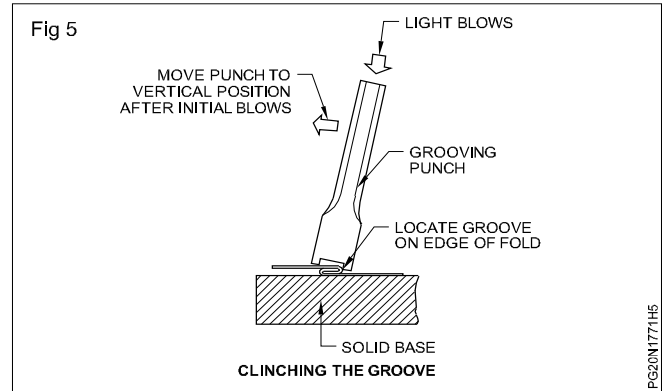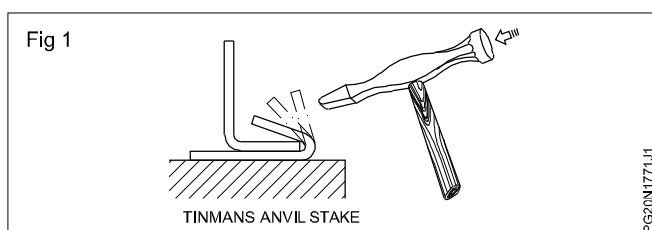Cut raw material to size 75 x 75 for part 1 & 2

Flatten sheets

Form single seam in part 2 for Pane down seam

Form flange in part 1 for pane down seam

Joint part 1 & 2 by pane down seam

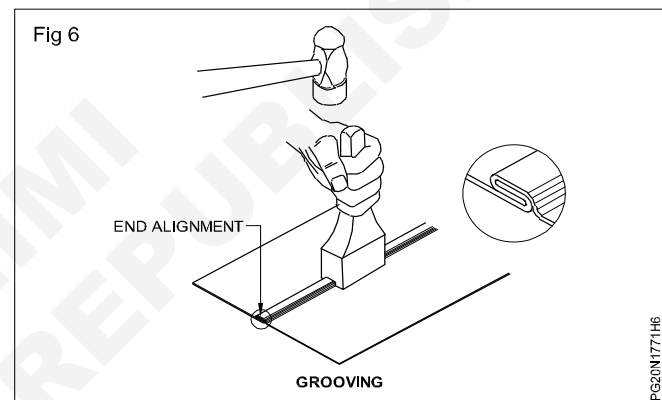Form knocked up seam as following process.

The setting down operation for the single seam (paned down joint) should be carried out stage by stage. (Fig 1)

Fig 1

TINMANS ANVIL STAKE

While striking, stretching and buckling of the metal is occured at the bottom edge. (Fig 2)

The finished single seam (paned down joint). (Fig 3)

Fig 2

Fig 3

90°

SINGLE SEAM
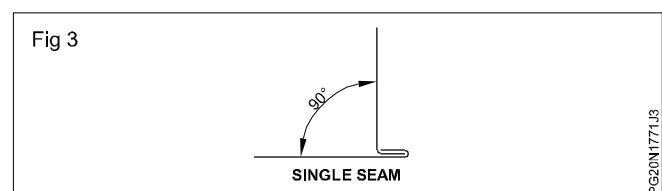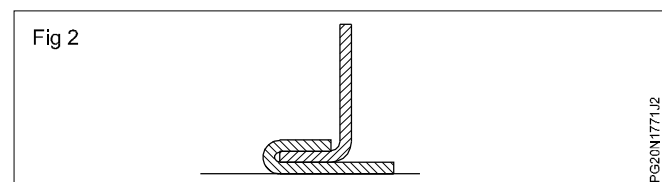
Setting and double seaming

Objectives: This shall help you to
• **place the joint on halfmoon stake and square stake**
• **finish the knocked upjoint.**

For knocked up seam, the paned down joint is turned up. Place the pane down joint on a half moon stake and join by a mallet. (Fig 1)

Fig 1

Support the job hand and strike with the mallet all around to an angle. (Fig 2)

Fig 2

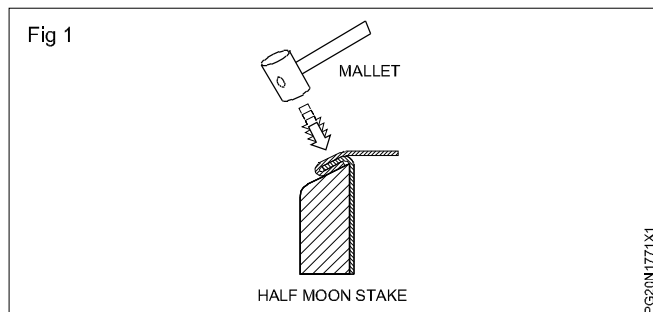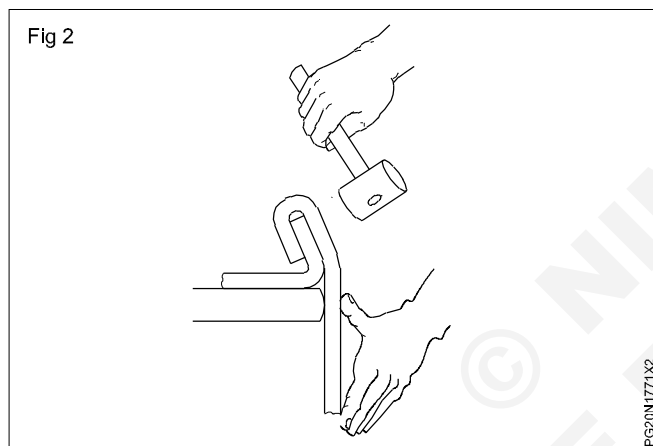Increae the angle of the bend gradully, while striking with the mallet all around the seam. (Fig 3)

Fig 3
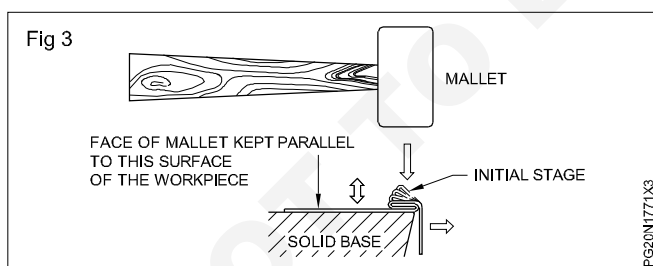
Tighten the double seam (knocked up joint) using the planishing hammers. (Fig 4)

Fig 4
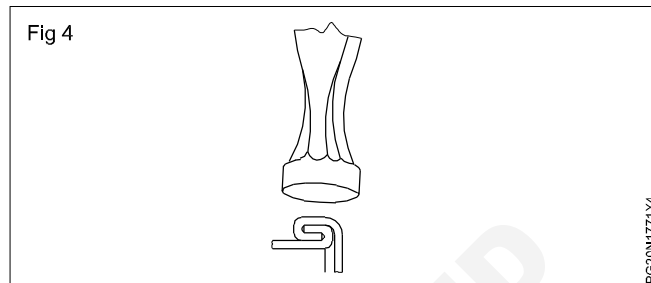
Place the edge of the joint on the square stake and lightly dress the bottom with the planishing hammer. (Fig 5)

The Finished double seam (knocked up joint) is shown in Fig 6.

Fig 5

Fig 6

DOUBLE SEAM
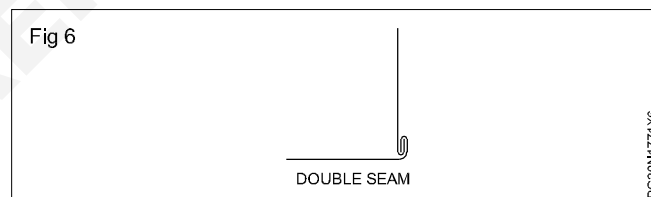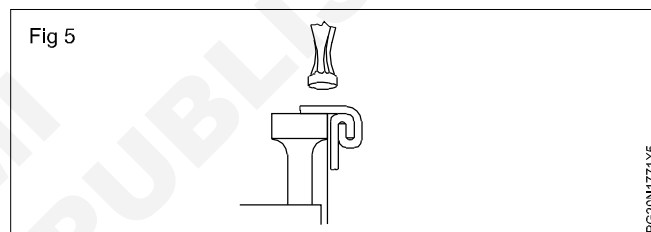
Practice to make cylindrical objects with joints

Objective: At the end of this exercise you shall be able to
• **make cylindrical objects with joints.**

Requirements	
Tools/Instruments	**Materials**
• Trainee's tool kit - 1 No.	• Sheet metal - as reqd.
• Wooden mallet - 1 No.	• Cotton waste - as reqd.
	• Soap oil - as reqd.
Equipments/Machineries	
• Work bench - 1 No.	
• Tinman - 1 No.	

PROCEDURE

TASK 1: **Making cylindrical objects**

1 Develop and layout the pattern for the cylinder (Fig 1) with all allowances for joining and hemming on plain paper by parallel line method.


Fig 1
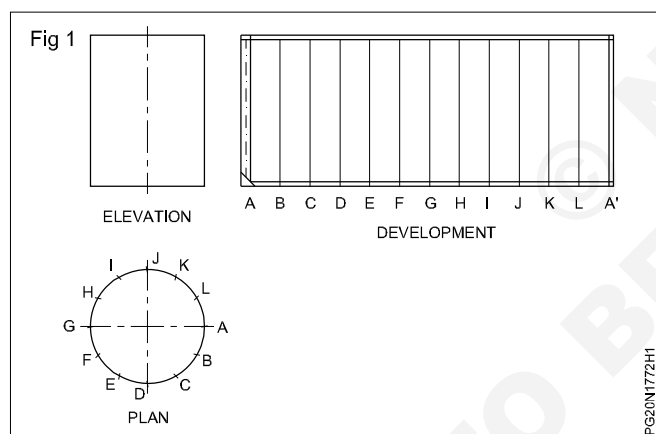
2 Check the pattern for its correctness.

3 Ensure the correct size of the material.

4 Cut the pattern and paste it on the given sheet metal with gum.

5 Cut the pattern with notches using 12" straight snips.

6 Deburr the edges using a smooth flat file 150 mm long.

7 Fold the edges of the sheet metal pattern using a hatchet stake and a mallet in the form of hooks for making the lock grooved joint. (Fig 2)

Fig 2
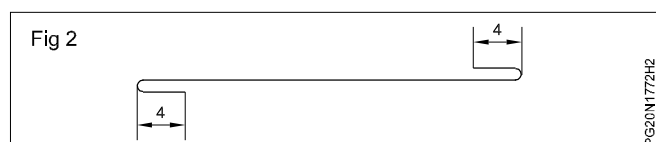
8 Form the sheet metal pattern to cylindrical shape using a round mandrel stake and a mallet. (Fig 3)

Fig 3
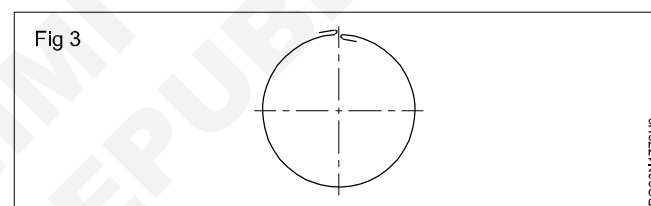
9 Hook the folded edges and make the lock grooved joint using a hand groover. (Fig 4)

Fig 4
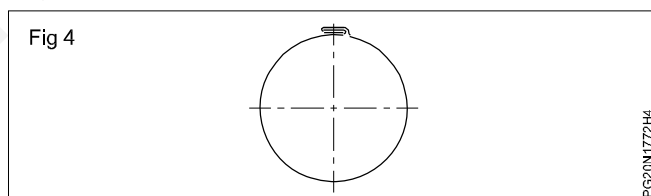
10 Make single hemming on one end of the cylinder using a hatchet stake and Tinman's anvil.

11 Dress the cylinder to regular round shape using a round mandrel stake and a mallet. (Fig 5)

12 Check the roundness of the inside diameter of the cylinder using a gauge.

Fig 5
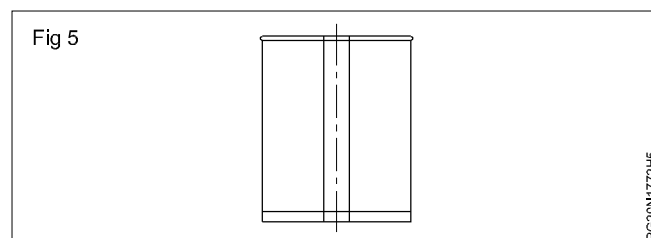
Skill sequence

Forming cylindrical shape by hand process

Objective: At the end of this exercise you shall be able to
• **form a plain sheet to a cylindrical shape by hand process.**

Ensure for the correct size and shape of the pattern. (Workpiece)

Fix the mandrel stake on to the bench plate.

Set and bend the workpiece ends parallel to the axial line of the mandrel. (Fig 1)

Fig 1
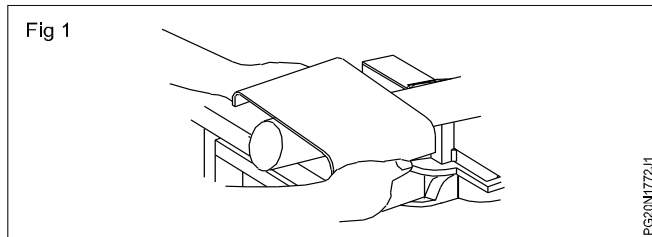
Gradually rotate and form the entire workpiece to cylindrical shape by hand. (Fig 2 & 2A)

Check the formed cylinder for the roundness of the external diameter using an external gauge. See Fig 2 of skill sequence of checking the roundness.

Fig 2
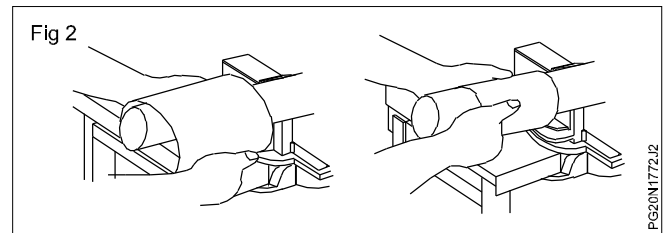
Set the workpiece parallel to the axial line of the stake. If not the edges will not match with each other as shown in Fig 3.

Fig 3
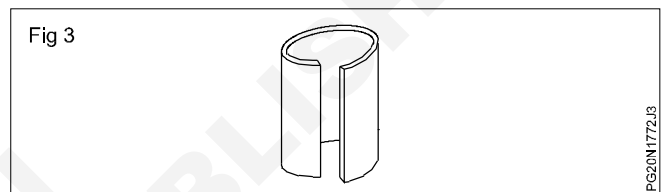
Making lock grooved joint on a cylinder by hand process

Objective: At the end of this exercise you shall be able to
• **make a locked grooved joint on a cylindrical object using hand groover.**

Ensure for correct marking on the pattern, for allowances for making the locked grooved joint.

Fix the hatchet stake in the vice or the bench plate.

Place and set the bending line along the bevelled edge of the hatchet stake. (Fig 1)

Fig 1
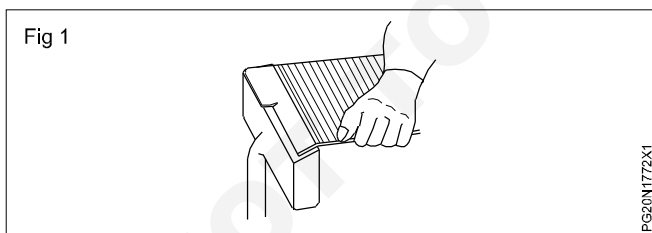
Set the bending line correctly on the bevelled edge of the hatchet stake, to avoid unequal folding.

Form the hooks at both ends in opposite direction using a hatchet stake and a mallet. (Refer Skill sequence Ex.No.12) (Fig 2)

Form the sheet to cylindrical shape using a round mandrel stake. (Refer previous skill sequence).

Interlock the hooks at the ends as shown in Fig 3.

Fig 2

Fig 3
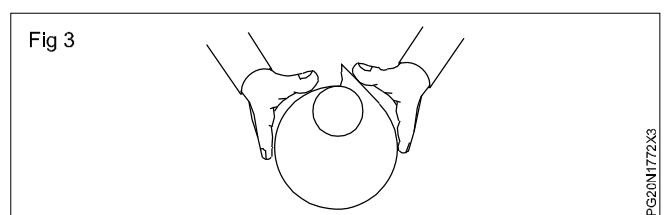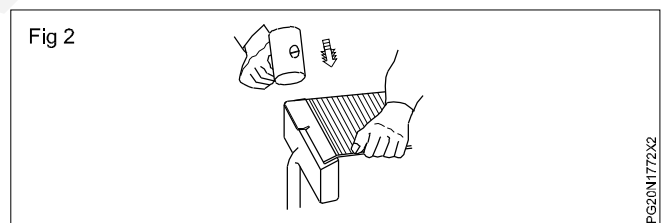
Close down the hooks by light blows using a mallet. This is the grooved seam. (Fig 4)

Fig 4
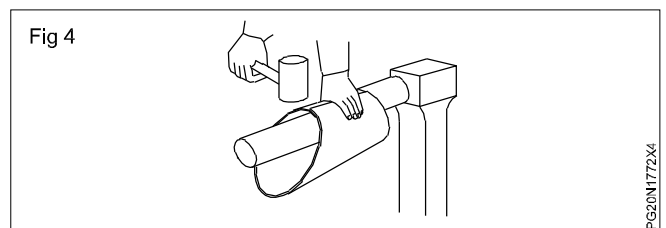
Lock the grooved seam with a hand groover and a hammer as shown in Fig 5.

Dress the formed cylinder to a regular round shape using a round mandrel stake and a wooden mallet.

Fig 5

BRING GROOVER TO VERTICAL POSITION AS WORK PROCEEDS

JOINT FULLY LOCKED
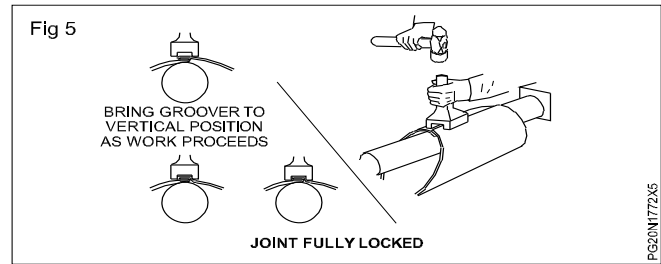
Make a single hemming on a curved edge

Objective: At the end of this exercise you shall be able to
• **make a single hemming on a curved edge using anvil stake and setting hammer.**

Mark the hemming allowance on the formed body using a marking template.

Fix the anvil stake on to the vice or bench plate.

Hold the workpiece such that the marked line coincides with the edge of the stake approximately inclined an angle of 10°. (Fig 1)

Fig 2

FLAT PORTION

SETTING HAMMER

Fig 1

APPROX. 10°

DISTANCE TO BE MARKED

MARKING TEMPLATE

Strike and rotate the workpiece gradually along the marked line to form a small flange using a setting hammer. (Fig 2)

Gradually increase the angle of inclination while forming the flange. (Fig 3)

Finish the hemmed edge on a round mandrel stake by a mallet. (Fig 4)

Dress the disturbed body of the cylinder to a round shape using a round mandrel stake and a mallet.

Fig 3

Fig 4
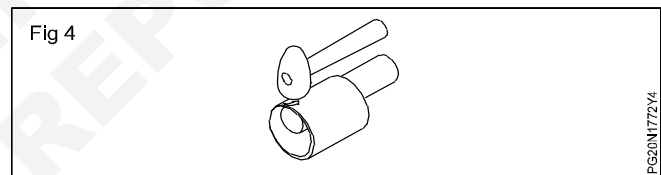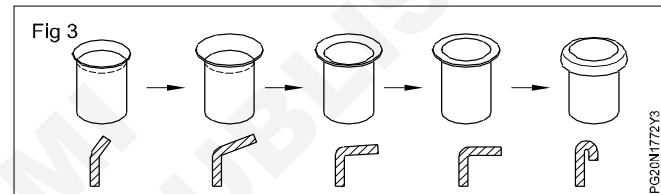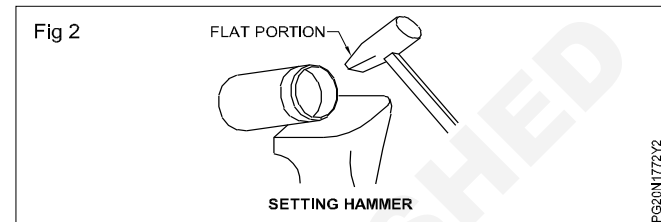
Checking the roundness of a cylindrical body internally and externally

Objective: At the end of this exercise you shall be able to
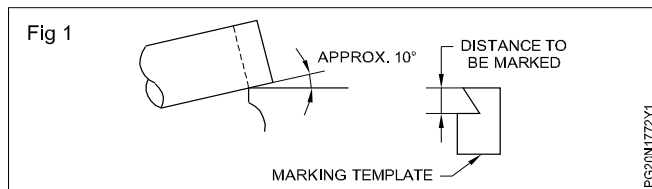• **check the roundness of a cylindrical body internally and externally using gauges.**

Checking the roundness of a cylindrical body internally: Scribe the circle having the inner diameter of the cylinder to be checked using a divider. Cut the workpiece by straight snips 300 mm.

Finish the gauge profile it with a smooth file.

Cut two slots and bend it at 90⁰ as shown in Fig 1. Use this as a grip for holding while checking.

Use this as a gauge for checking the roundness of the inside diameter of a cylinder.

Place the cylinder on the surface plate vertically.
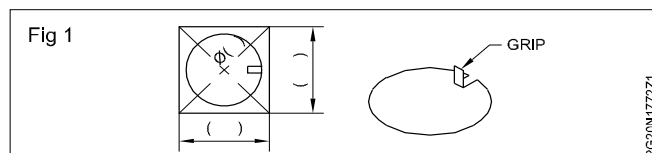
Now insert the gauge by holding the grip and check the roundness of the inside diameter of the cylinder.

If any ovality is observed, rectify it with the round mandrel stake using a mallet.

Checking the roundness of the cylindrical body externally: Scribe the circle having the external diameter of the cylinder to be checked using a divider.

Cut the gauge using bent snips. (Fig 2)

Fig 1

GRIP

Fig 2

EXTERNAL GAUGE
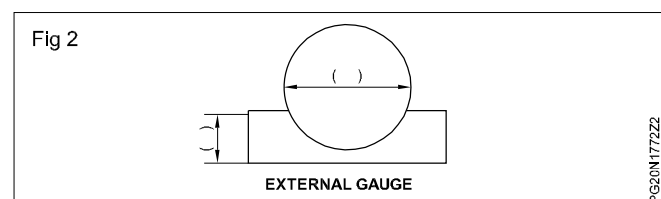
Practice on making simple square table tray with handle

Objective: At the end of this exercise you shall be able to
• **making simple square table tray with handle.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Tin snip	- 1 No.
• Steel rule	- 1 No.
• Scriber	- 1 No.
• Wooden mallet	- 1 No.

Equipments/Machineries

• Timman anvil	- 1 No.
• Work bench	- 1 No.

Materials

• Sheet metal	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Making simple table tray in square shape with handle**

1 Check the size of the raw material as per drawing using a steel rule.

2 Flatten the sheet metal Tinman's anvil using a wooden mallet.

3 Develop and layout the pattern for square tray by parallel line method on sheet metal.

4 Cut the sheet metal pattern using a straight snip notch and clip corners.

5 Develop and layout the pattern for square box handle on both side by parallel line method.

6 Cut the sheet metal handle pattern on sheet metal using straight snip.

Skill sequence

Developing and cutting

Objectives: This shall help you to
• **calculate the developed length and width**
• **cut the pattern with notches**
• **cut the pattern with handle.**

Calculate developed length and width of a square box.

Developed length = Base length + 2 (Side height + flange length + Single hem allowance)

200 + 2 (100+10+6) = 432 mm.

Developed width = Base width + 2 (Side height + flange length + single hem allowance)

= 200 + 2 (100+10+6) = 432 mm

Mark and cut the sheet metal workpiece to the size of 432x432 mm maintaining squareness.

Draw the centre lines of the length and width XX and YY. (Fig 1)

Draw the base length and width at the centre of the workpiece. Mark lines at 100 mm on both sides of YY and 100 mm on both sides of XX. (Fig 2)

Fig 1
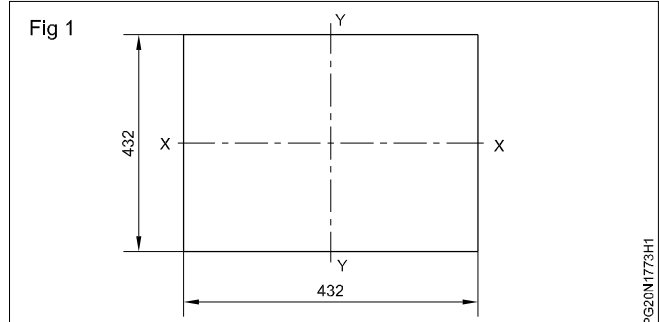
Draw the lines for 100 mm height of the four sides of the square box parallel to AB, BC, CD and DA. (Fig 3)

Draw the lines for 10 mm flange and 6 mm single hemming allowance on the four sides parallel to FG, HI, JK and LE. (Fig 4)

Draw the lines for 12 mm lap for the rivetted joint at the corners of the square box parallel to BH, CI, DL and AE. (Fig 5)
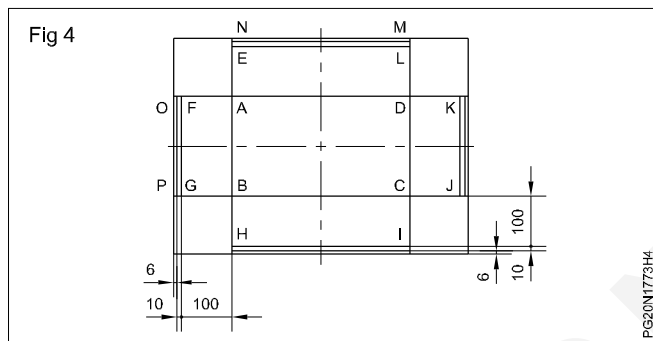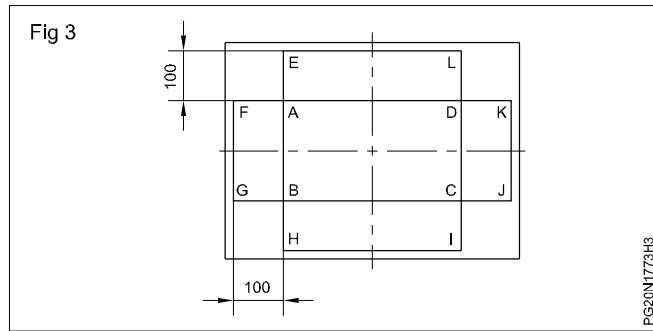
Fig 2

A   D

B   C

100

100

100   100

PG20N1773H2

Fig 3

E   L

F   A   D   K

G   B   C   J

H   I

100

100

PG20N1773H3

Fig 4

N   M

E   L

O F   A   D   K

P G   B   C   J

H   I

6

10   100

6

10

100

PG20N1773H4

Draw the lines for 45^0 slant notches at points H,I,J,K,L,E,F and G, A,B,C and D. (Fig 5)

Fig 5

N   M

E   L

O

F   A   D   K

45°
(TYP)

P G   B   C   J

H   I

12

PG20N1773H5

Cut the unwanted area shown in shadow using a straight snip. (Fig 5)

Deburr the edges of the sheet metal pattern using a smooth flat file.

Fold the sheet and form as square tray.

Folding the corner edges of square tray.

Ensure the square tray corner edges are properly joined together.

Cut the 20 mm width and 70 mm length sheet for handle.

Fold the length edge 5 mm on both side and make a shape of handle.

Fix the handle on the square tray with riveting method as shown in drawing (Fig 6).

Fig 6

PG20N1773H6
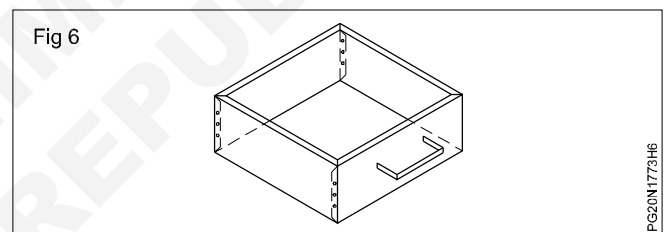
Practice on make simple triangular tray with handle

Objectives: At the end of this exercise you shall be able to
• **develop and layout the pattern for triangular tray**
• **cut straight lines corners and notches as per layout.**
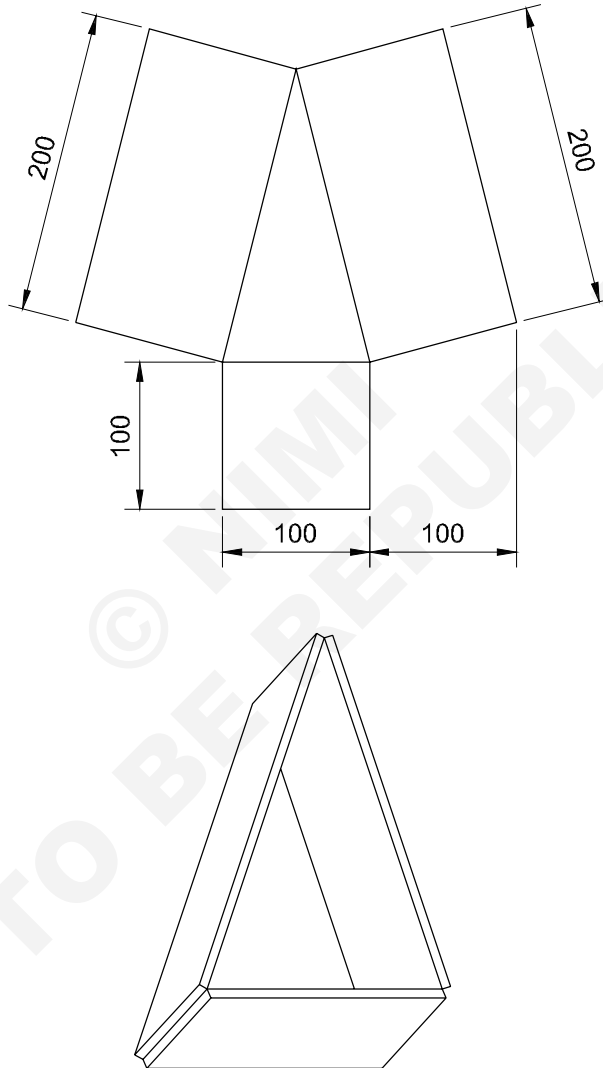
1	ISSH 160 x 160 x 0.508	–	G.I SHEET	–	–	1.7.74
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.

SCALE 1:1	**PLANISHING OF SHEET METAL, MARK & CUT THROUGH THE STRAIGHT LINES**	DEVIATIONS ±1	TIME 10h
		CODE NO. PG20N1774E1	

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Sraight snip	- 1 No.
• Wooden mallet	- 1 No.

Equipments/Machineries

• Tinman anvil	- 1 No.

• Work bench	- 1 No.

Materials

• Sheet metal	- as reqd.
• Cotton waste	- as reqd.
• Soap oil	- as reqd.

Job Sequence

Make a triangular tray with handle

- Check the size of the raw material as per job requirement by using steel rule.

- Flatten the sheet metal by using Tinman anvil and wooden mallet.

- Develop and layout the pattern of triangular tray with handle by parallel line method on sheet metal.

- Cut the sheet metal pattern by using a straight snip notch and clip corners.

- Develop the layout the pattern of triangular tray handle by parallel line method.

- Cut the metal sheet and fold it in the shape of handle.

Skill sequence

Developing and cutting

Objectives: This shall help you to
- **calculate the developed length and width**
- **cut the pattern with notches**
- **make the tray handle and fix it by riveting method.**

Calculate developed length and width of a triangular tray.

Developed length = Base length + 2 (Side height + flange

length + Single hem allowance)

200 + 2 (100+10+6) = 432 mm.

Developed width = Base width + flange length + single hem allowance

= 100 + 1 (100+10+6) = 216 mm

Mark and cut the sheet metal workpiece to the size of 200 x 100 mm maintaining triangularness.

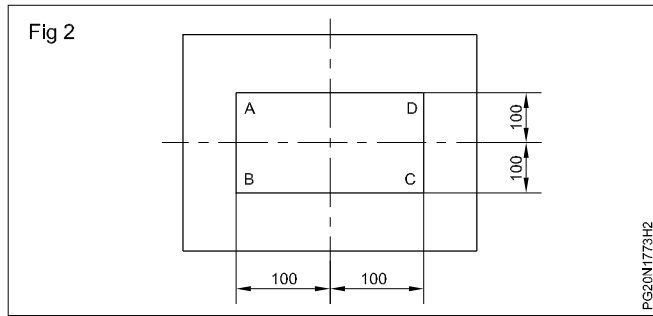Draw the centre lines of the length and width XX and YY. (Fig 1)

Fig 1
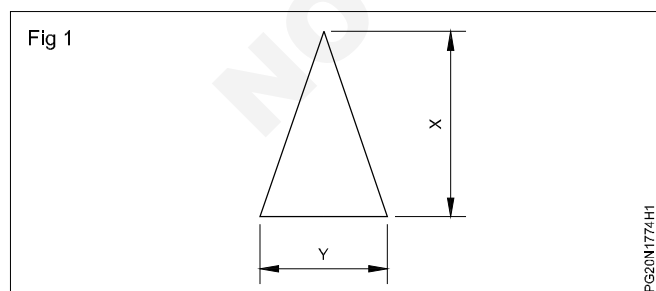
Draw the base length and width at the centre of the workpiece. Mark lines at 50 mm on both sides of YY and 100 mm on both sides of XX. (Fig 2)
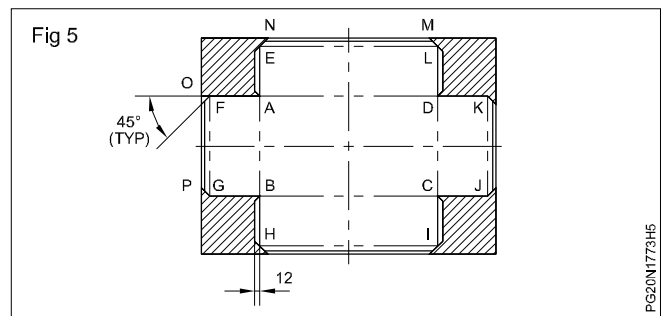
Fig 2
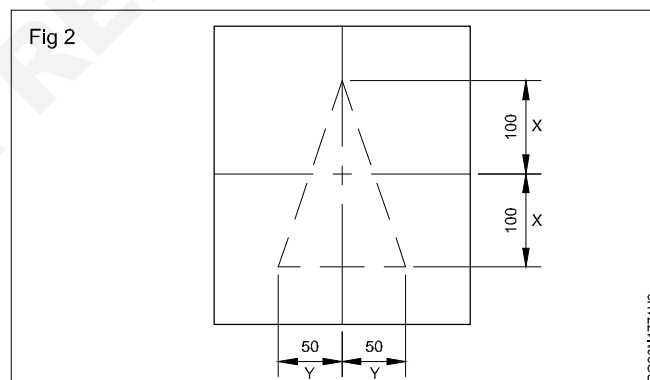
Draw the lines for 100 mm height of the three sides of the triangular tray parallel AB, BC, CA. (Fig 3)

Fig 3
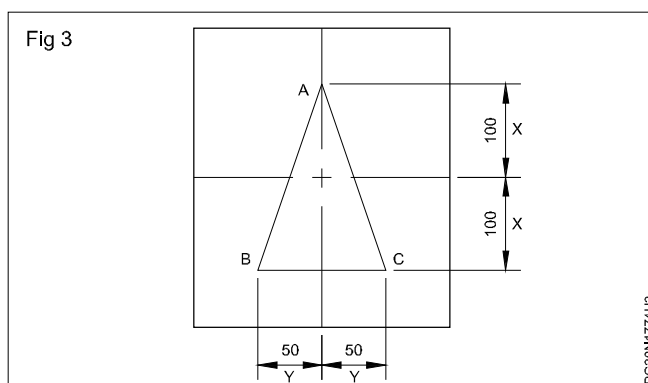
Draw the lines for 10 mm flange and 6 mm single hemming allowance on the three sides parallel to DE, HI, FG. (Fig 4)

Fig 4
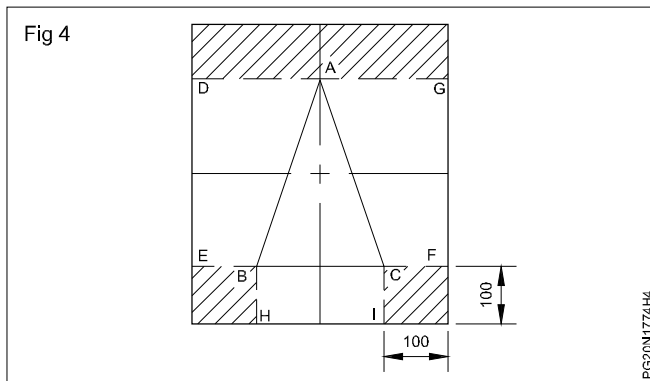
Draw the lines for 100 mm lap for the rivetted joint at the corners of the triangular tray parallel to BG, CH, AJ. (Fig 5)

Draw the lines for 45^0 slant notches at points A, B, C, D, E, F, G, H, I and J (Fig 5)

Cut the unwanted area shown in shadow using a straight snip. (Fig 5)

Fig 5
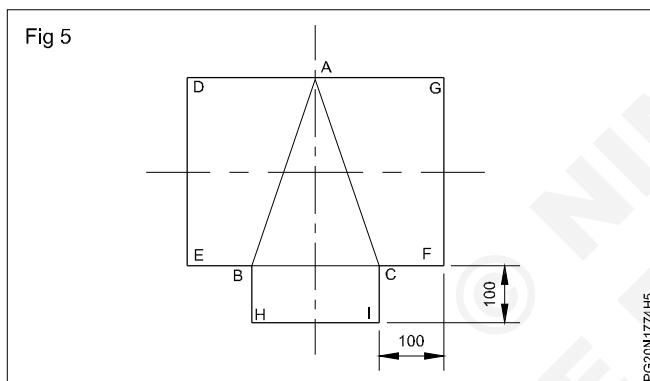
Deburr the edges of the sheet metal pattern using a smooth flat file.

Fold the sheet and make a single hemming on the border the triangular tray and rivet it on the edges of tray corners

Draw the parallel lines on the selected sheet metal for handle making and cut the sheet by using straight snip.

Smooth flatten the edges of the handle sheet.

Fold the both length of the handle sheet metal and hammering with mallet for flattening the handle folding.

Make the shape of handle. (Fig 6)

Fig 6
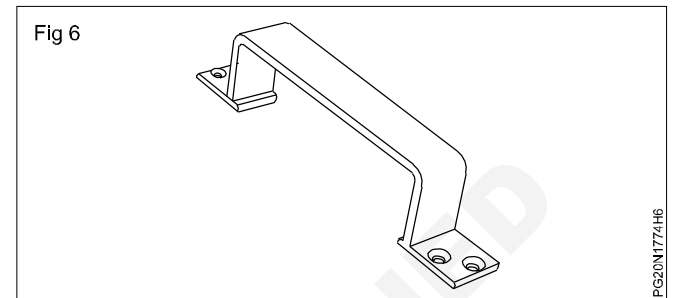
Ensure both side handle is as same in shape and size.

Fix the handle on the both side of the triangular tray with using the rivets. (Fig 7)

Fig 7
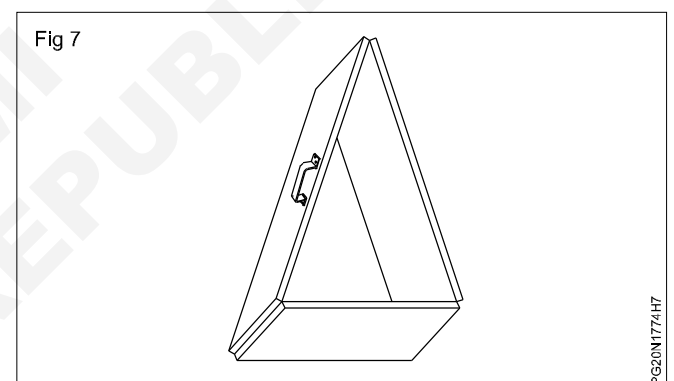
Practice to make the PVC pipe joint/fitting for rain water saving

Objective: At the end of this exercise you shall be able to
• **make a pipe fitting for rain water saving.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Hacksaw	- 1 No.
• Internal and external die set	- 1 No.

Equipments/Machineries

• Work bench	- 1 No.
• Pipe vice	- 1 No.
• Pipe cutter	- 1 No.

Materials

• Pipes different material	- as reqd.
• Cotton thread	- as reqd.
• Cotton waste	- as reqd.
• Hacksaw blade	- as reqd.
• Solution compound	- as reqd.

PROCEDURE

1 Measure the length of PVC pipe required for the rain water storage.

2 Calculate the pipe bends need for the pipe line layout.

3 Measure the PVC pipe length and mark it on the pipe.

4 Warp a sheet of rectangular size paper at marked place around the pipe. (Fig 1)

Fig 2

Fig 1
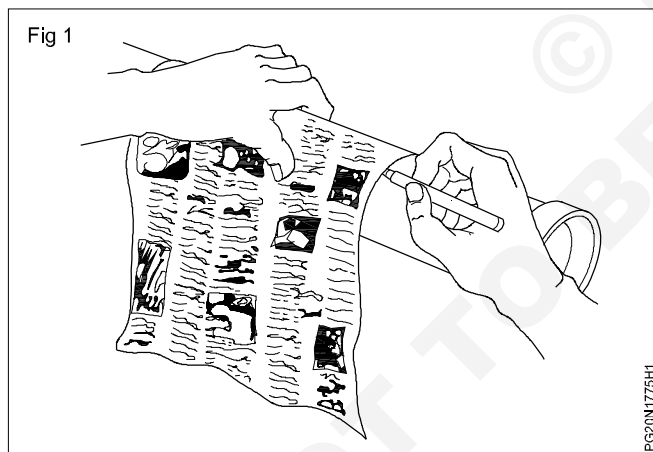
5 Bring the edges of paper together.

6 Mark around the edge of paper with pencil.

7 Make a small 'V' groove on cutting line with help of knife edge file.

8 Fix the pipe on the pipe vice. (Fig 2)

9 Fix the fine tooth blade in hacksaw.

10 Hold the hack saw handle in right hand and hold the frame in left hand.

11 Move the hacksaw blade on the marked groove @ 40-50 strokes per minute for full length of blade. (Fig 3)

Fig 3
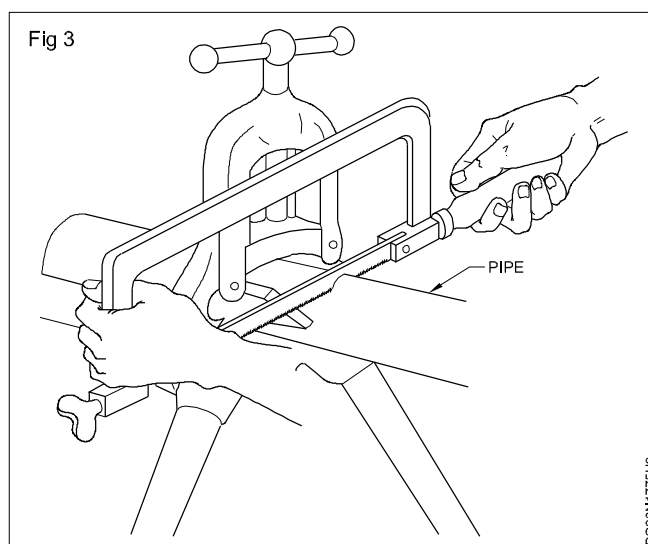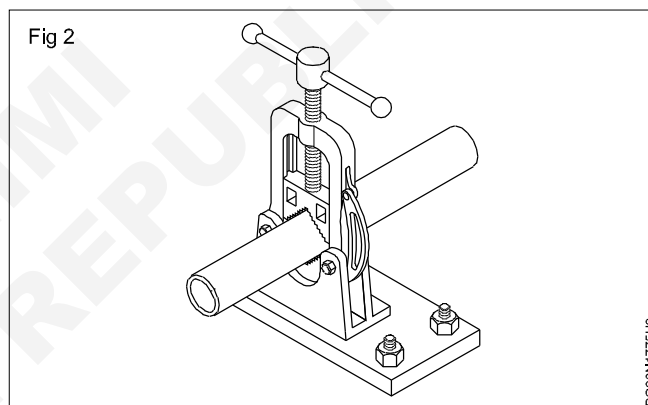
12 Rotate the large diameter pipes after cutting half depth.

13 If small pipe use pipe cutter. (Fig 4)

14 Rotate the handle to adjust the cutter till 3 wheels are in contact with pipe. (Fig 5)

Fig 4

Fig 5
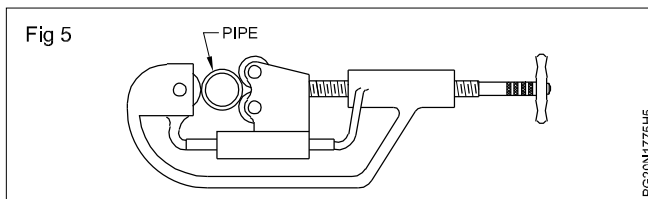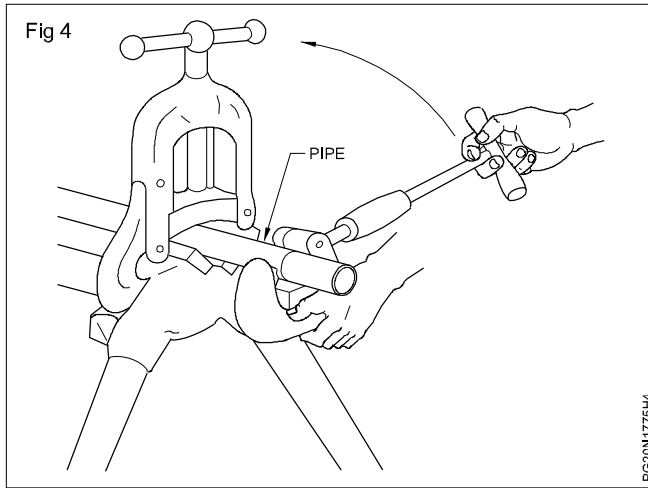
15 Rotate the pipe cutter around the pipe.

16 Put extra pressure on cutting wheel after two or three turns.

17 Support the pipe with free hand to avoid fall of pipe. (Fig 6)

Fig 6
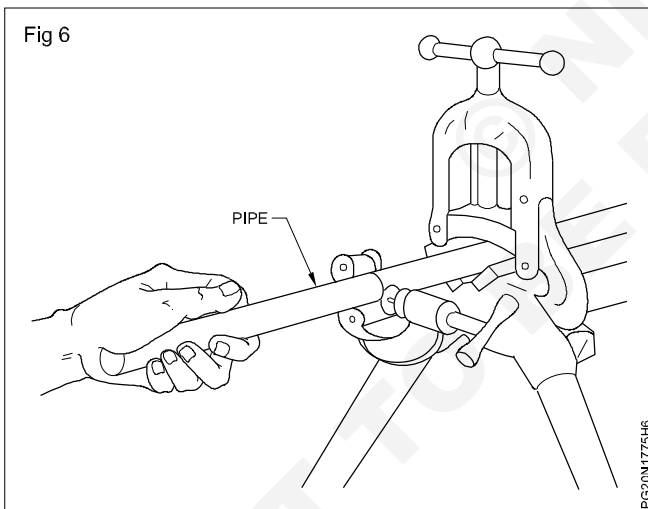
18 Check the squareness of pipe end with try square. (Fig 7)

Fig 7
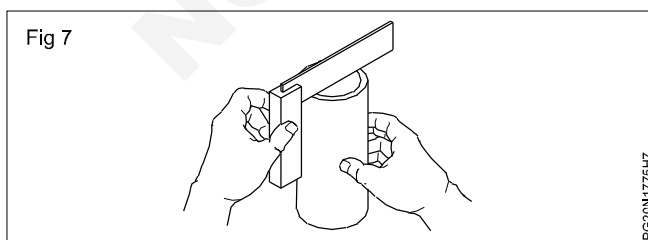
19 File square by using flat file. (Fig 8)

Fig 8
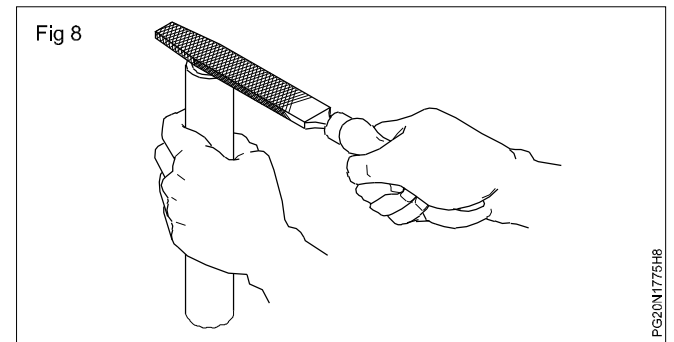
20 Select the suitable standard PVC fittings.

21 Connect the PVC pipe with standard suitable fittings.

22 Apply PVC pipe sealing compound on PVC pipe and fittings. (Fig 9)

Fig 9
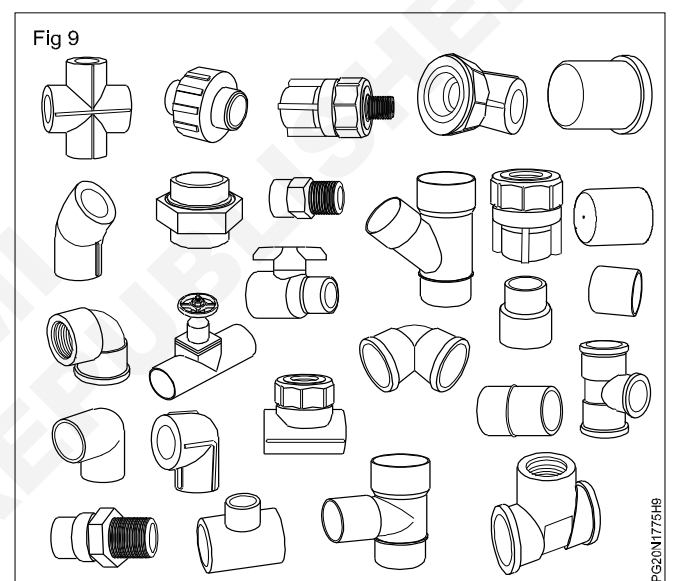
23 Let allow the sealing solution to dry for few seconds before fit the fittings.

24 Connect the pipe up to rain water collection spot to rain water storage spot. (Fig 10)

Fig 10

— — — — — — — —
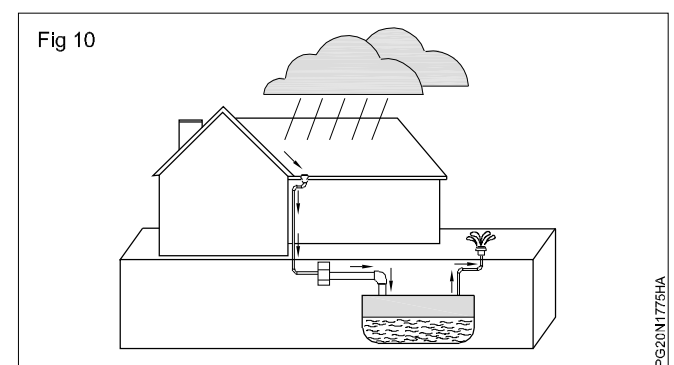
Practice on make the G.I pipe joint/fitting for water pipe line

Objective: At the end of this exercise you shall be able to
• **cut and joint the water pipe line.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Pipe vice	- 1 No.
• Pipe cutter	- 1 No.	**Materials**	
• Hacksaw	- 1 No.		
• Internal and external die set	- 1 No.	• G.I. pipe	- as reqd.
		• Water tap	- as reqd.
Equipments/Machineries		• Thread	- as reqd.
• Work bench	- 1 No.		

PROCEDURE

TASK 1: **G.I pipe fitting for water pipe line**

1 Draw the line sketch of water line layout on the paper. Measure the length of water line need and calculate size of pipe and fittings need for the pipe line layout.

2 Estimate the required pipe length, pipe fittings, water tap and pipe size.

3 Select the pipe fitting materials for pipe line layout as per drawing.

4 Measure the G.I. pipe lengths and cut the pipes as per calculated length by using pipe cutter or hacksaw.

5 Fix the pipe on the pipe vice. (Fig 1)

Fig 1

6 Cut the pipe threads at the end of the pipe by using die stock.

7 Wind the cotton threads materials on the external pipe thread. (Fig 2)

8 Apply sealing compound over the pipe threads. (Fig 3)

9 Select the suitable pipe wrench for pipe fitting work. (Fig 4)

10 Select the reducer coupling, elbow, tee joint, four way joint as per pipeline drawing. (Figs 5 to 16)
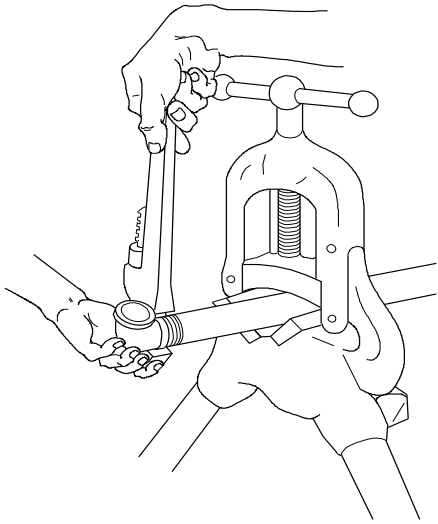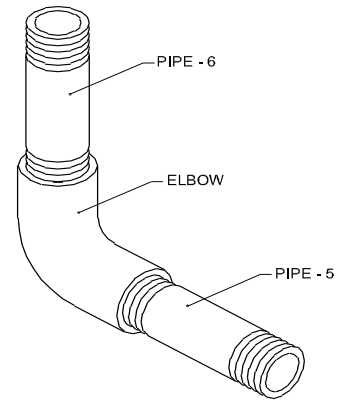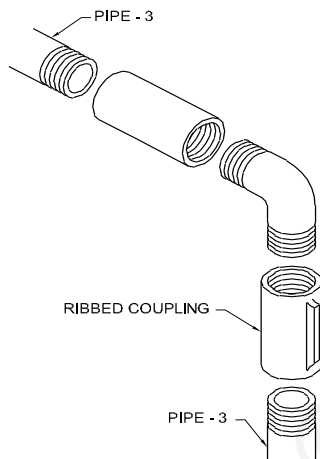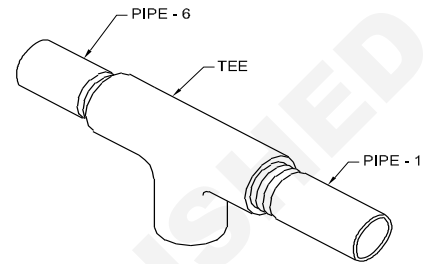
11 Screwing the pipe fittings on the pipe and tighten the fittings with help of pipe wrench. (Fig 12)

12 Fit the bib cock to socket using pipe wrench after adopting the procedure. (Fig 17)

13 Fit the water opening and closing valve between the pipe line and water tank. (Fig 19)

14 Remove the excess sealing tape on the pipe joints.

15 Connect the water pipe line with water tank. (Fig 19)

16 Ensure there is no leakage in pipe line fittings.

Fig 2

Fig 3

Fig 4

Fig 5
PIPE - 3
RIBBED COUPLING
PIPE - 3

Fig 6
PIPE - 4
RIBBED COUPLING

Fig 7
PIPE-5
ELBOW

Fig 8
PIPE - 6
ELBOW
PIPE - 5

Fig 9
PIPE - 6
TEE
PIPE - 1

Fig 10
PIPE - 4
TEE
PIPE-5

Fig 11
TEE
PIPE - 1

Fig 12

Fig 13

CAP

CROSS

NIPPLE

PG20N1776HD

Fig 14

PIPE - 4

TEE

PG20N1776HE

Fig 15

CAP

CROSS

NIPPLE

BARREL NIPPLE

PG20N1776HF

Fig 16

REDUCER

PG20N1776HG

Fig 17

REDUCER

BIP COCK

PG20N1776HH

Fig 18

BARREL NIPPLE
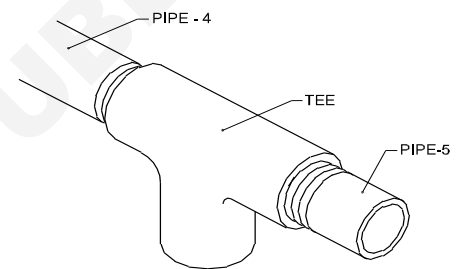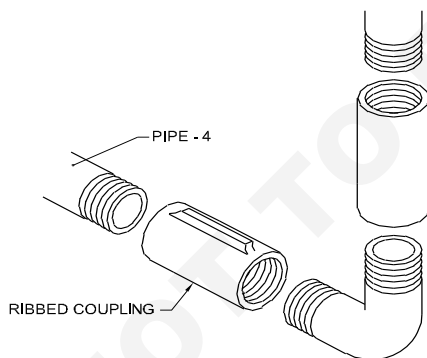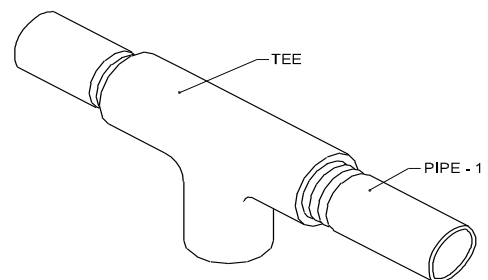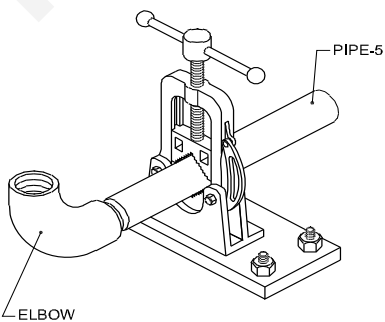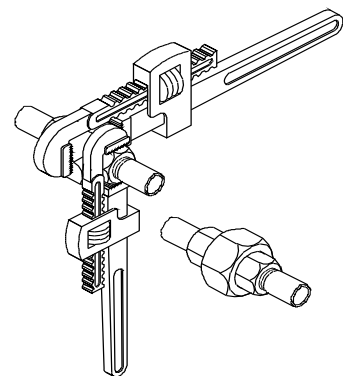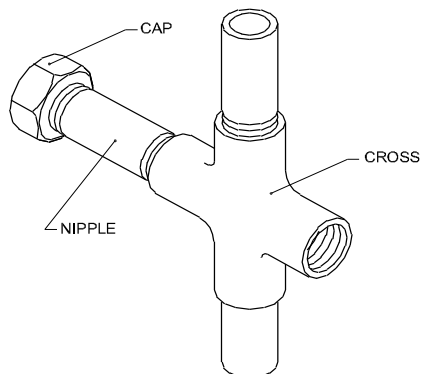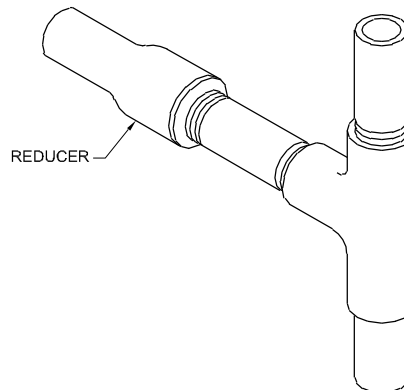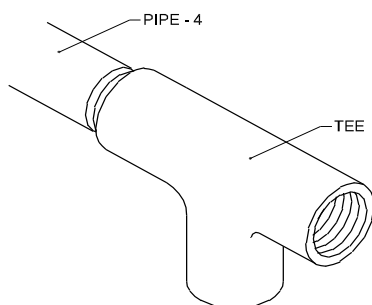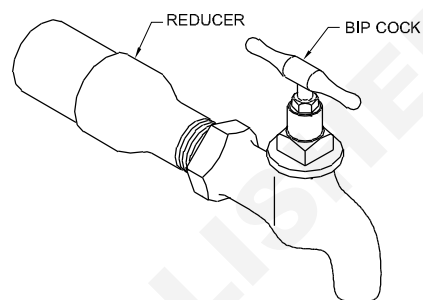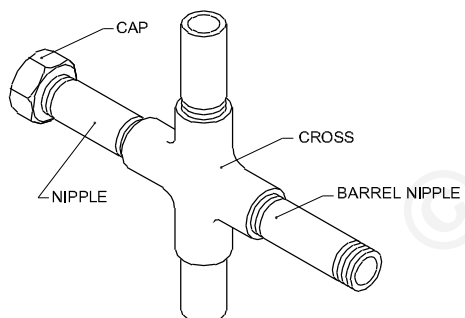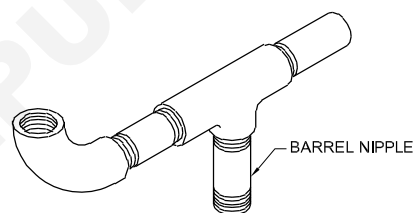
PG20N1776HI

Fig 19

WATER TANK
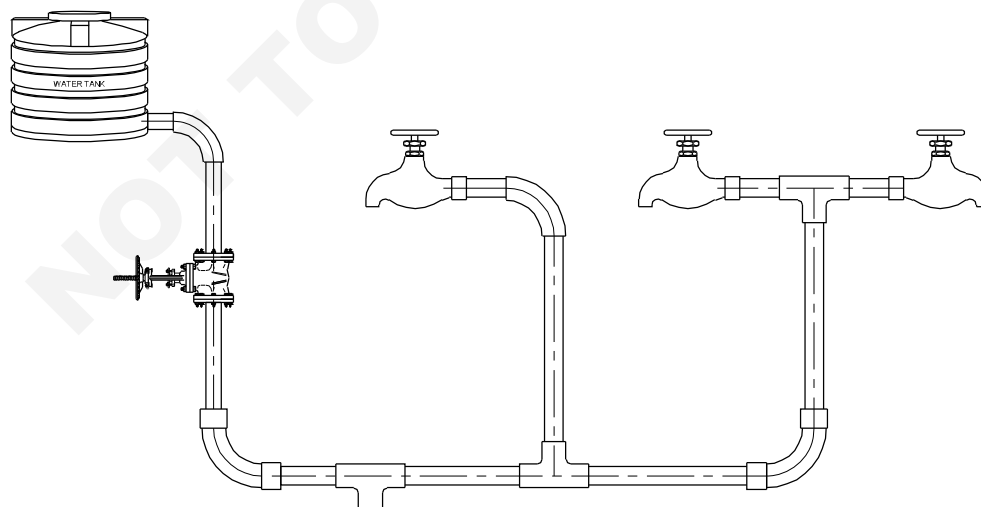
PG20N1776HJ

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Practice on PVC pipe fitting for water pipe line

Objectives: At the end of this exercise you shall be able to
• **select the PVC pipe size**
• **select the PVC pipe fittings**
• **assemble the PVC pipe fittings.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Hacksaw blade	- 1 No.
• Hacksaw frame	- 1 No.
• Pipe cutter	- 1 No.

Equipments/Machineries

• Work bench	- 1 No.

• Pipe vice	- 1 No.

Materials

• PVC pipe	- as reqd.
• Pipe fittings	- as reqd.
• Sealing compound	- as reqd.
• Cotton waste	- as reqd.

PROCEDURE

TASK 1 : **PVC pipe fitting for water pipe line**

1 Prepare the water line drawing on the paper.

2 Estimate the materials required for the water pipe line connection.

3 Select the suitable PVC pipes and their fittings.

4 Measure the PVC pipes and cut the pipes as per requirements.

5 Fix the pipe on the pipe vice. (Fig 1)

Fig 1

6 Fix the hacksaw blade on the hacksaw frame.

7 Cut the PVC pipe on the marked spot (Fig 2)

8 Clean the burrs on the edge of the pipe cutting area.

9 Use the flat file to remove the burrs. (Fig 3)

10 Apply the PVC pipe sealing compound on the pipe and outside and fittings inner edge.

11 Let allow the sealing compound to dry for few seconds and fix the pipe and fittings like gate valve, elbow, globe
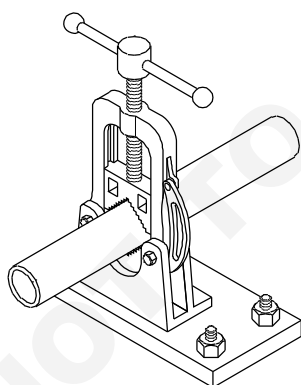
valve, tee, rubbed coupling, bend, plain coupling, reducer, cap, cross union as where need in the pipe line joints.

Fig 2

Fig 3

12 Assemble the PVC water pipe line as per drawing. (Fig 4)

13 Open the pressure water through the pipe line and ensure there is no leakage in the pipe joints.

Fig 4

PVC TANK

WATER TANK

ELBOW

PVC PIPE

VALVE

TE JOINT

TEE JOINT

ELBOW

SPRINGLER

PG20N1777H4

Practice on operate and familiarise with computer operating system

Objectives: At the end of this exercise you shall be able to
• **identify the various input/output device connected to the computer**
• **identify the different controls and parts on the system unit cabinet**
• **identify the internal parts of a system unit.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Computer chart	- 1 No.
• Laser light	- 1 No.
• Computer manual	- 1 No.

Equipments/Machineries

• Basic computer	- 1 No.

Materials

• Keyboard	- as reqd.
• Mouse	- as reqd.
• CPU	- as reqd.
• Data cables	- as reqd.

PROCEDURE

TASK 1: **Identify the various input/output devices connected to the computer**

1 Instructor should be layout the desktop computer on the table

2 Instructor will show and explain the function of input/output devices of computer. (Fig 1)

3 Trainee's will note the parts name of computer system on their note book.

4 Identify the monitor

- Identify the CPU

- Identify the keyboard

- Identify the mouse

- Identify the speaker

- Identify the UPS

- Identify the scanner

- Identify the camera

- Identify the printer

- Identify the head phone

- Identify the Wi-fi unit

Fig 1
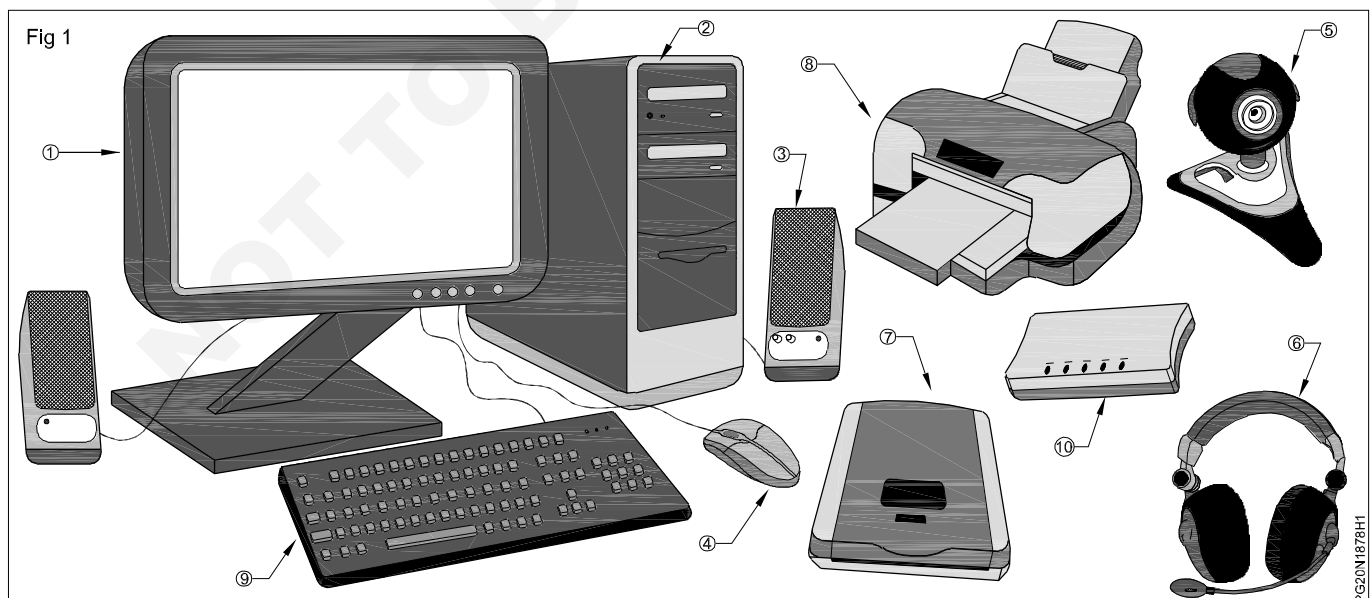
Table 1

Sl. No	Name of the input and output devices
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

— — — — — — — —

TASK 2 : **Identify different controls, ports and connectors on the system unit cabinet**

The instructor will demonstrate the uses of the following indicators ,switches controls in Figs 1 & 2, ports external to the processor found on the system unit shown in and the trainees will make a record of it in Table 2 &

Fig 1

Table 2

Sl. No	Name the parts on the CPU Front Panel
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

Fig 2

Sl. No	Name the Parts on the CPU Rear Panel
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

— — — — — — — —

Table 3.

TASK 3 : **Identify the internal parts of a system unit**

The instructor will open the system unit (available in your lab) and show the parts of system unit and motherboard components as

Fig 1

Fig 2
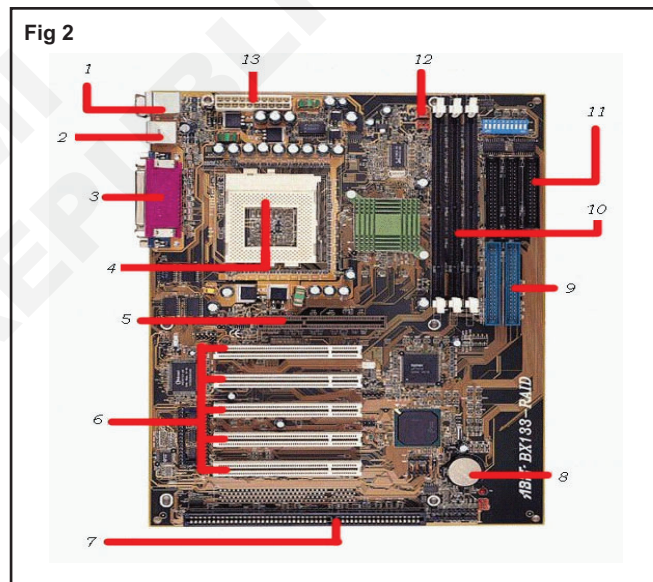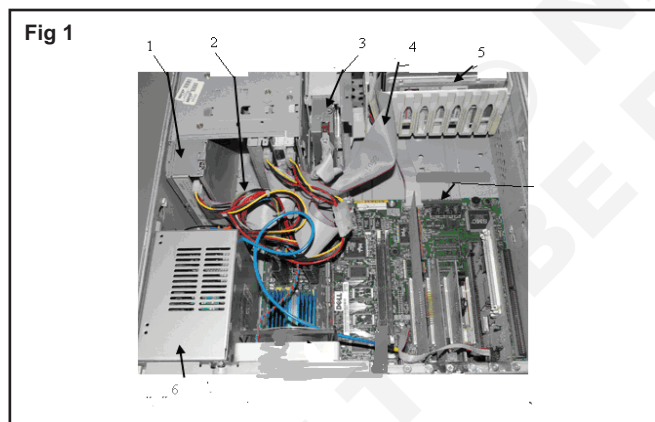
Table 4

Sl.No.	Name the parts of System Unit
1	
2	
3	
4	
5	
6	
7	
8	

Table 5

Sl. No	Name the parts of Mother board
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	

— — — — — — — —

shown in Figs 1 & 2 and the trainees will make a record of the parts in Table 4 & 5.

TASK 4: **Connecting data cable and power cable to the various devices in the desktop**

Fig 1

The trainees will connect the system with I/O devices as shown in Fig 1.

Fig 2

CONNECTING THE POWER CORD

1   Connect the system power cable to the appropriate socket on the rear side of the PC as Shown in Fig 2.

Fig 3

CONNECTING YOUR PS/2 KEYBOARD

2   Connect the Keyboard connector to the appropriate Keyboard socket on the rear side of the PC as shown in Fig 3.

3   Connect the Mouse connector to Com1, Com2 , PS/2 or USB port (according to type of connector the Mouse comes with) as shown in Fig 4.

Fig 4
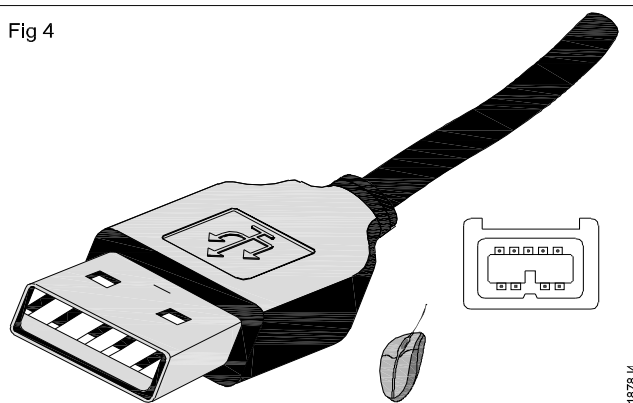
CONNECTING YOUR USB DEVICE

Fig 5

CONNECTING YOUR MONITOR
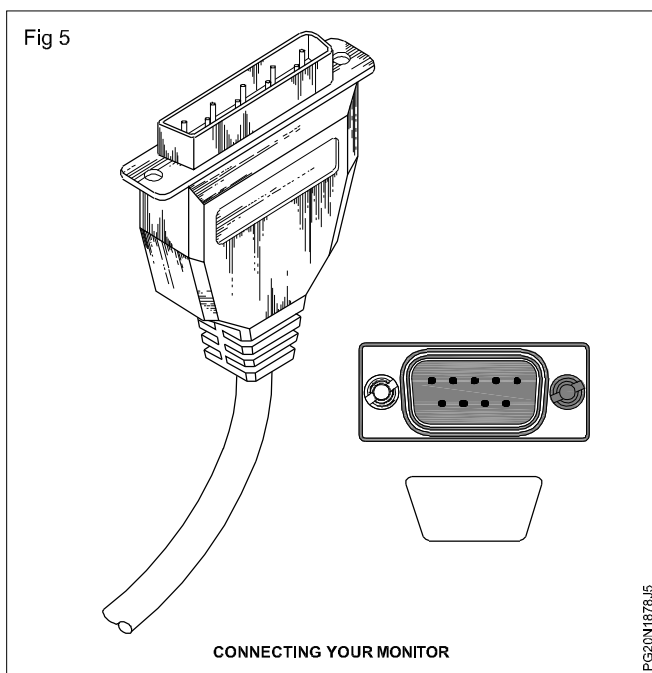
4   Connect the monitor Data cable connector to the VGA connector on the rear side of PC as shown in Fig 5.

5   Connect the power cable of the monitor either to the lower socket on the PC itself or a separate wall socket depending on the type of power connector the cable is provided with connect the speaker boxes/

Fig 6

CONNECTING YOUR SPEAKER / HEADPHONE
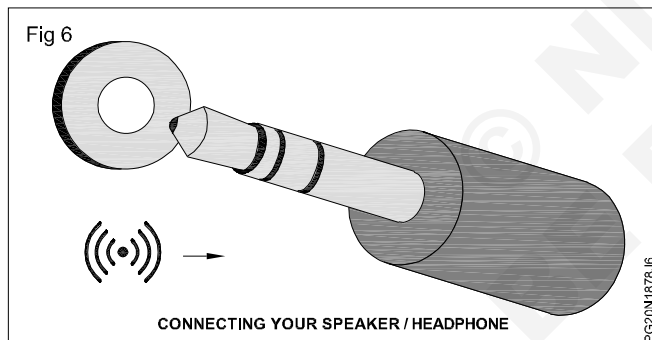
Headphone cable connector (RCA jack) to line out speaker jack (RCA female) on the rear end of the PC as shown in Fig 6.

Fig 7

CONNECTING YOUR SPEAKER / HEADPHONE
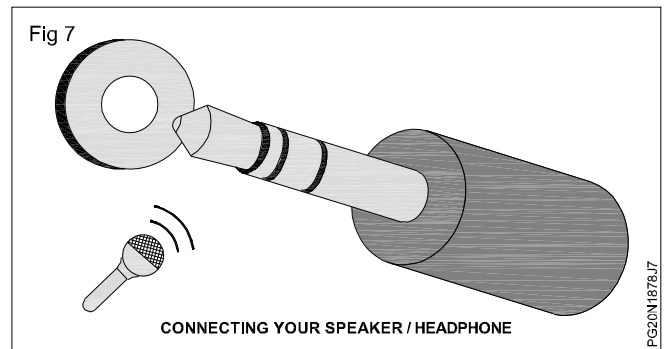
7   Connect mics cable connector. RCA Jack to the MIC in RCA socket provided at the rear side of the PC and record it as shown in Fig 7.

8   Connect printer data cable DB 25 pin male connector to the   parallel port DB 25 pin female connector provided on the rear side of PC as shown in Fig 8.

Fig 8

CONNECTING YOUR PRINTER
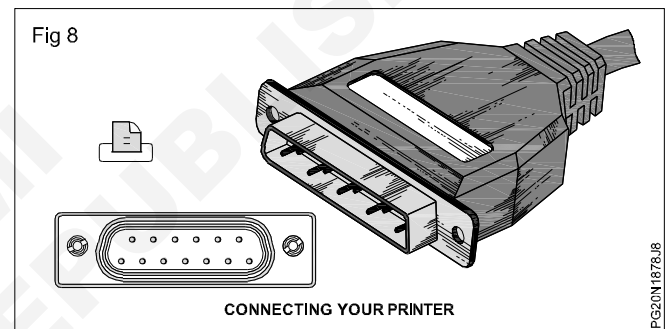
9   Get the work checked by the instructor.

10 Ensure all the data cable connection are connected properly.

11 Switch on the computer system and practice to operate it under the guide line of instructor.

— — — — — — — —

Practice on operate paint software and draw free hand sketch

Objectives: At the end of this exercise you shall be able to
- **operate the paint software**
- **draw the free hand sketch**
- **use the colour bucket and other paint software tools.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Paper	- as reqd.
Equipments/Machineries		• Baniyan cloth	- as reqd.
		• Pencil	- as reqd.
• Desktop system	- 1 No.	• Eraser	- as reqd.
• Computer printer	- 1 No.		

PROCEDURE

TASK 1: **Operate the paint software**

1 Clean the computer system and printer.

2 Switch on power of computer system.

3 Open the windows and click the paint application.

4 Select the drawing tools like pencil

5 Draw the desired sketch by using mouse.

6 Move the contents of the layer using the move tool.

— — — — — — — —

TASK 2: **Set shape stroke options**

1 Use the Path Selection tool to select the shape whose path you want to modify.

2 In the Properties panel or the tool options bar, click the Set Shape Stroke Type menu icon to open the Stroke Options panel.

3 In the Stroke Options panel, do any of the following:

- Choose the type of stroke you want.

- Click the Align icon and choose an option to specify the position of the stroke relative to its path.

- Click the Caps icon and choose a cap style to specify the appearance of both ends of a path:

4 Butt cap Creates squared ends that abut (stop at) the endpoints.

5 Round cap Creates semicircular ends that extend half the stroke width beyond the endpoints.

6 Projecting cap Creates squared ends that extend half the stroke width beyond the endpoints. This option makes the stroke weight extend evenly in all directions around the path.

> **Keep in mind that the caps are not visible unless the path is opened. Also, cap styles are easier to see at thicker stroke weights.**

- Click the Corner icon to the appearance of the stroke at corner points:

7 Miter join Creates pointed corners that extend beyond the endpoint when the miter's length is within the miter limit.

8 Round join Creates rounded corners that extend half the stroke width beyond the endpoints.

9 Bevel join Creates squared corners that abut the end points.

> **Like caps, miters are easier to see at thicker stroke weights.**

— — — — — — — —

TASK 3: **Create a shape on a shape layer**

1 Select a shape tool or a Pen tool. In Photoshop CC or CS6, make sure Shape is chosen from the menu in the options bar. In CS5, make sure that the Shape Layers button ⬚ is selected.

2 To choose the color of the shape, click the color swatch in the options bar and then choose a color from the Color Picker.

3 (Optional) Set tool options in the options bar. Click the inverted arrow next to the shape buttons to view additional options for each tool.

4   To apply a style to the shape (Optional), select a preset style from the Style pop-up menu in the options bar.

5   Drag in your image to draw a shape.

> **Drawing from the center out is the default behavior of the Star tool in illustrator & the Polygon tool in Illustrator & Photoshop (Fig 1).**

Fig 1
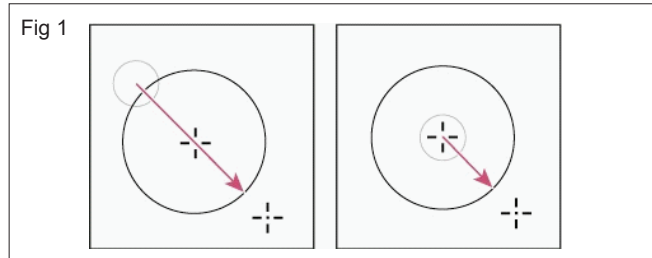
Draw multiple shapes in a layer

You can draw separate shapes on a layer, or use the Add, Subtract, Intersect, or Exclude options to modify the current shape on a layer.

1   Select the layer to which you want to add shapes.

2   Select a drawing tool and set tool-specific options (see Shape tool options).

3   Choose one of the following in the options bar:

   *   Add To Shape Area Adds the new area to the existing shapes or path.

   *   Subtract From Shape Area Removes the overlapping area from the existing shapes or path.

   *   Intersect Shape Areas Restricts the area to the intersection of the new area and the existing shapes or path.

   *   Exclude Overlapping Shape Areas Excludes the overlap area in the consolidated new and existing areas.

4   Draw in the image. You can easily switch between drawing tools by clicking a tool button in the options bar.

Draw a wheel shape

1   Select the Ellipse tool ◯ in the toolbox. It may be hidden by one of the other shape tools or the Line tool ╲ .

2   In the options bar at the top of the work area, select the Shape Layer button ▢ .

3   Drag in the document window to draw the shape. Hold down the Shift key while dragging to constrain the ellipse to a circle.

4   In the options bar, select the Subtract From Shape Area button 🗂 .

5   Drag within the new shape to create the cutout. When you release the mouse, the image underneath the new shape shows through.

6   To reposition either shape, click the Path Selection tool ▸ in the toolbox (it may be hidden by the Direct Selection tool), and select the path. Drag it to its new location or use the arrow keys on the keyboard to nudge it a pixel at a time.

Draw a custom shape

1   Select the Custom Shape tool 🧩 . (If the tool isn't visible, hold down the tool near the bottom of the toolbox.)

2   Select a shape from the Custom Shape pop-up panel in the options bar.

If you don't find a shape you want in the panel, click the arrow in the upper right corner of the panel, and choose a different category of shapes. When asked to replace current shapes, click either Replace to view only the shapes in the new category or Append to add to the shapes already displayed.

3   Drag in your image to draw the shape

Create a rasterized shape

1   Select a layer. You cannot create a rasterized shape on a vector-based layer (for example, a type layer).

2   Select a shape tool, and click the Fill Pixels button ▢ in the options bar.

3   Set the following options in the options bar:

   *   **Mode** Controls how the shape will affect the existing pixels in the image.

   *   **Opacity** Determines to what degree the shape will obscure or reveal the pixels beneath it. A shape with 1% opacity appears nearly transparent, while one with 100% opacity appears completely opaque.

   *   **Anti-Aliased** Smooths and blends the edge pixels with the surrounding pixels.

4   Set additional tool-specific options.

5   Draw the shape.

Paint with the Brush tool or Pencil tool

1   Choose a foreground color.

2   Select the Brush tool 🖌 or Pencil tool ✏ .

3   Choose a brush from the Brush Presets panel.

4   Set tool options for mode, opacity, and so on, in the options bar.

5   Do one or more of the following:

   *   Click and drag in the image to paint.

   *   To draw a straight line, click a starting point in the image. Then hold down Shift, and click an ending point.

   *   When using the Brush tool as an airbrush, hold down the mouse button without dragging to build up color.

TASK 4: **Change the current fore ground and background colors**

1 Create the blank image using the default photo size of 7 by 5 inches.

> **A window will appear as shown in Fig 1**

Fig 1
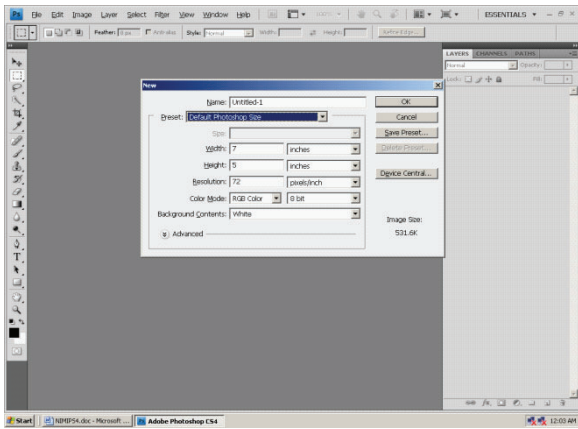
2 Select the gradient tool from the tool box

3 Select the foreground color to good blue sky color form the color palette

4 Use the shift key to help you draw the gradient in a perfect vertical line

5 Click the mouse drawn by dragging from the top of the image,

6 Down to the center of the image.

> **A window foreground color apply the document will appear as shown in Fig 2.**

Fig 2
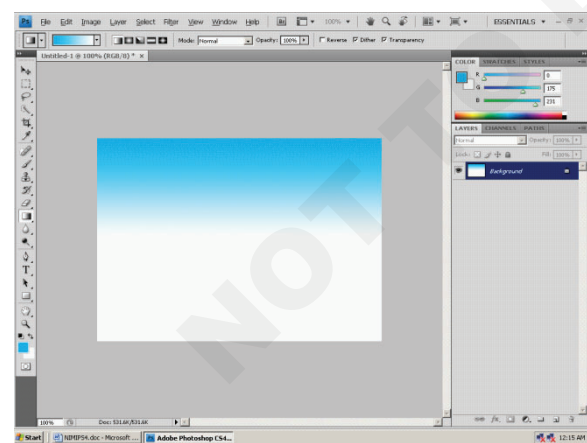
7 Select the rectangle shape tool from the tool box

8 Select the background color soft brown from the swatches palette

9 Rectangle shape tool to draw a rectangle that is brown on the bottom of the canvas (Fig 3).

10 Select the brush size of 21.

Fig 3
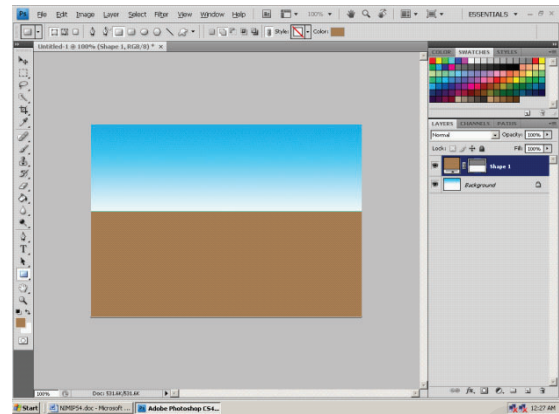
> **A pop up menuy will appear as shown in Figs 4 & 5.**

Fig 4
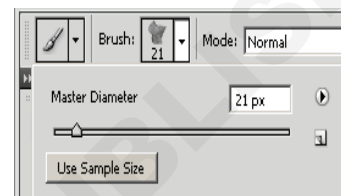
Fig 5
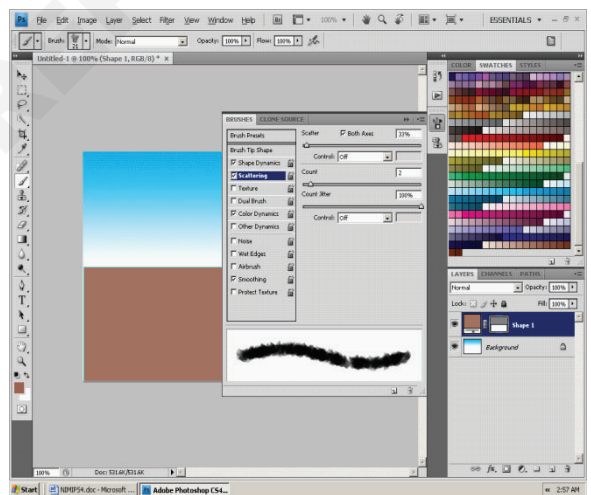
11 Enable show the shape dynamics,scattering, color dynamics,and smoothing options.

12 Click the scattering to Entry input levels 33%.

13 Click the count Jitter Entry input levels 100%.

14 Select background colors gold yellow from the swatches palette.

15 This creates a brush that trace as you paint the strokes on to the canvas.

> **A window applying the grass over the gold yellow will appear as shown in Fig 6.**

Fig 6
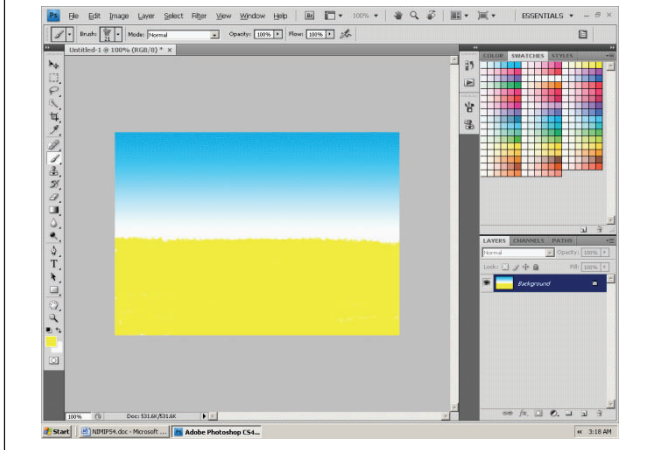
TASK 5: **The retouching tools applying the image**

1 Create the image using the open document from menu bar

2 Select the file name tajmahal.*jpeg

3 Select the image menu from menu bar

4 Copy the image from duplicate click the mouse

5 Select the layer using the Quick Marquee tool

> **Quick marquee tool select the image window will appear as shown in Fig 1.**

Fig 1
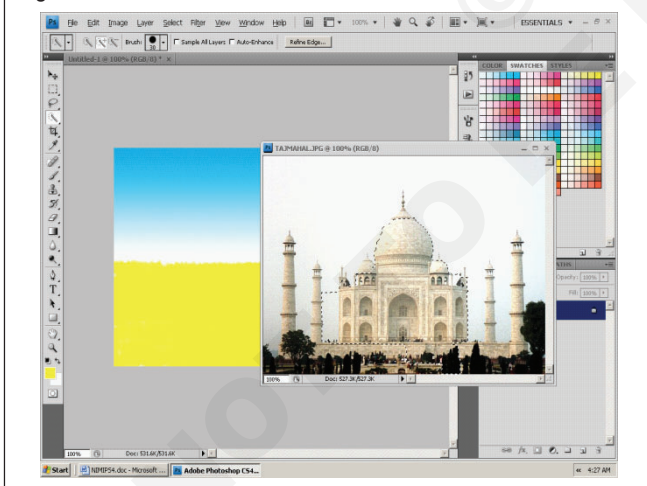
6 Use the clone tool to retouch an image

7 Select the clone tool from tool box (Fig 2).

Fig 2
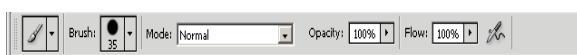
8 Change the brush size using brush popup palette in the option bar

9 Hold down Alt/option and click on the part of the image you want clone

10 Release the Alt/ option move the cursor

11 Different image part then click and drag

12 First click the pixels in the image

13 Replace by pixels cloned from the spot

14 Indicates the pixels that are being cloned -the source point.

> **Applying the image from cloning window will appear as shown in Fig 3.**

15 Get the skill practiced verified by your Instructor.

Fig 3
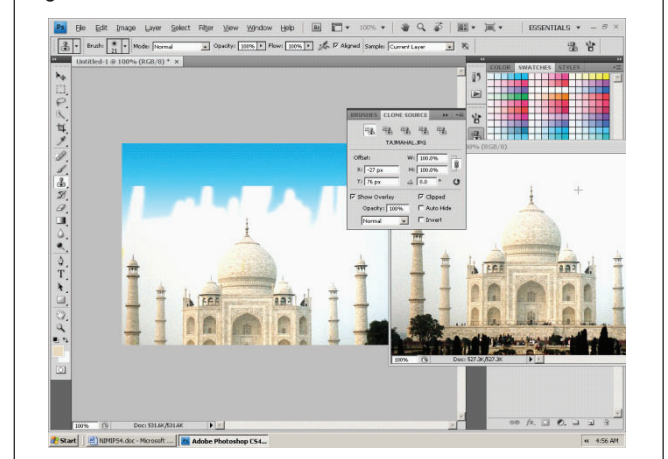
Practice on draw scenery like realistic in paint software

Objectives: At the end of this exercise you shall be able to
• **operate the paint software**
• **draw the scenery by using paint software.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Paper	- as reqd.
Equipments/Machineries		• Pencil	- as reqd.
		• Eraser	- as reqd.
• Computer system	- 1 No.		
• Printer	- 1 No.		

PROCEDURE

TASK 1: **Basic computer operation**

1 Clean the computer system

2 Check the computer cable connections.

3 Switch on power supply to the computer system.

4 Open the windows by switch on the CPU.

5 Select paint software by using mouse operation.

— — — — — — — —

TASK 2: **Draw the scenery by using painting tools**

1 Select a drawing pencil from paint software.

2 Draw the realistic scenery by moving drawing pencil free hand sketch of scenery.

3 Select a shape tool and make sure shape is chosen from menu in the option bar, make sure that the shape layers button is selected.

4 Use the eraser to erase the unwanted lies and colours of the drawn scenery.

5 Use the complete paint tools to draw the scenery.

6 On completion of scenery drawn choose the colour bucket and colour of shape.

7 Click the colour swatch in the options bar and the choose a colour from the colour picker.

8 Apply colours on scenery as you selected area and colour on the scenery.

9 You can draw separate shapes on the layer or use the add subtract, intersect or exclude to modify the current shape of scenery.

 • Select the layer to which you want to add shapes.

 • Select the drawing tool and set tool specific options.

 • Choose the option bar.

 • Draw in the scenery, you can easily switch between drawing tools by clicking button in the option bar.

— — — — — — — —

### TASK 3: **Paint with the brush tool or pencil tool**

1 Choose the scenery for ground colour.

2 Select the brush tool or pencil tool.

3 Choose a brush from the brush preset panel.

4 Set tool options for mode, opacity and so on in the option bar.

5 Click and drag in the scenery to paint.

6 When using the brush tool as an air brush, hold the mouse button without dragging to build up colour.

7 Select back ground clours gold yellow from the swatches palette.

8 This create a brush that trace as you paint the strokes on the scenery.

— — — — — — — —

TASK 4: **Retouching tools applying the scenery**

1 Create the scenery using the open document from menu bar

2 Select the file name realistic scenery.

3 Select the image menu from menu bar

4 Copy the scenery from duplicate click the mouse

5 Select the layer using the Quick Marquee tool

Quick marquee tool select the image window will appear as shown in Fig 1.

Fig 1
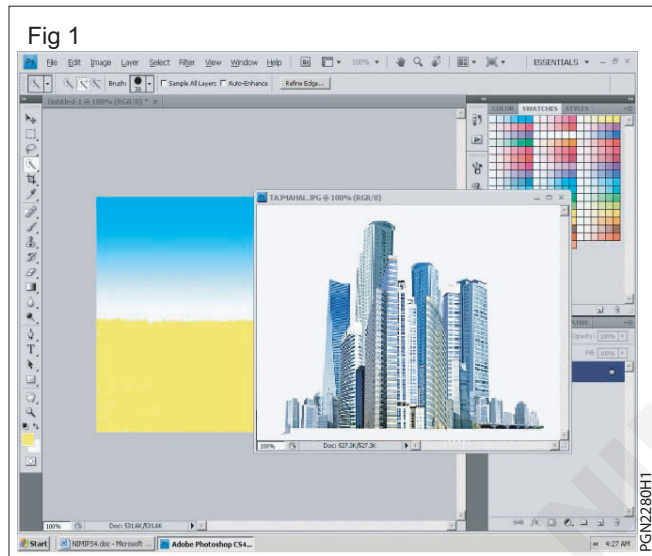
6 Use the clone tool to retouch an scenery.

7 Select the clone tool from tool box.

8 Change the brush size using brush popup palette in the option bar.
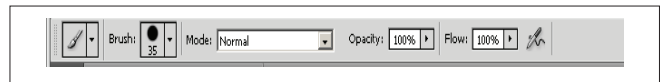
9 Hold down Alt/option and click on the part of the scenery you want clone.

10 Release the Alt/ option move the cursor

11 Different scenery part then click and drag

12 First click the pixels in the scenery.

13 Replace by pixels cloned from the spot

14 Indicates the pixels that are being cloned -the source point.

Applying the scenery image from cloning window will appear as shown in Fig 2.

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15 Get the skill practiced verified by your Instructor.

Fig 2

— — — — — — — —

Practice on tool handling in photoshop

Objective: At the end of this exercise you shall be able to
• **handling the photoshop tools.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• UPS	- 1 No.
Equipments/Machineries		**Materials**	
• Computer system with photoshop software	- 1 No.	• Paper	- as reqd.
• Printer	- 1 No.	• Pencil	- as reqd.
• Computer table	- 1 No.	• Baniyan cloth	- as reqd.

PROCEDURE

TASK 1: **Handling the photoshop tools**

1 Clean the computer system with clean cloth

2 Check the cable connections of computer system.

3 Switch on power of the computer system.

4 Switch on the CPU and wait for window opening the system.

5 Open the Photoshop window.

6 Select the tool option bar and reset the Photoshop interface. (Fig 1&1a)

7 Select the Photoshop toolbar. (Fig 2)

8 Organise the panels in a section below. (Fig 3 & 3a)

9 Find the basic tools and theirs name with shortcut as Fig 4.

10 Layout the Photoshop tools as Fig 5.

Fig 1

Fig 1a

Menus, Application bar, Tool Options

Toolbox
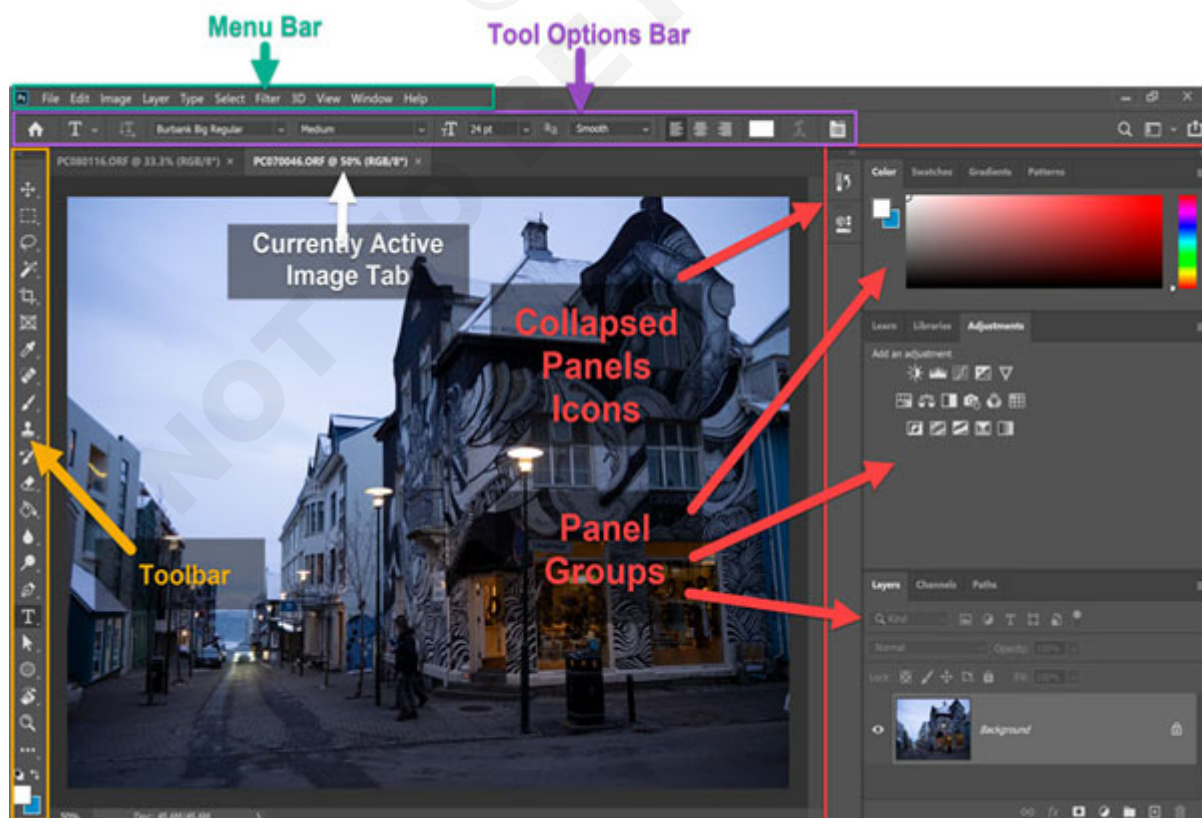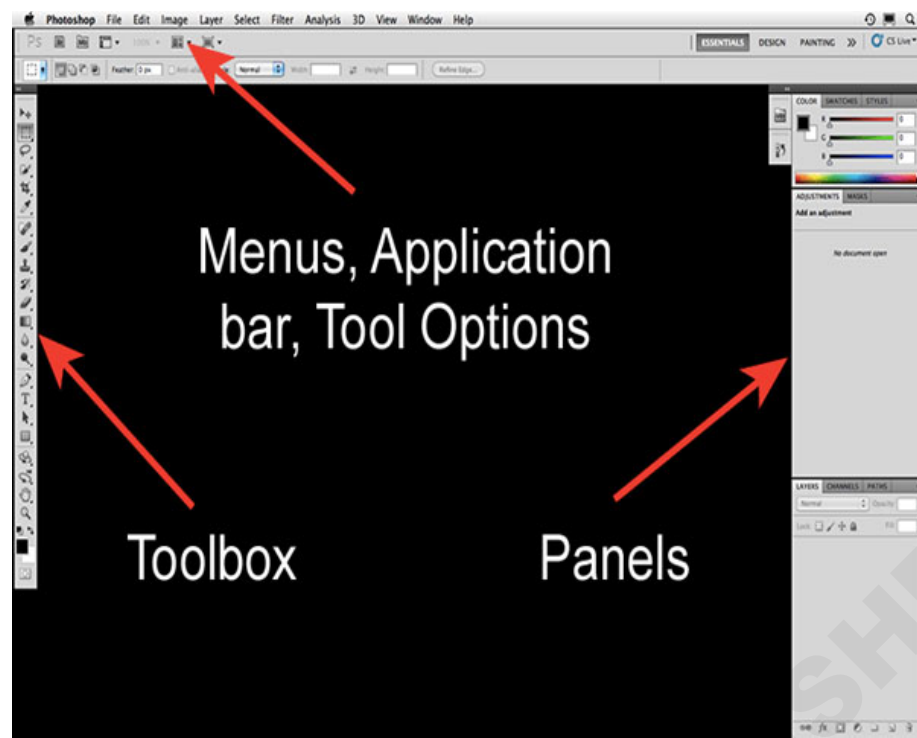
Panels

Fig 2

Fig 3

Fig 3a

Icons Of Collapsed Panels

Panel Groups
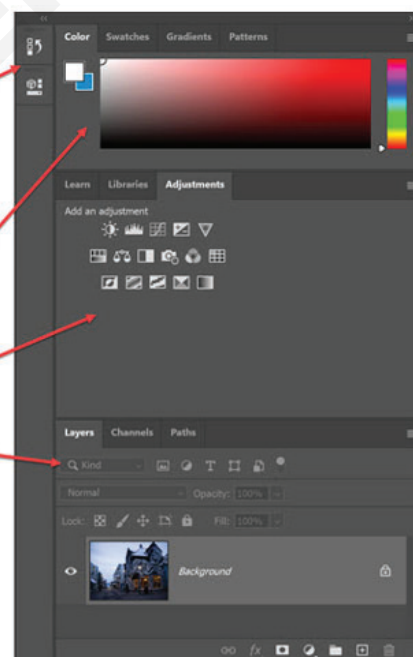
11 Select the crop tools as Fig 6.

12 Select the painting and retouching tools as Fig 7.

13 Use the drawing tools as shown Fig 8.

14 Select and use the navigation tools as Fig 9.

15 Select the colour section for apply colours as Fig 10.

16 Use the quick mask and screen mode as Fig 11.

Fig 4
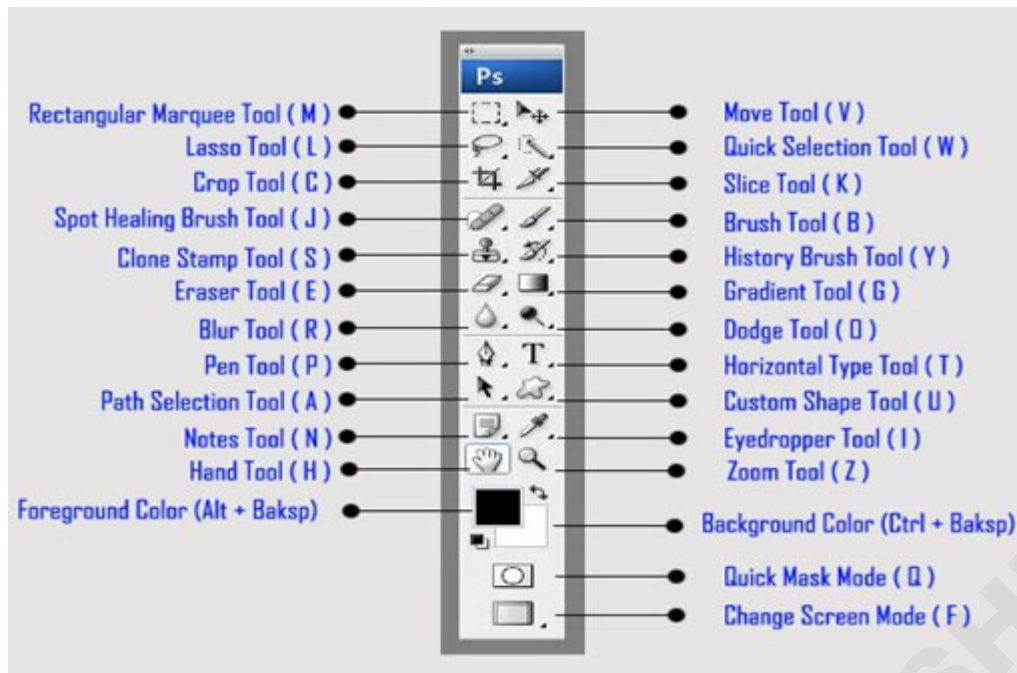
Fig 5
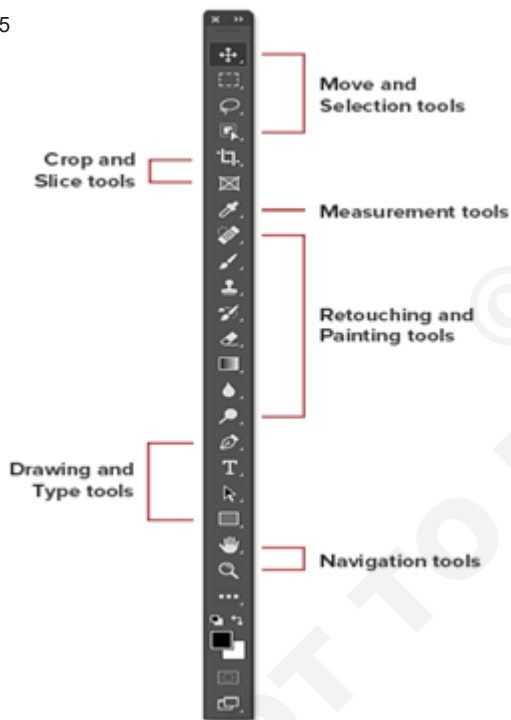
Fig 6

Fig 9

Fig 10
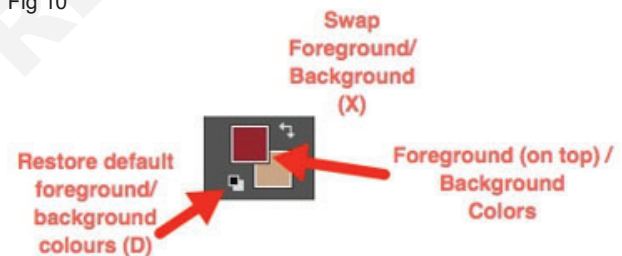
Fig 11
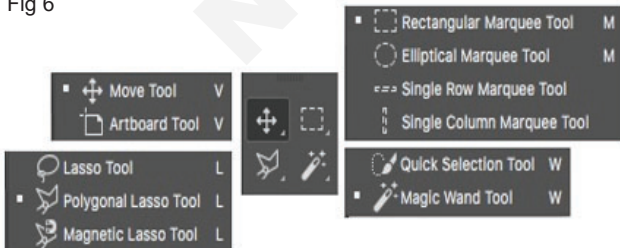
17 Photoshop tools and usage as below

- Marquee Tools - To give any particular shape of an image.
- Move Tool - To move a part of any image.
- Lasso Tools - To make any selection on an image.
- Quick Selection Tool/Magic Wand Tool - To make a quick selection.

Fig 7
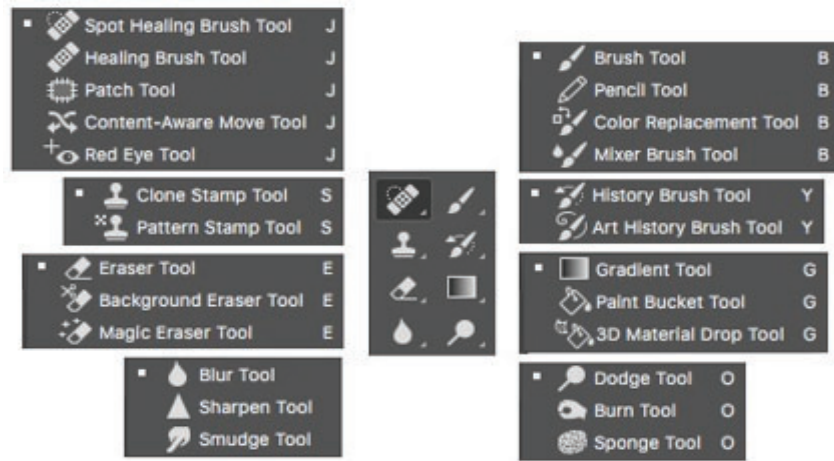
Fig 8
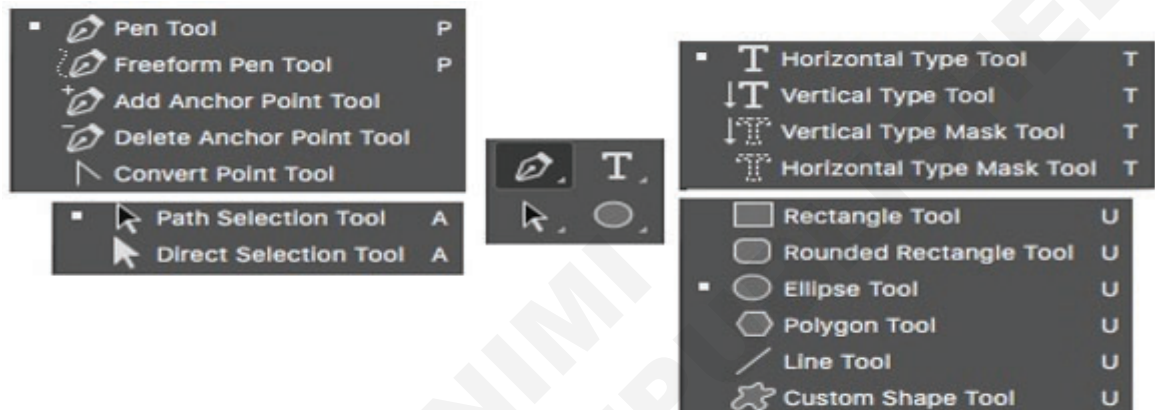
- Crop Tool - To crop any part of an image.
- Eyedropper Tool - To sample a colour from any image.
- Spot Healing Brush/Healing Brush/Patch Tool/Content-Aware
- Move Tool / Red Eye Tool - To fill or remove in any area in an image.
- Brush Tool - To retouch the image.
- Clone Stamp Tool/Pattern Stamp Tool - To clone of copy image information.
- History Brush Tool - To undo any tool used earlier.
- Eraser Tool/Background Eraser Tool/Magic Eraser Tool - To remove any section of an image.
- Blur Tool/Smudge Tool/Sharpen Tool - To blend colour in various ranges.
- Dodge Tool - To highlight in different tone on any image.
- Text Tool - To write text anyway.
- Pen Tool - To draw paths around objects.
- Shape Tools - To give various shapes.
- Hand Tool - To move any area of an image.
- Zoom Tool - To zoom in and zoom out.

18 Photoshop navigation tools function explain the following table to find out how to scroll, zoom and cycle through Photoshop.

Action	Windows
Scroll image	spacebar+drag
Zoom in	Ctrl+spacebar+click
Zoom in and change window size	Ctrl+plus
Zoom out	Alt+spacebar+click
Zoom out and change window size	Ctrl+minus
Scroll up or down one screen	PageUp/PageDown
Scroll left or right	Ctrl+Page Up/Page Down
Move to upper-left corner of image	Home
Move to lower-right corner of image	End
Zoom to 100%	Double click on Zoom tool
Fit on Screen	Ctrl+0
Cycle through all open image windows	Ctrl+Tab

Practice on familiarise with all hand photoshop tools

Objectives: At the end of this exercise you shall be able to
• **familiarise with all the hand tools and its tool bar.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.

Equipments/Machineries

• Basic computer system	- 1 No.
• Photoshop software CS3 or body	- 1 No.
• Computer system with 4GB RAM	- 1 No.

Materials

• Paper	- as reqd.
• Pencil	- as reqd.
• Eraser	- as reqd.
• Photoshop software	- as reqd.
• Image	- as reqd.

PROCEDURE

TASK 1: **Photoshop tools selecting and uses**

1 Open the Photoshop software.

2 Select the Photoshop tool panel like. (Fig 1)

3 Tools panel appears at the left of screen.

4 Some tools are appear in the context sensitive options bar.

5 Use the small triangle at the lower right of the tool icon signals where the presence of hidden tools. (Fig 2)

6 View the information about any tool by positioning the pointer over it and the name of the tool appears in tool tip below the pointer.

7 Click a tool in the tool panel and press the tools keyboard shortcut is displayed in its tool top.

8 Switch to precise cursors for change tool pointer, for text tools the default pointer is the beam and painting tools the default pointer is the brush size icon.

• Choose edit > preferences> cursors (windows)

• Choose tools pointer settings under painting cursors on other cursors.

9 Displays pointers as tool icons (Fig 2).

Fig 1

Tools panel overview

A Selection tools
- **Move (V)***
- **Rectangular Marquee (M)**
  - Elliptical Marquee (M)
  - Single Column Marquee
  - Single Row Marquee
- **Lasso (L)**
  - Polygonal Lasso (L)
  - Magnetic Lasso (L)
- **Quick Selection (W)**
  - Magic Wand (W)

B Crop and slice tools
- **Crop (C)**
- Slice (C)
- Slice Select (C)

C Measuring tools
- **Eyedropper (I)**
- Color Sampler (I)
- Ruler (I)
- Note (I)
- 1,2,3 Count (I)†

D Retouching tools
- **Spot Healing Brush (J)**
  - Healing Brush (J)
  - Patch (J)
  - Red Eye (J)
- **Clone Stamp (S)**
  - Pattern Stamp (S)

- **Eraser (E)**
  - Background Eraser (E)
  - Magic Eraser (E)
- **Blur**
  - Sharpen
  - Smudge
- **Dodge (O)**
  - Burn (O)
  - Sponge (O)

E Painting tools
- **Brush (B)**
  - Pencil (B)
  - Color Replacement (B)
  - Mixer Brush (B)
- **History Brush (Y)**
  - Art History Brush (Y)
- **Gradient (G)**
  - Paint Bucket (G)

F Drawing and type tools
- **Pen (P)**
  - Freeform Pen (P)
  - Add Anchor Point
  - Delete Anchor Point
  - Convert Point
- **Horizontal Type (T)**
  - Vertical Type (T)
  - Horizontal Type Mask (T)
  - Vertical Type Mask (T)

- **Path Selection (A)**
  - Direct Selection (A)
- **Rectangle (U)**
  - Rounded Rectangle (U)
  - Ellipse (U)
  - Polygon (U)
  - Line (U)
  - Custom Shape (U)

G Navigation & 3D tools
- **3D Object Rotate (K)†**
  - 3D Object Roll (K)†
  - 3D Object Pan (K)†
  - 3D Object Slide (K)†
  - 3D Object Scale (K)†
- **3D Rotate Camera (N)†**
  - 3D Roll Camera (N)†
  - 3D Pan Camera (N)†
  - 3D Walk Camera (N)†
  - 3D Zoom Camera (N)†
- **Hand (H)**
  - Rotate View (R)
- **Zoom (Z)**

■ Indicates default tool   * Keyboard shortcuts appear in parenthesis   † Extended only

Fig 2

Accessing tools

A. Tools panel B. Active tool C. Hidden tools D. Tool name.
E. Tool shortcut F. Hidden tool triangle
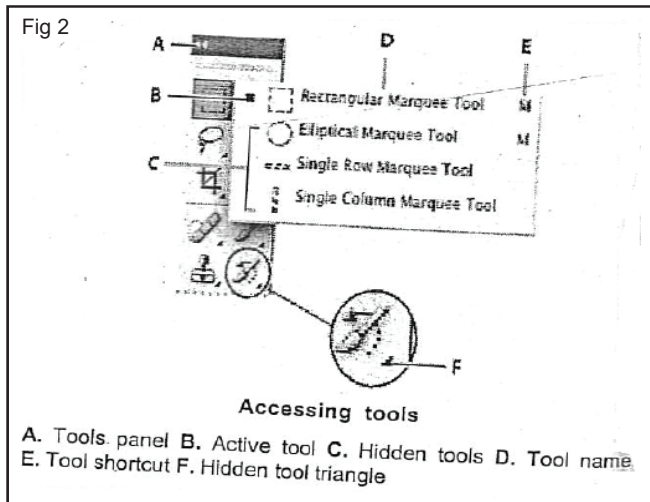
10 Displays pointers as cross hairs.

11 The pointer outline corresponds to approximately 50% of the area that the tool will affect. This option shows the pixels that would be most visibly affected.

12 The pointeroutline corresponds to nearly 100% ofthe area thatthe tool willaffect, or nearly all the pixels that would be affected.

13 Displays cross hairs in the center of the brush shape.

14 Improves performance with large brushes and Click OK.

15 The Painting Cursors options control the pointers for the following tools:

• Eraser, Pencil, Paintbrush, Healing Brush, Clone Stamp, Pattern Stamp, QuickSelection, Smudge, Blur, Sharpen, Dodge,Burn, and Sponge tools

• The Other Cursors options control the pointers for the following tools:

• Marquee, Lasso, Polygonal Lasso, Magic Wand, Crop, Slice, Patch, Eyedropper, Pen, Gradient, Line, Paint Bucket, Magnetic Lasso, Magnetic Pen, FreefomiPen, Measure, and Color Sampler tools

16 Use the options bar to context sensitive-it changes as you select different tools. Some settings in the options bar are common to several tools, and some are specific toone tool.

17 You can move the options bar in the workspace by using the gripper bar, and you can dock it at the top or bottom of the screen.

18 Tool tips appear when you positionthe pointer over a tool. To show or hide the options bar, choose Window > Options (Fig 3).

Tool presets

- Tool presets letyou save and reuse tool settings. You can load, edit, andcreate libraries oftoolpresets using the Tool Preset picker in the options bar, the Tool Presets panel, and the Preset Manager.

- To choose a tool preset, click the Tool Preset picker in the options bar, and selecta preset from the popup

panel.You can also choose Window > Tool Presets and select a preset in the Tools Presets panel (Fig 4).

Fig 3

Lasso options bar

A. Gripper B. Tool tip

Fig 4

Viewing the tool preset picker
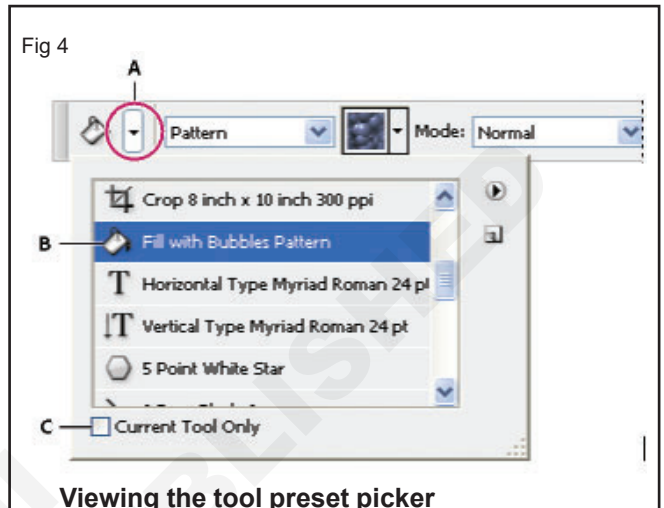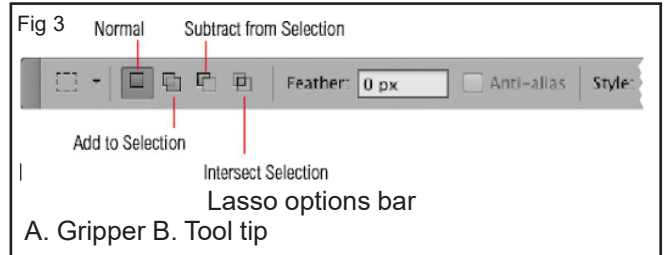
A Click the Tool Preset picker in the options bar to show the Tool Preset pop up panel.

B Select a preset to change the tool's options to the preset, which applies each time you select the tool until you choose Reset Tool from the panel menu.

C Deselect to show all tool presets; select to show presets for only the tool selected in the tool box.

- Use the marquee tools to make rectangular, elliptical, single row, and single column selections (Fig 5).

Fig 5
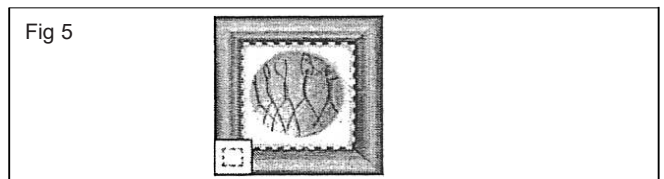
- Use the Magic Wand tool for selects similarly colored areas (Fig 6).

Fig 6
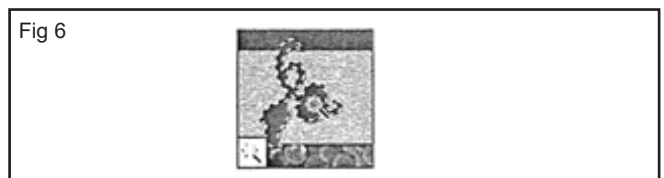
- Use the Move tool for moves selections, layers and guides (Fig 7)

Fig 7
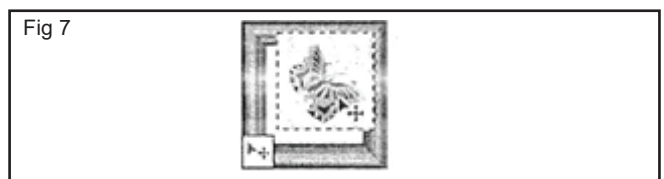
- Use the lasso tools make free hand, polygonal (straight- edged), and magnetic (snap- to) selections (Fig 8).

Fig 8

- Use the Quick Selection tool lets you quickly "paint" a selection using an adjustable round brush tip (Fig 9).

Fig 9

- Use the crop and slice tools gallery for crop tool trims images (Fig 10).

Fig 10

- Use the tool for creates slices (Fig 11).

Fig 11
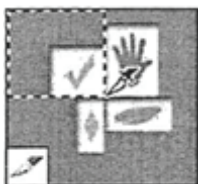
- Use the Slice Select tool selects slices (Fig 12).

Fig 12

- Use the retouching tools gallery for the Spot Healing Brush tool removes blemishes and objects (Fig 13).

Fig 13
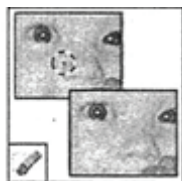
- Use the clone Stamp tool paintswith a sample of an image (Fig 14).

Fig 14
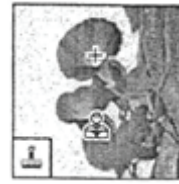
- Use the Magic Eraser tool erases solid-colored areas to transparency with a single click (Fig 15).

Fig 15
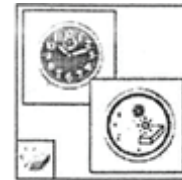
- Use the dodge tool lightens areas in an image (Fig 16).

Fig 16

- Use the Healing Brush tool paints with asampleor patternto repairimperfections ina image (Fig 17).

Fig 17

- Use the pattern Stamp tool paints with part of an images a pattern (Fig 18).

Fig 18
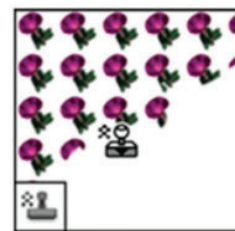
- Use the Blur tool blurs hard edges in an image (Fig 19).

Fig 19

- Use the Burn tool drarkens are as in an image (Fig 20).

Fig 20

- Use the Patch tool repairs imperfections ina selected area of an image using a sampleor pattern (Fig 21).

Fig 21
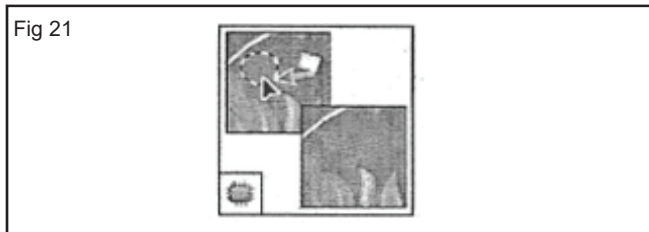
- Use the Eraser tool erase spixels and restores parts of an image to a previously saved state (Fig 22).

Fig 22
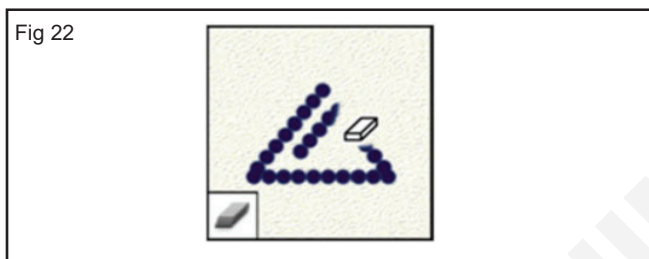
- Use the Sharpen tool sharpens soft edges in an image (Fig 23).

Fig 23
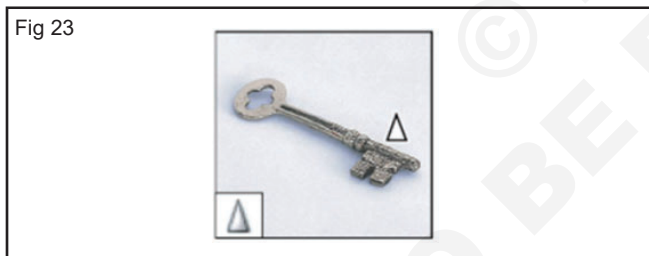
- Use the Sponge tool changes thecolor sat.uration of an area (Fig 24).

Fig 24

- Use the Red Eye tool removes the redreflection caused by a flash (Fig 25).

Fig 25
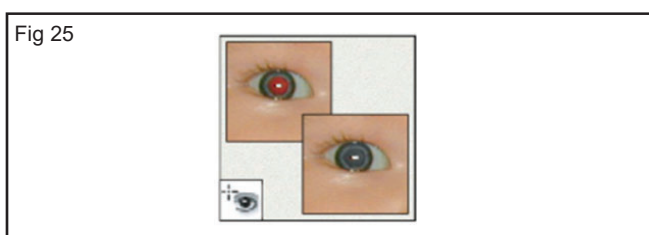
- Use the Back ground Eraser tool erases are as to transparency by dragging (Fig 26).

Fig 26
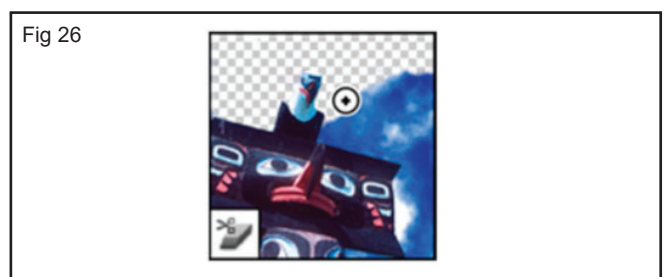
- Use the Smudge tools mudges data in an image (Fig 27).

Fig 27

Painting tools gallery

- Use the Brush tool paints brush strokes (Fig 28).

Fig 28
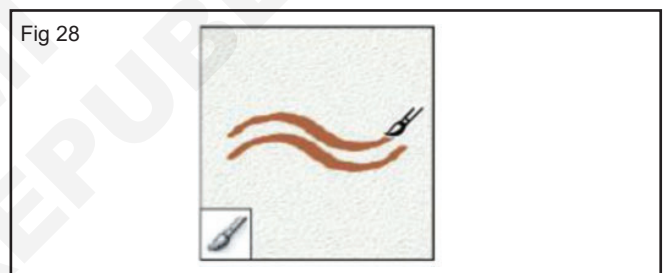
- Use the History Brush tool paints a copy of the selected state or snaps hot into the current image window (Fig 29).

Fig 29

- Use the Pencil tool paints hard- edged strokes (Fig 30).

Fig 30
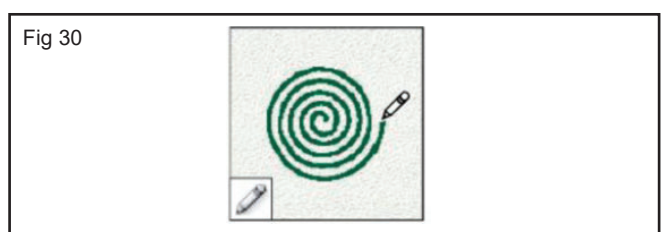
- Use the Art History brush tool paints with stylized strokes that simulate the look of .different paint styles, using a selected state or snapshot (Fig 31).

- Use the Color Replacement tool replaces a selected color with a new color (Fig 32).

Fig 31

Fig 32
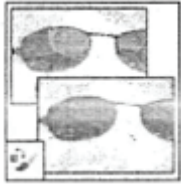
- Use the gradient tools create straight-line, radial.angle, reflected; and diamond blends between colours (Fig 33).

Fig 33
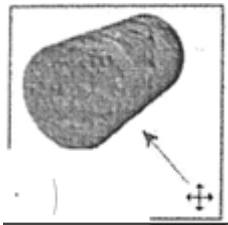
- Use the 30 Roll Camera tool rotates the camera around the z-axis (Fig 34).

Fig 34
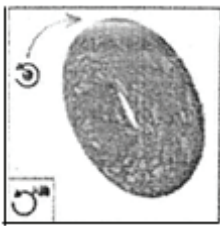
- Use the 3D Object Slide tool moves the object laterally when you drag horizontally, orforward and backwhen you drag vertically (Fig 35).

Fig 35
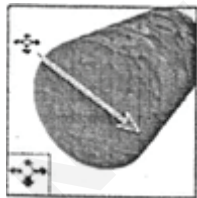
- Use the 3D Pan Camera tool pans the camera in the x or y direction (Fig 36).

Fig 36
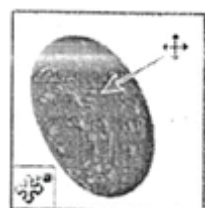
- Use the Text Tool is the main tool for creating your type in Photoshop (Fig 37).

Fig 37
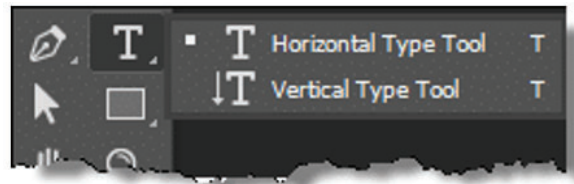
- Use the Horizontal Type Tool to photo horizontally for normal text (Fig 38).

Fig 38

- Use the Vertical Type Tool lets you type vertically instead of the traditional horizontal method (Figs 39 & 40).

Fig 39
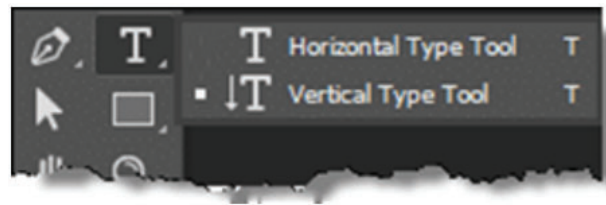
Fig 40

- Use the Pen Tool - To draw paths around objects (Figs 41 & 42).

Fig 41

Pen Tool options to create new paths

Pen Tool options to modify existing paths
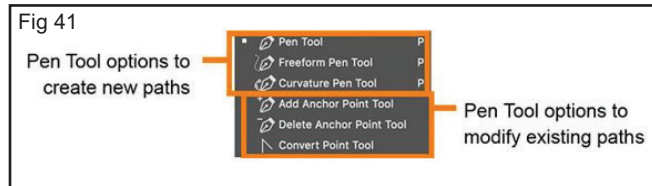
- Use with the Pen Tool, you can draw paths for use in your work. Print designers use the Pen Tool in Photoshop to draw paths around objects for their projects (Figs 43 to 45).

Fig 42

Pen tool (P)

Makes and changes paths or shapes with anchor points and handles

Fig 43

Fig 44

handle

handle

Fig 45
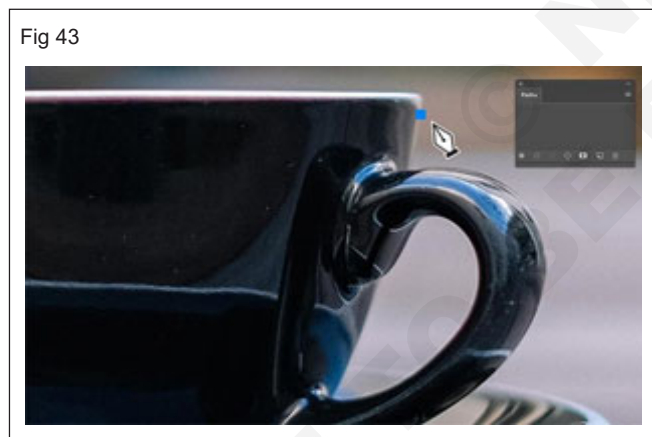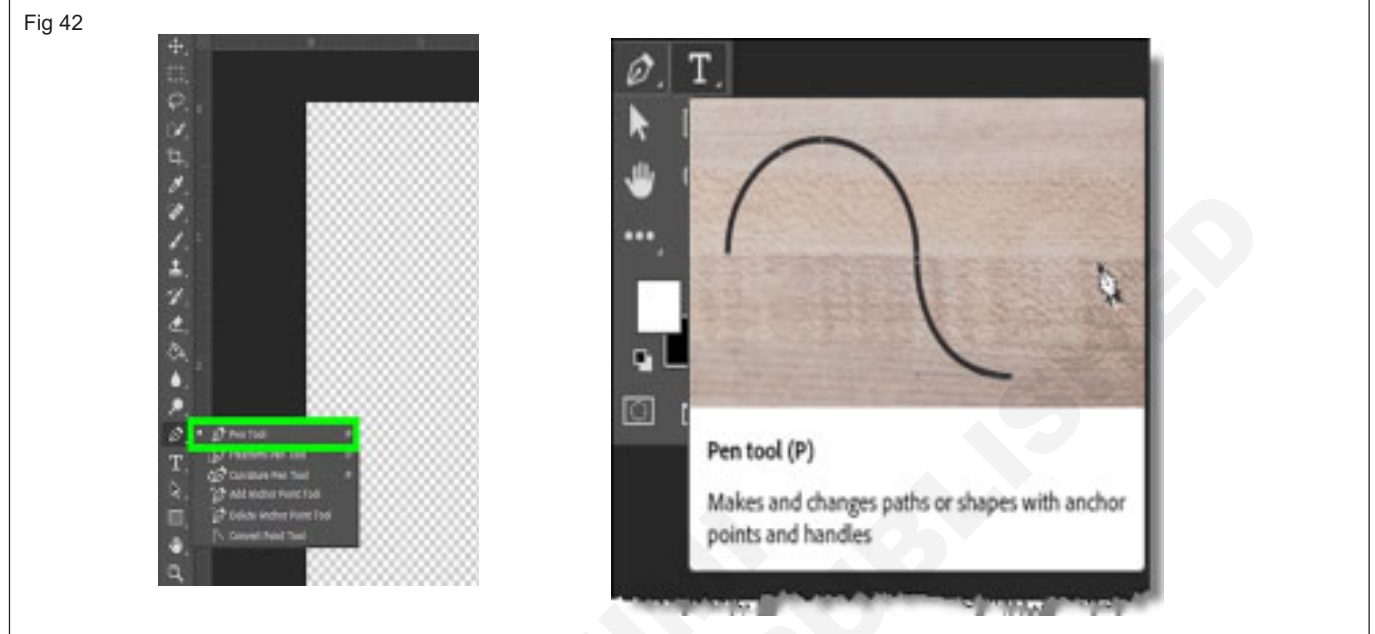
- Use the Free form Pen Tool to shape drawn and any path created easily adding anchor points automatically (Figs 46 & 47).

- Use the Curvature Pen Tool to create curved shapes with points. Users can create, edit, toggle, add, remove any curves without requiring any other tools (Figs 48 to 52).

- Use the Options Bar buttons for turning the closed path into Selection, Mask, or Shape the object.

Fig 46
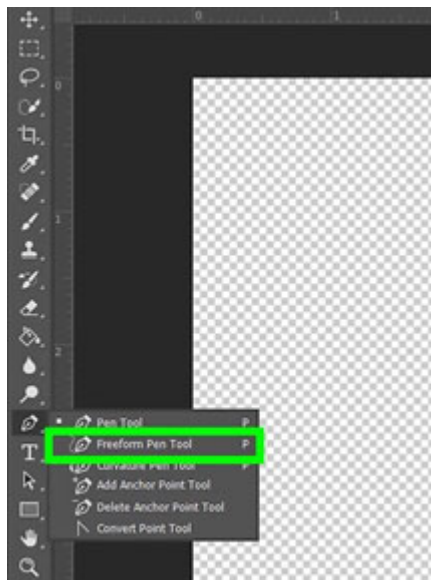
Fig 47

Fig 48

Fig 49
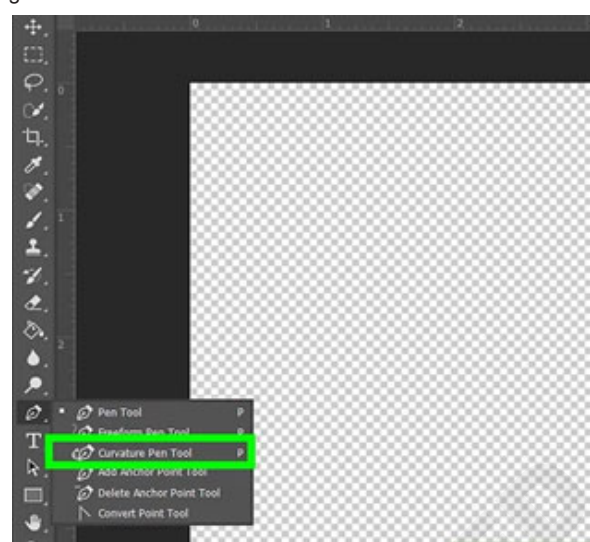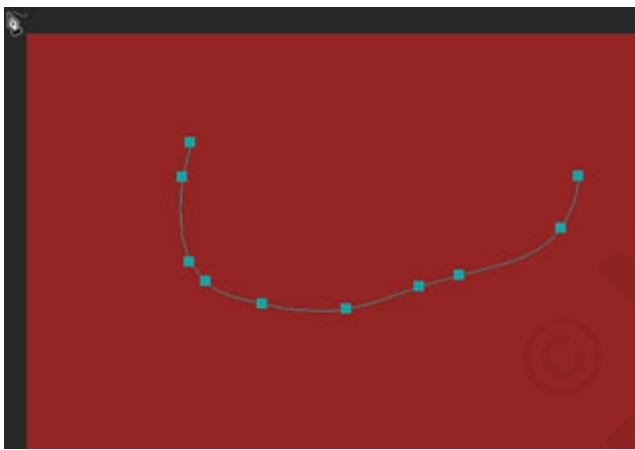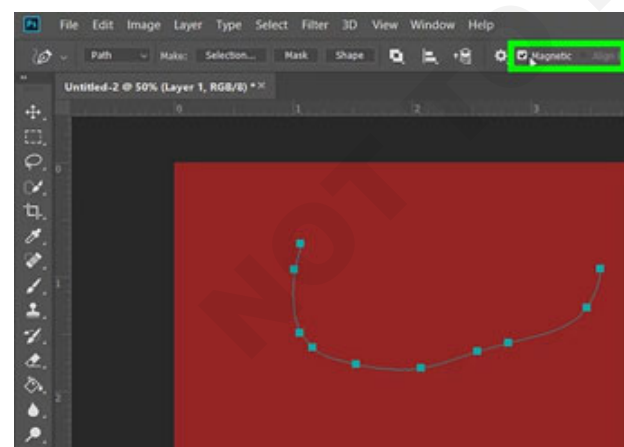
Fig 50

Fig 51
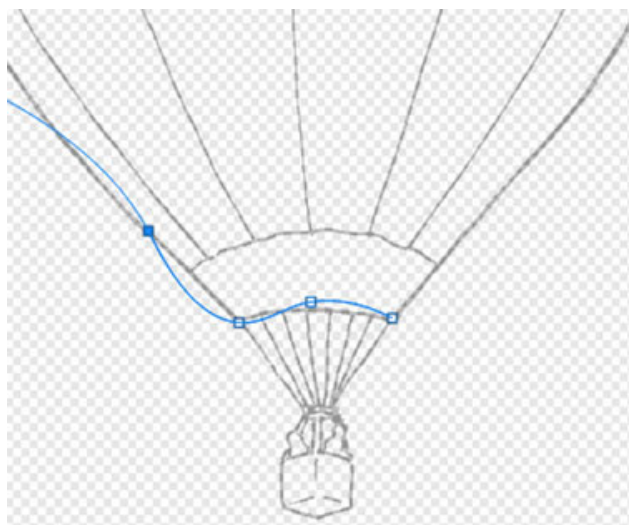
Fig 52

- Use the Add anchor point tool to create, edit, spin any corner or segment they need to enlarge (Figs 53 & 54).

Fig 53
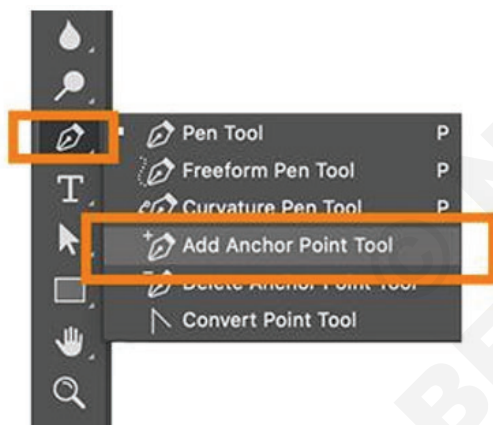
Fig 54
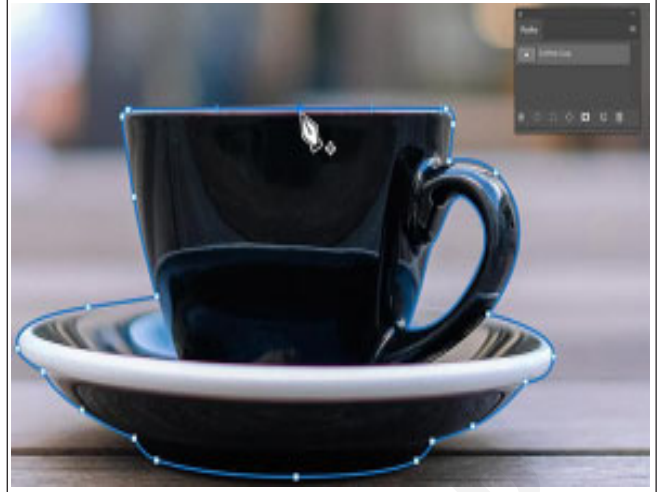
- Use the Delete anchor point tool to delete any corner or segment they need to remove (Figs 55 & 56).

Fig 55
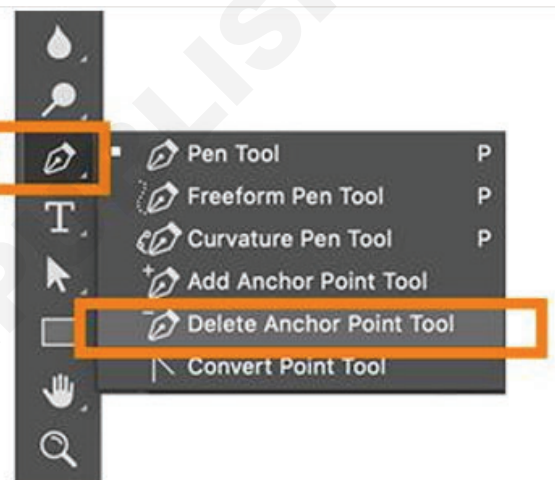
Fig 56
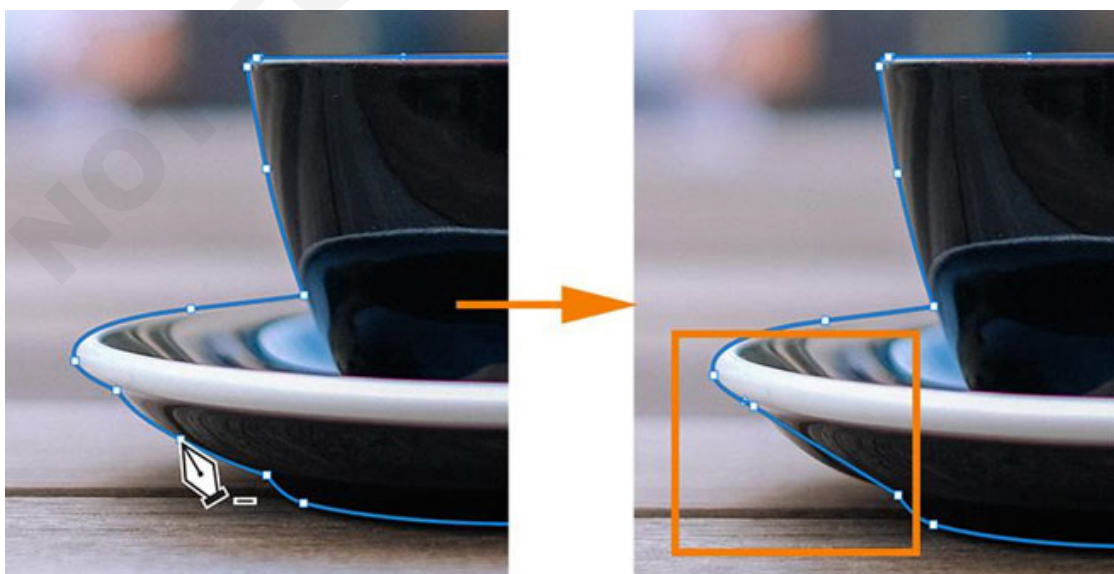
- Use the Convert Point Tool converts straight points to curve points and vice versa (Figs 57 to 59).

Fig 57
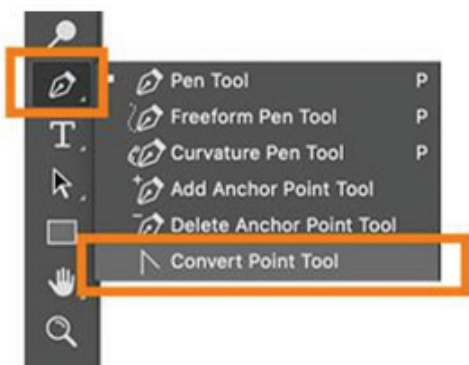
Fig 58
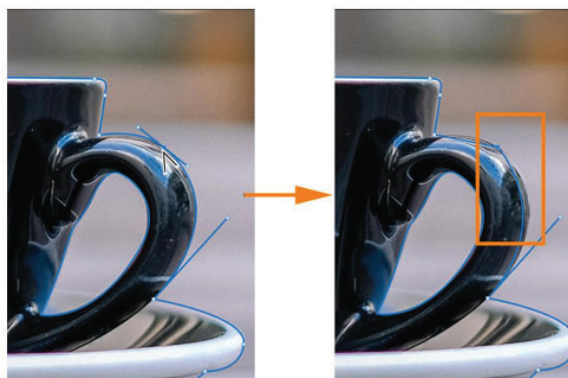
Fig 59
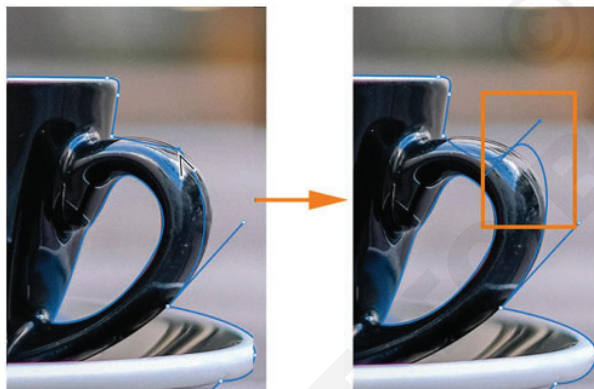
- Use the Different shape tools to draw different shapes based on paths or vector shape layers, which gives you well-defined lines.

- Use the rectangle shape tool to create a rectangle shape (Figs 60 & 61).

Fig 60
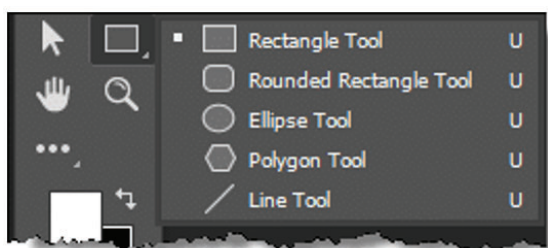
Fig 61

- Use the rounded rectangle shape tool to create a rounded rectangle shape (Figs 62 & 63).

Fig 62
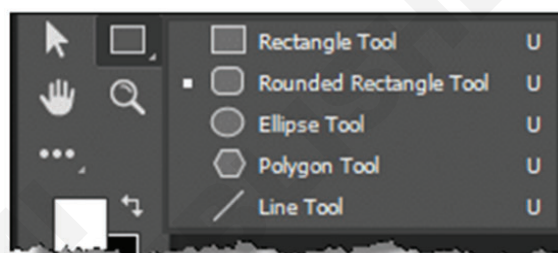
Fig 63

- Use the ellipse shape tool to create a perfect rounded shape (Figs 64 & 65)

Fig 64
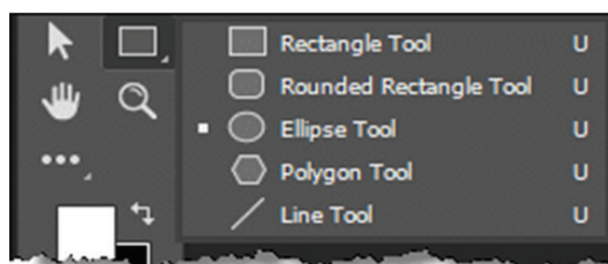
Fig 65

- Use the polygon shape tool allows you to create a polygon shape (Figs 66 & 67).

Fig 66

		Rectangle Tool	U
		Rounded Rectangle Tool	U
		Ellipse Tool	U
		Polygon Tool	U
		Line Tool	U
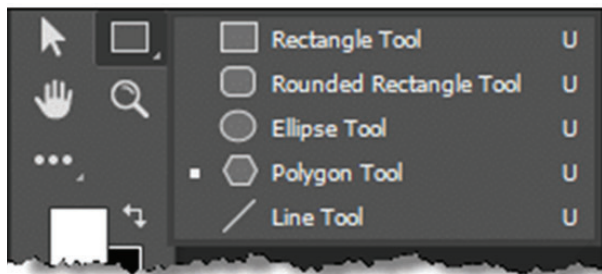
Fig 67

- Use the line tool to create a straight-line shape (Figs 68 & 69)

Fig 68

		Rectangle Tool	U
		Rounded Rectangle Tool	U
		Ellipse Tool	U
		Polygon Tool	U
		Line Tool	U
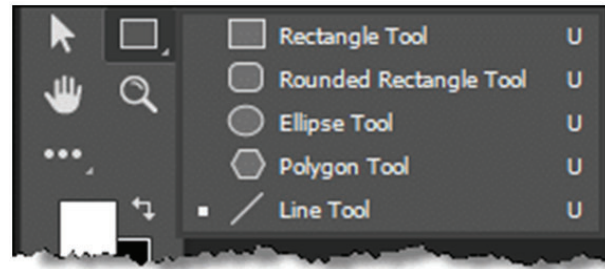
Fig 69

- Use the Hand Tool - To move any area of an image (Figs 70 & 71)

Fig 71

Fig 70
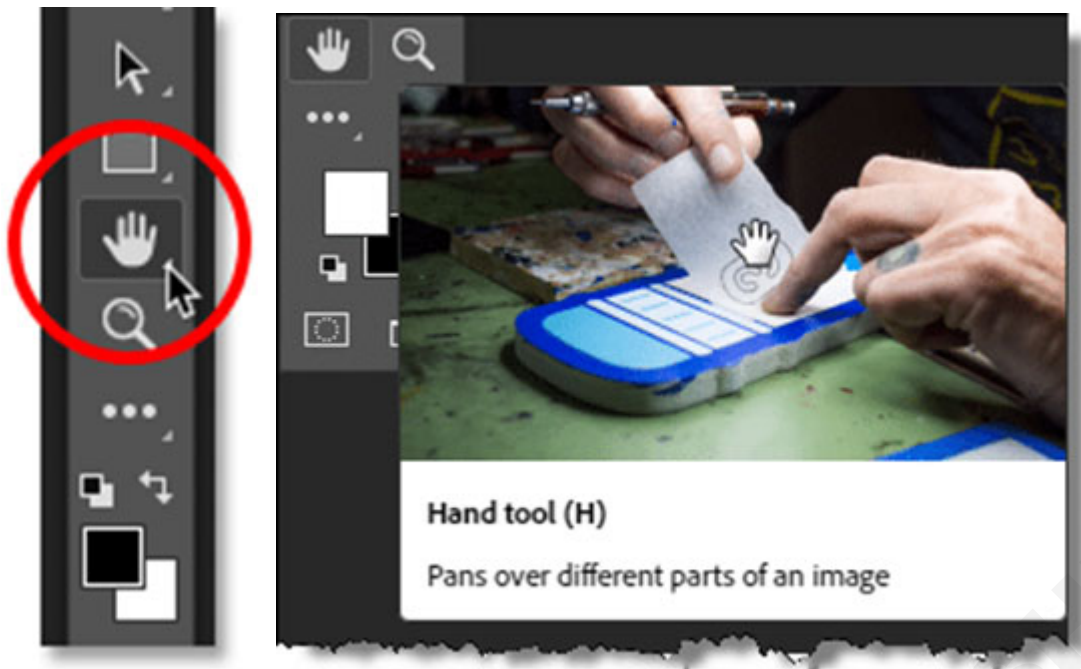
- The Hand Tool lets you move to any area of an image without accidentally dragging around a layer of an object on a layer.

- You can quickly switch to the Hand Tool any time just by holding the space bar.

- Use the Rotate View Tool to rotate the object (Fig 72).

Fig 72

Fig 73
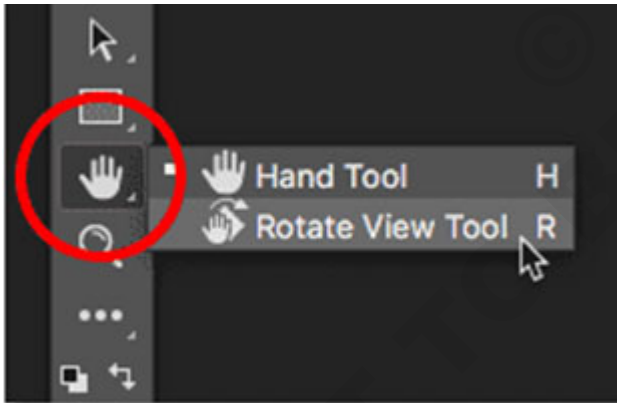
- Select the Rotate View tool from the Tools panel.

- Place your tool cursor in the image window and hold down the mouse button. ...

- Drag the cursor clockwise (or counter clockwise) to rotate the image window. ...

- When you reach your desired rotation angle, release the mouse button (Figs 73 & 74)

- Use the Zoom Tool - To zoom in and zoom out the image (Figs 75 to 79).

- It is most commonly used when you want to zoom in on a specific part of an image.

Fig 74

Fig 75

Fig 76

Zoom tool (Z)

Magnifies or reduces the view of an image

Fig 77

Fig 78

Fig 79

— — — — — — — —
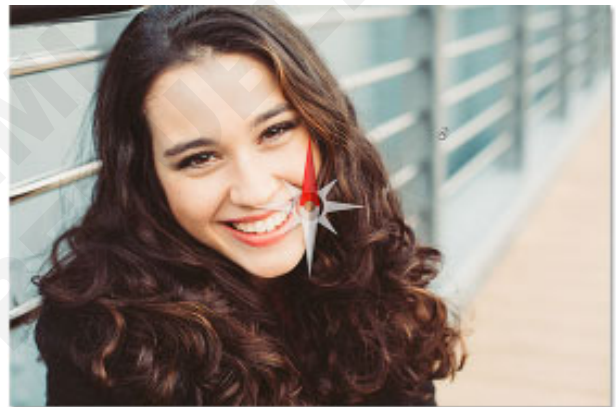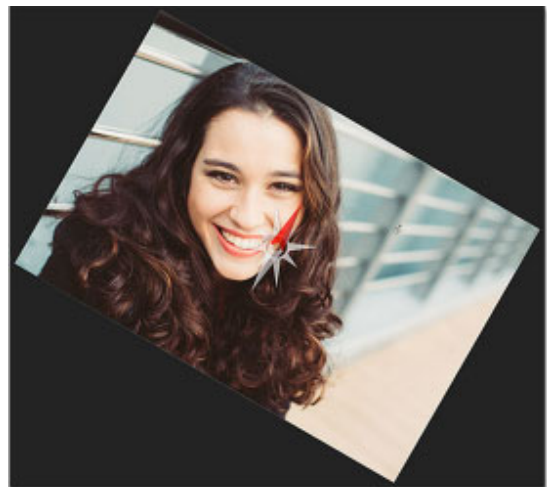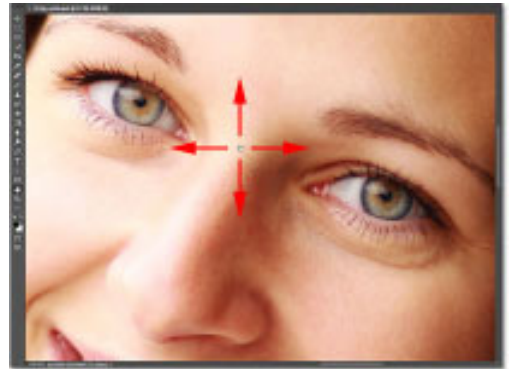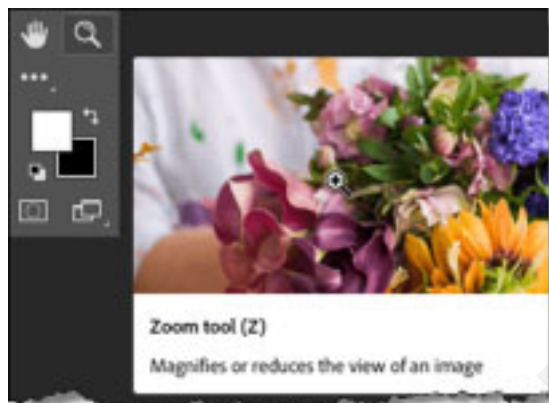
Practice on make a different layers and create back ground

Objectives: At the end of this exercise you shall be able to
• **make a different layer and adding layers**
• **create and name a new blank layer**
• **create a new group of layers**
• **create a back ground layer action**
• **changing the colour of the back ground layer**
• **fill the back ground with split colour gradient create design and image.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• UPS and computer table	- 1 No.
• Computer manual	- 1 No.	**Materials**	
Equipments/Machineries		• Paper	- as reqd.
• Computer system with		• Pencil	- as reqd.
photoshop software	- 1 No.	• Eraser	- as reqd.
• Printer	- 1 No.	• Baniyan cloth	- as reqd.

PROCEDURE

TASK 1: **Make a different layer and adding layers**

1 Use different layer to adjust colour and brightness. (Fig 1)

Fig 1
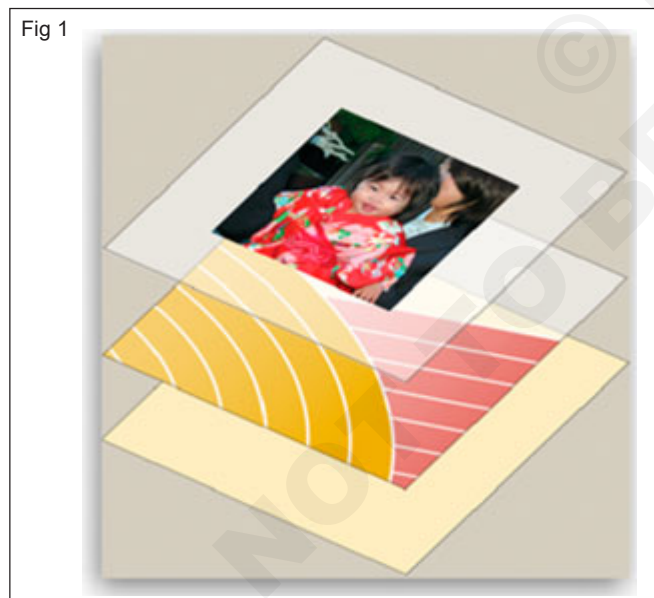
2 Apply special effects, reposition layer content, specify opacity and blending values.

3 Rearrange the stacking order, link layers to work on them simultaneously, and create web animations with layers.

4 Create layers are like stacked, transparent sheets of glass on which you can paint images. You can see through the transparent areas of a layer to the layers below.

5 Analyse the transparent areas on a layer let you see through to the layers below.

6 Use the icons in the panel, you can accomplish many tasks-such as creating, hiding, linking, locking, and deleting layers. (Fig 2)
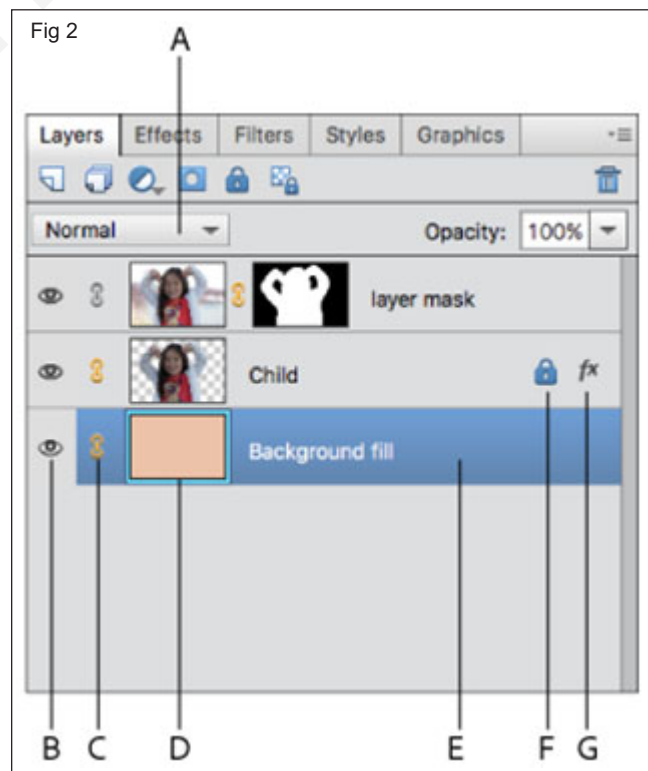
Fig 2

7 Check the layers panel manu display on the screen

    A   Blending mode menu

    B   Show/Hide layer

    C   Layer is linked to another layer

    D   Preview of a layer

    E   Highlighted layer is active layer

    F   Locked layer

    G   Layer has style applied (Fig 2)

8 You use the buttons in the panel to perform actions:

    Create a new layer.

    Create a new group.

    Create a new fill or adjustment layer.

    Delete a layer.

    Lock transparent pixels.

9 Use the panel Blending Mode menu (Normal, Dissolve, Darken, and so on), an Opacity text box, and a More button displaying a menu of layer commands and panel options.

10 Check the newly added layers appear above the selected layer in the Layers panel.

11 Add layers to an image by using any of the following methods:

    • Create new, blank layers or turn selections into layers.

    • Convert a background into a regular layer or vice versa.

    • Paste selections into the image.

    • Use the Type tool or a shape tool.

    • Duplicate an existing layer.

12 Create up to 8000 layers in an image, each with its own blending mode and opacity. However, memory constraints may lower this limit.

13 Create and name a new blank layer.

14 Create a layer and specify a name and options, choose Layer > New > Layer, or choose New Layer from the Layers panel menu. Specify a name and other options, and then click OK.

15 Ensure the new layer is automatically selected and appears in the panel above the layer that was last selected.

16 Create a New layer part of another layer as follows;

• Select an existing layer, and make a selection.

• Choose one of the following:

    - Layer > New > Layer Via Copy to copy the selection into a new layer.

    - Layer > New > Layer Via Cut to cut the selection and paste it into a new layer.

17 Ensure the selected area appears in a new layer in the same position relative to the image boundaries.

18 Ensure the creating a new layer by copying part of another layer and pasting it into a new layer. (Fig 3)

Fig 3
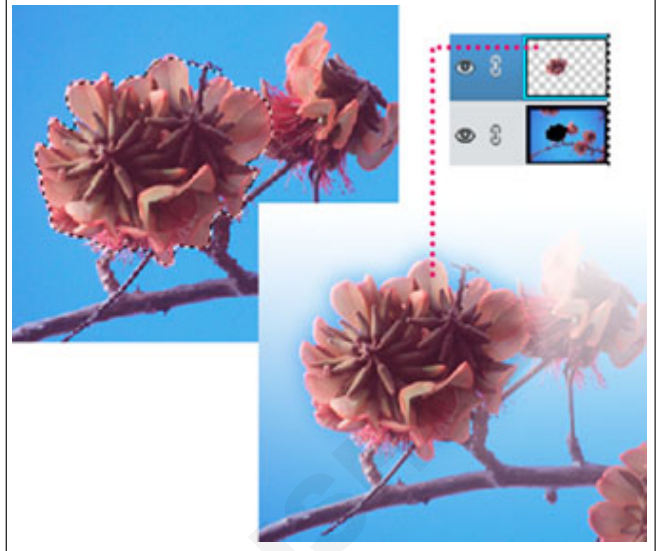
19 Convert the background layer into a regular layer as follow;

• Double-click the Background layer in the Layers panel.

• Choose Layer > New > Layer From Background.

• Select the Background layer, and choose Duplicate Layer from the Layers panel flyout menu, to leave the Background layer intact and create a copy of it as a new layer.

20 Create a new layer and name it.

21 Make a layer the Background layer

• Select a layer in the Layers panel.

• Choose Layer > New > Background From Layer.

• Any transparent areas in the original layer are filled with the background color.

22 Create a new group of layer

• To create a new group with default settings, create Click A New Group icon in the Layers panel in the Expert mode.

• To create a new group with customized settings, follow these steps:

• Select Layer > New > Group.

• In the dialog box, specify a name and other options, and click OK.

23 Create a color to a layer or a group.

• Use the color-coding layers and groups to identify related layers in the Layers panel. Simply right-click the layer or group and select a color.

24 Create a new Background layer for a Photoshop document

25 Ensure the whenever you open an image, Photoshop automatically places it on the Background layer, as we see here in my Layers panel:

26 Check the Layers panel showing the image on the Background layer. (Fig 4)

Fig 4
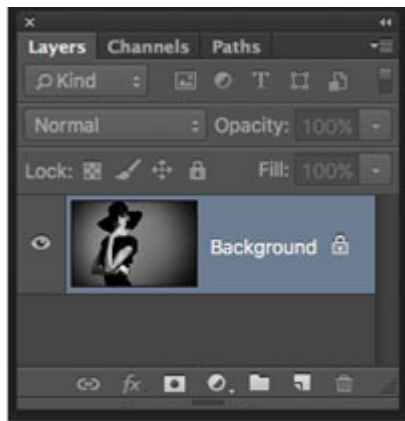
Create A Background Layer Action

1 Check Your Background Color

- Create a new Background layer, Photoshop will fill the layer with current Background color.

- The current Foreground and Background colors in the color swatches near the bottom of the Tools panel. By default, Photoshop sets the Foreground color to black and the Background color to white.

- If Foreground and Background colors are set to something other than the defaults, press the letter D on your keyboard to quickly reset them (think "D" for "Default colors"):

- Create the Foreground (upper left) and Background (lower right) color swatches. (Fig 5).

Fig 5

- If rather fill your Background layer with black instead of white, first press the letter D on keyboard to reset the Foreground and Background colors to their defaults (if needed). Then press the letter X on keyboard to swap them, which sets Background color to black:

- Press X to swap the Foreground and Background colors. (Fig 6)

2 Open the actions panel

- To record your action.

- Go up to the Window menu in the Menu Bar along the top of the screen.

- Select the Actions panel from the list.

- Check mark next to the panel's name, it means the panel is already open somewhere on screen. If don't see the checkmark, go ahead and select it:

- Go to Window > Actions. (Fig 7)

Fig 6

Fig 7
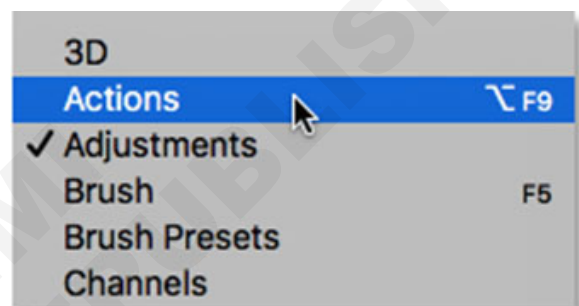
- Opens the Actions panel.

- Photoshop includes a collection of default actions which are found in the cleverly-named Default Actions set.

- You can twirl the Default Actions set open to view the actions inside of it by clicking the triangle icon to the left of the little folder icon.

- Clicking the triangle again will close the set. (Fig 8)

Fig 8
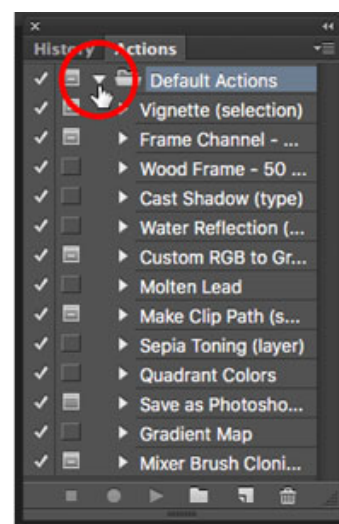
3 Create a new action set

- To create a new set, click the New Set icon (the folder icon) at the bottom of the Actions panel:

- Click the New Set icon. (Fig 9)

Fig 9
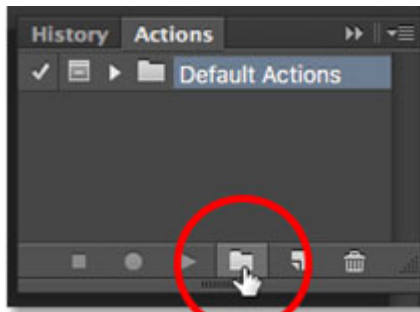
- Ensure the New Set dialog box shows set a name. You can name it anything you like. Name mine "My Actions". Click OK when done to close out of the dialog box. (Fig 10)

Fig 10
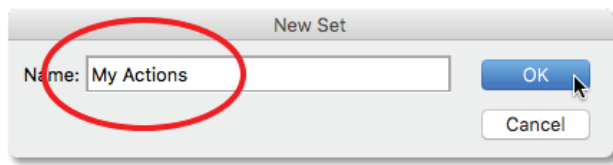
- Ensure the new action set appears below the Default Actions set in the Actions panel. (Fig 11)

Fig 11
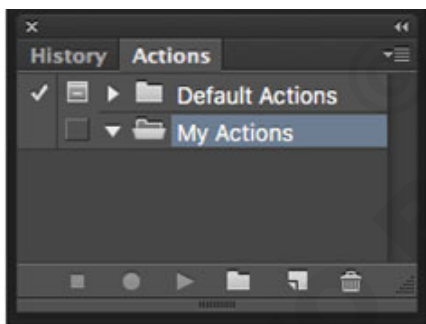
- To create a new action. Click the New Action icon directly to the right of the New Set icon by clicking the New Action icon.

- The New Action dialog box will displays on the screen. (Figs 12 & 13)

Fig 12
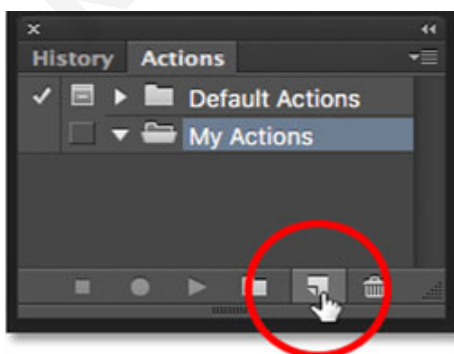
Fig 13
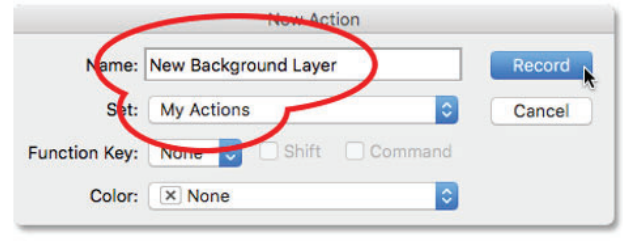
- Click the Record button to close out of the dialog box and begin recording action by clicking the Record button. (Fig 14)

Fig 14
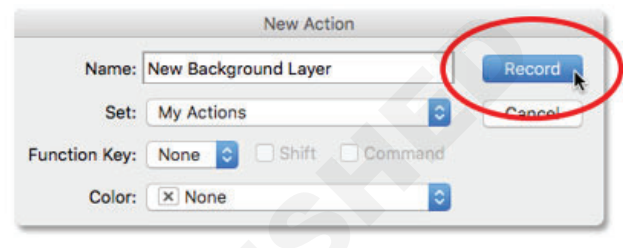
- If look again in the Actions panel, see that the red Record icon has been activated, letting know that now in Record mode Photoshop is now in Record mode. (Fig 15)

Fig 15
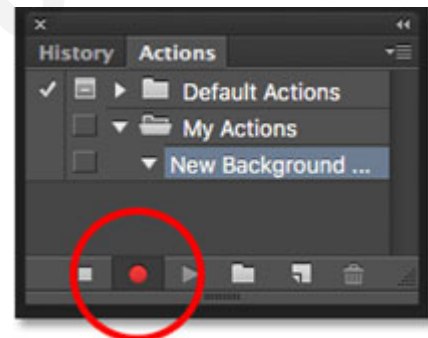
- Convert the current Background layer into a normal layer. To do that, go up to the Layer menu at the top of the screen, choose New.

- Choose Layer from Background by Going to Layer > New > Layer from Background. (Fig 16)

Fig 16
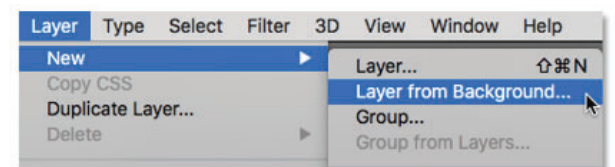
- Open the New Layer dialog box. Leave the name set to "Layer 0" and click OK to close out of the dialog box. (Fig 17)

- Check the Background layer is no longer a Background layer. It's now a normal layer named "Layer 0".

Fig 17
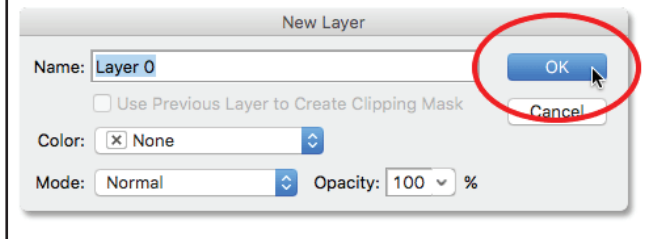
- The Background layer has been converted to a normal layer. (Fig 18)

Fig 18
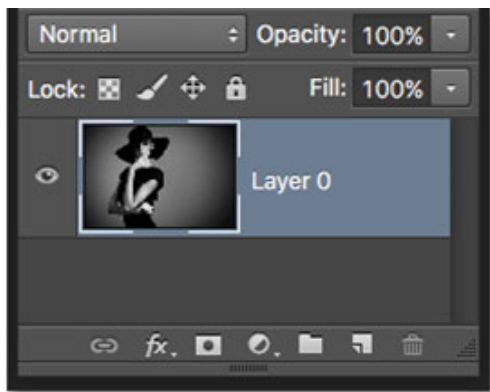
- To add a new background layer. Click the New Layer icon at the bottom of the Layers panel. (Fig 19)

- Ensure the Photoshop adds a new blank layer named "Layer 1" above the image. (Fig 19)

Fig 19
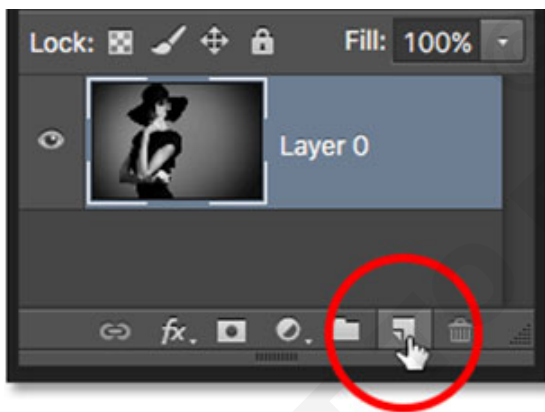
- Check the Layers panel showing the new blank layer. (Fig 20)

Fig 20
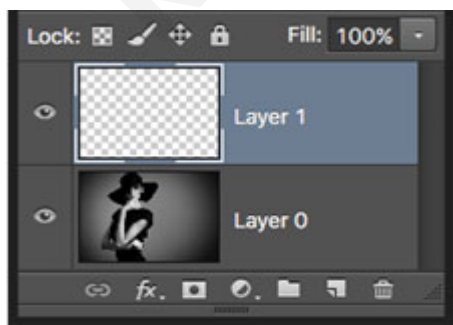
4 Convert the layer into a background layer

- To convert the new layer into a Background layer. Go back up to the Layer menu, choose New, and then choose Background from Layer:

- Going to Layer > New > Background from Layer. (Fig 21)

Fig 21
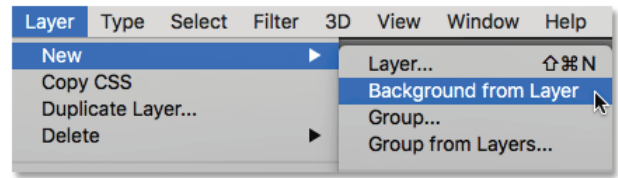
- First, as soon as you convert the layer into a Background layer, Photoshop automatically moves the layer from above the image to below the image in the Layers panel.

- Second, if you look at the Background layer's preview thumbnail to the left of the layer's name, we see that Photoshop filled the Background layer with white.

- Click the Layers panel showing the new Background layer. (Fig 22)

Fig 22
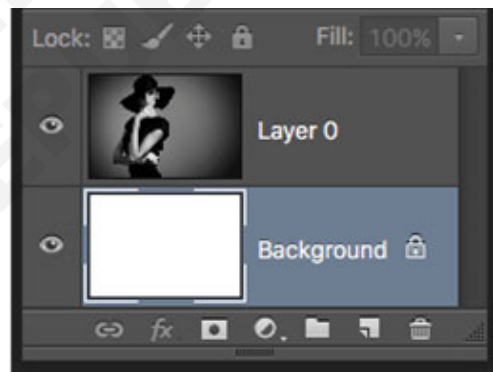
5 Stop recording

- Click the Stop icon (the square) at the bottom of the Actions panel to stop recording.

- Clicking the Stop icon the steps for creating a new Background layer are now saved as an action closed by clicking the triangle icon to the left of its name. (Fig 23)

Fig 23
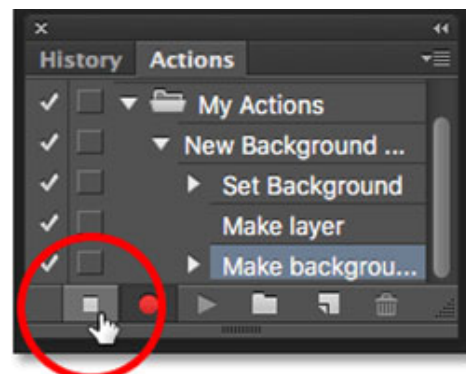
- Close the action by clicking the triangle in the menu bar. (Fig 24)

Fig 24
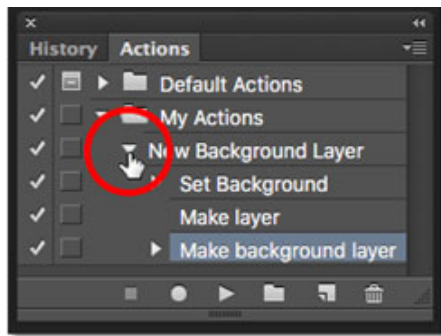
- And now we see just the name of the action ("New Background Layer") listed under the "My Actions" set.

- The Actions panel after closing the action. (Fig 25)

Fig 25
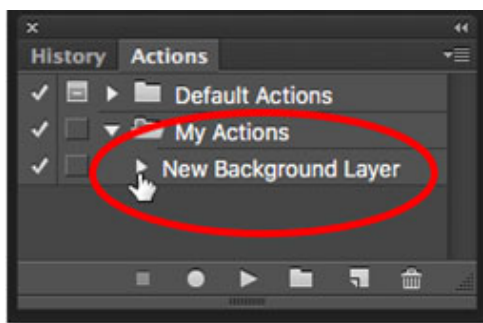
6 Revert the image

- Now revert the image back to its original state by and choosing Revert in the file menu.

- Going to File > Revert. (Fig 26)

Fig 26
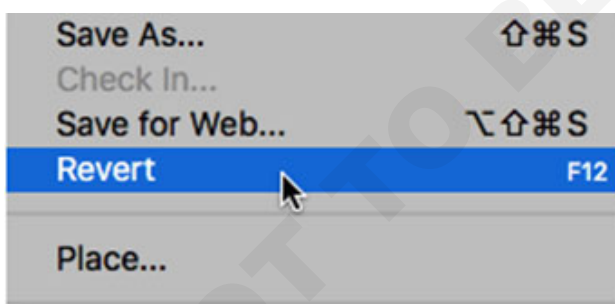
- Use the Revert command in Photoshop restores the image to its original, newly-opened version.

- The default Background layer has returned. (Fig 27)

7 Play the action.

- Before test the action,swap the Foreground and Background colors by pressing the letter X on keyboard so that Background color is now black instead of white.

- Setting my Background color to black. (Fig 28)

- To play it, click on its name in the Actions panel to select it.

Fig 27
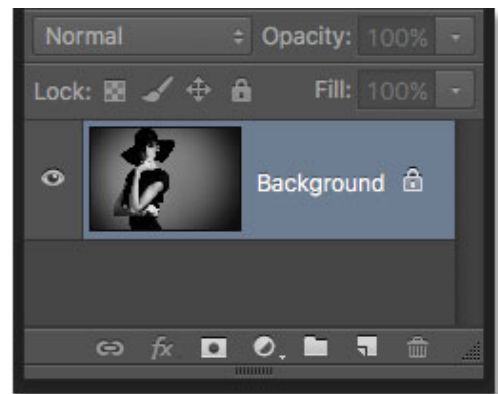
Fig 28

- Selecting the "New Background Layer" action. (Fig 29)

- Click the Play icon (the triangle) to play it by clicking the Play icon.

Fig 29
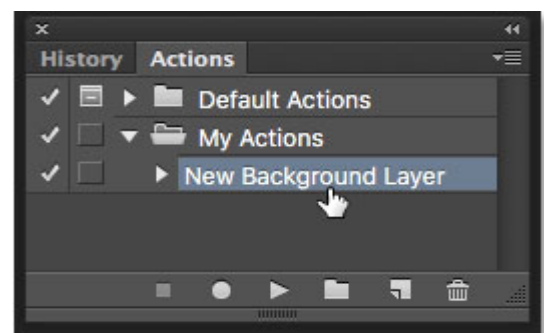
- Notice that the preview thumbnail for new Background layer is filled with black this time instead of white. (Fig 30)

Fig 30
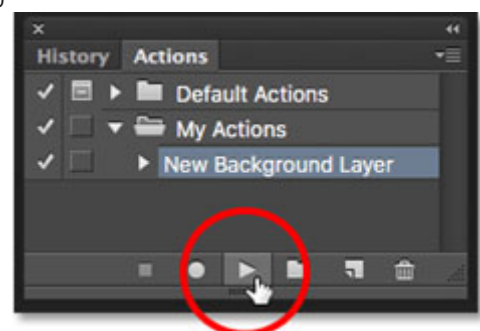
- The Layers panel after playing the action with the Background color set to black. (Fig 31)

Fig 31
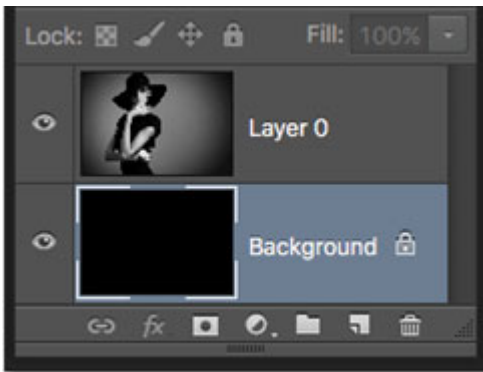
Changing the color of the background layer

- Make sure the Background layer is selected in the Layers panel.

- Go up to the Edit menu at the top of the screen and choose Fill by Going to Edit > Fill. (Fig 32)

Fig 32
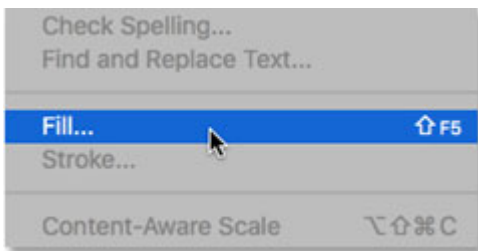
- For background layer to be white, Use option at the top of the Fill dialog box to White. (Fig 33)

Fig 33
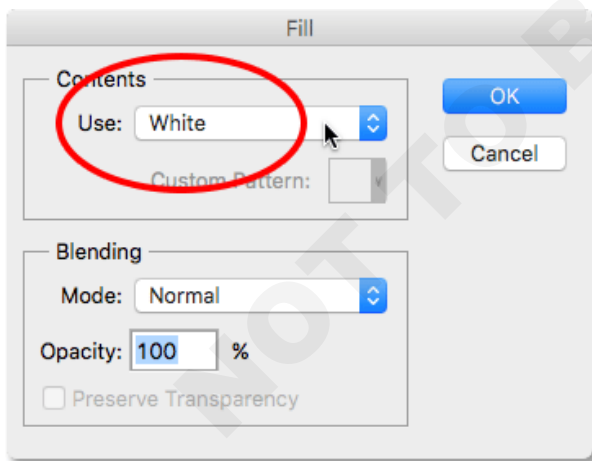
- Selecting a new color for the Background layer.

- Click OK to close out of the dialog box, at which point Photoshop fills the Background layer with your chosen color.

- Ensure the Background layer color has been changed from black to white. (Fig 34)

Fig 34
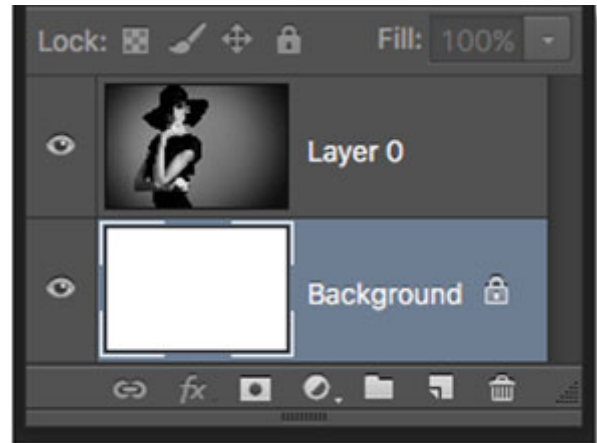
- Check the Background layer yet in the document because the photo is blocking it from view, so quickly resize the photo by first selecting its layer (Layer 0) in the Layers panel by Selecting the photo's layer. (Fig 35)

Fig 35
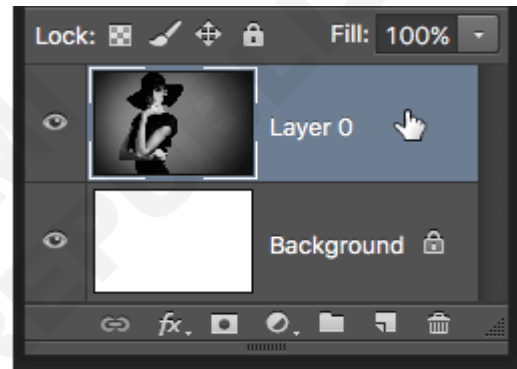
- Edit menu at the top of the screen and choose Free Transform by Going to Edit > Free Transform. (Fig 36)

Fig 36
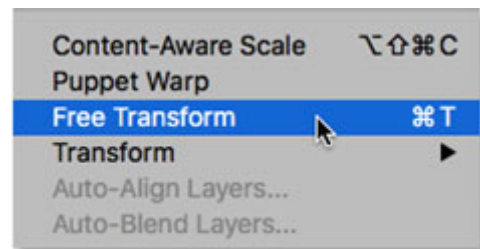
- Places the Free Transform box and handles around the image.

- Press and hold Shift+Alt (Win) / Shift+Option (Mac) on keyboard as I click on the handle in the top left corner of the image and drag it inward to make the photo a bit smaller.

- Hold the Shift key as drag locks the aspect ratio of the image resizing it, while the Alt (Win) / Option (Mac) key resizes the image from its center rather than from the corner.

- With the image now smaller, the white background appearing as a border around it.

- Resizing the image with Free Transform. (Fig 37)

Fig 37
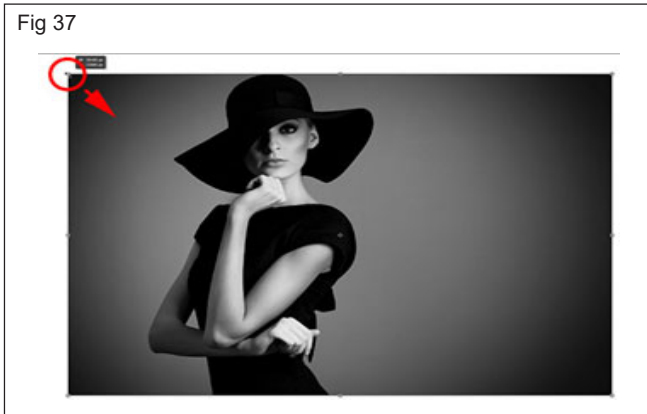
- Press Enter (Win) / Return (Mac) on keyboard to accept the transformation and close out of the Free Transform command.

- Add a drop shadow to the image by clicking the Layer Styles icon at the bottom of the Layers panel. This is the same icon that was grayed out earlier when the image was on the Background layer by Clicking the Layer Styles icon. (Fig 38)

Fig 38
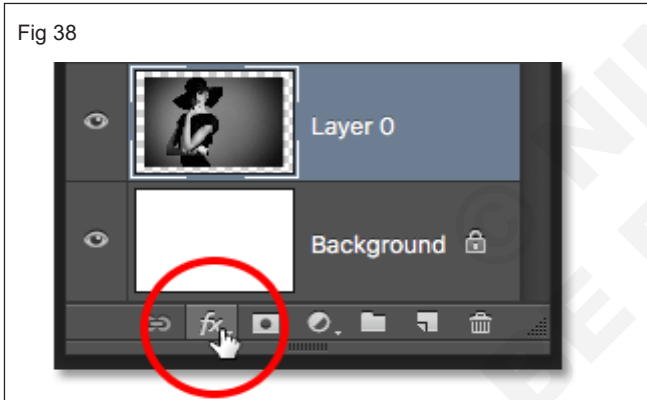
- Select Drop Shadow from the list of layer styles that appears by selecting a Drop Shadow layer style. (Fig 39)

Fig 39

Color Overlay...
Gradient Overlay...
Pattern Overlay...
Outer Glow...
Drop Shadow...

- Open Photoshop's Layer Style dialog box set to the Drop Shadow options in the middle column.

- Set the Angle of the shadow to 135° so that the light source is coming from the upper left.

- Fairly large the image set the Distance of the shadow to 40 pixels, and set the Size value (which controls the softness of the shadow edges) to 40 pixels as well. Finally, lower the Opacity of the shadow down to 50%. (Fig 40)

Fig 40
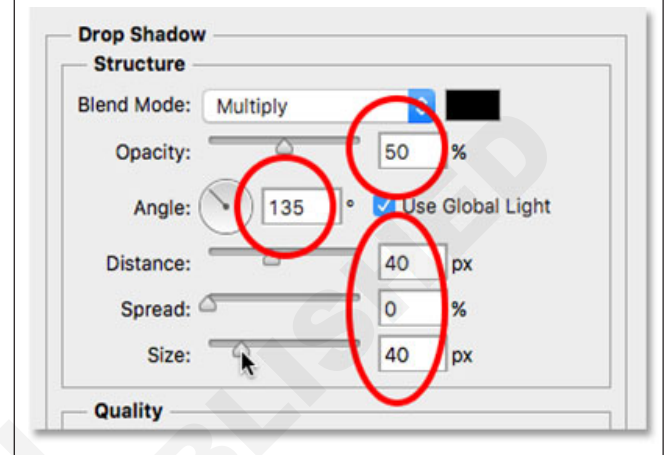
- Use the Drop Shadow options in the Layer Style dialog box.

- Click OK to accept the settings and close out of the dialog box, and here's my final result with the drop shadow applied.

- Check the final result after applying the drop shadow. (Fig 41)

Fig 41

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TASK 2: **Fill the background with the split-color gradient**

> **Instead of adding a stroke around the text.**

1 Turn off the stroke effect

- Add a stroke from the previous section, then in the layers panel, turn off the stroke by clicking its visibility icon below the type layer by turning off the stroke.

2 Select the Background layer panel, click on the Background layer to select it by selecting the Background layer (Figs 1 & 2).

Construction: Painter (General) (NSQF - Revised 2022) - Exercise 1.8.83 **197**

Fig 1
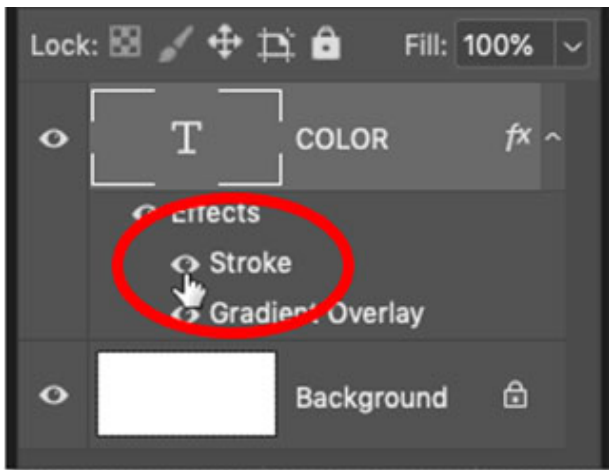
Fig 2
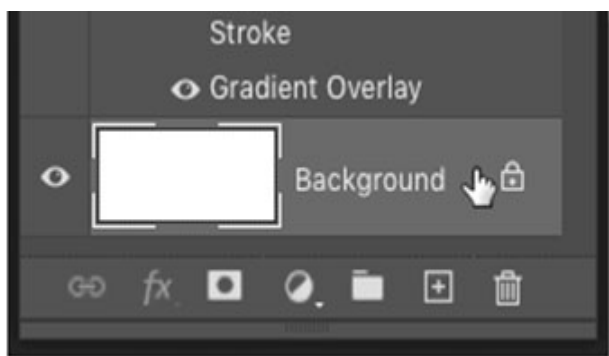
3 Add a Gradient Fill layer click the New Fill or Adjustment Layer icon at the bottom by clicking the New Fill or Adjustment Layer icon. (Fig 3)

Fig 3
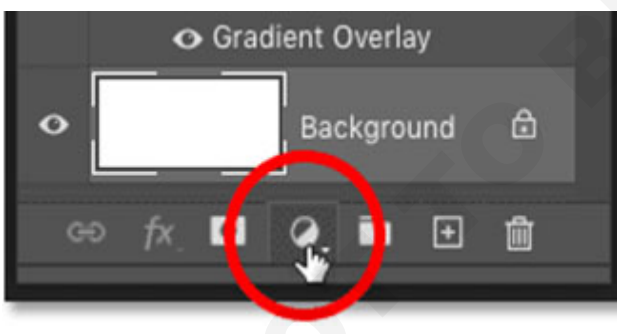
- Choose a Gradient fill layer from the list by adding a Gradient fill layer. (Fig 4)

Fig 4

- Use the Gradient fill layer appears between the type layer and the Background layer.

- Use the Gradient fill layer is added below the text. (Fig 5)

Fig 5
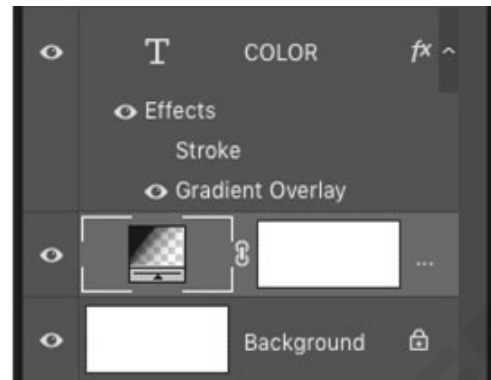
4 Choose the split-color gradient in the Gradient Fill dialog box, click the arrow to the right of the gradient swatch by clicking the arrow to choose a different gradient. (Fig 6)

Fig 6
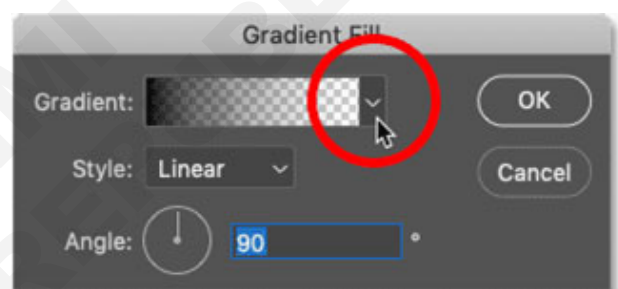
- Double-click on the split-color gradient's thumbnail to select it:

- Double-clicking on the split-color gradient preset. (Fig 7)

Fig 7
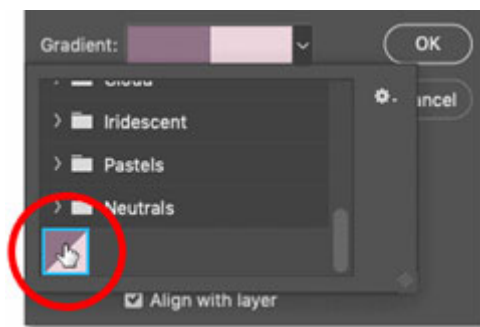
5 Reverse the gradient colors for the background need to be in the reverse order of the text, otherwise the text will disappear from view.

- Select Reverse in the Gradient Fill dialog box then leave Reverse in the Gradient Fill dialog box unchecked. (Fig 8)

Fig 8
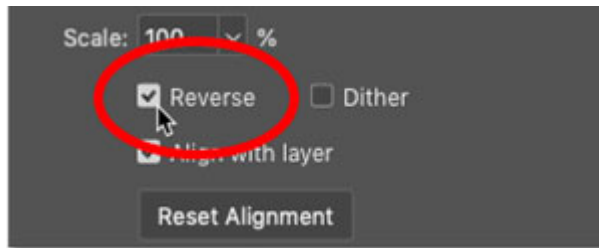
- Reversing the colors of the gradient for the background.

- Click OK to close the Gradient Fill dialog box, and the split-color gradient appears behind the text, in the reverse order of how it appears inside the letters. (Fig 9)

- If need align the text and the gradient.

Fig 9

6 Move the text into position

- Two gradients line up, first select the type layer in the Layers panel by selecting the type layer. (Fig 10)

Fig 10
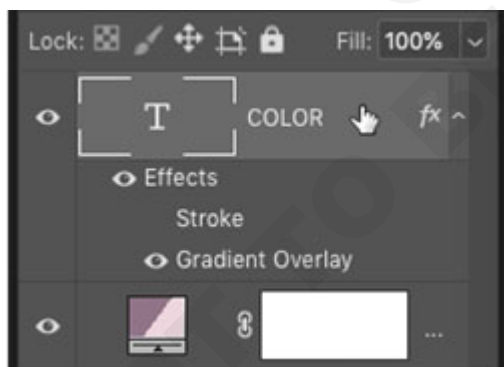
- Then in the toolbar, select the Move Tool. (Fig 11)

Fig 11

- Do before moving the text, go up to the View menu in the Menu Bar and choose 100%.

- Zooms your document to the 100% view mode which allows you to nudge the text one pixel at a time by Going to View > 100%. (Fig 12)

Fig 12

- With the Move Tool selected and your view at 100%, use the Up or Down arrow key on your keyboard to nudge the text into place.

- Use the final split-color text and gradient effect. (Fig 13)

Fig 13

- - - - - - - -
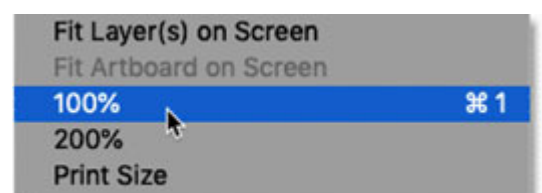
TASK 3: **Create design and image**

1 Open Photoshop and create a new document select the background layer and go to Layer>Layer Style>Grandient Overlay (Fig 1).

2 Create a new layer and go to Filter>Render>Clouds. Make sure that the colors were black and white for the foreground an background (Fig 2).

3 Change the Blend Mode of the Clouds layer to Color Dodge (Fig 3).

4 Select the Eraser Tool (E). Use a regular brush. Change the Hardness to 0% and use a big size. Now erase some areas, just leave the center like the image below (Fig 4).

5 Place the logo and aling it in the center of the document. Go to Layer>Layer Styles>Outer Glow. Use #fffde2 for the color, Color Dodge for the Blend Mode, 80% opacity, 18% for the Spread and 18 pixels for the Size. That will create a nice glowing logo (Fig 5).

Fig 1
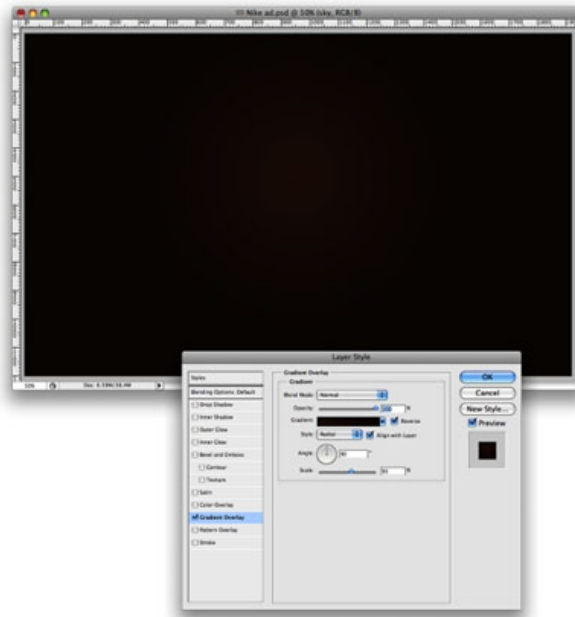
Fig 2
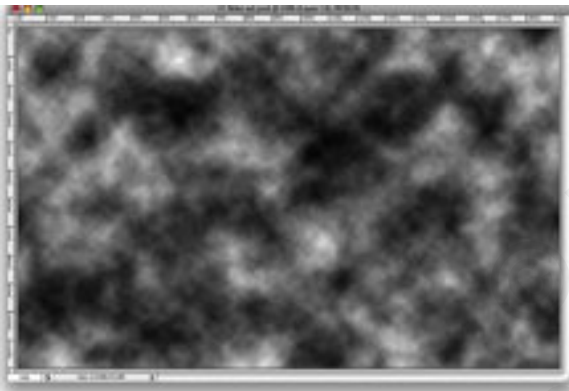
Fig 3

Fig 4
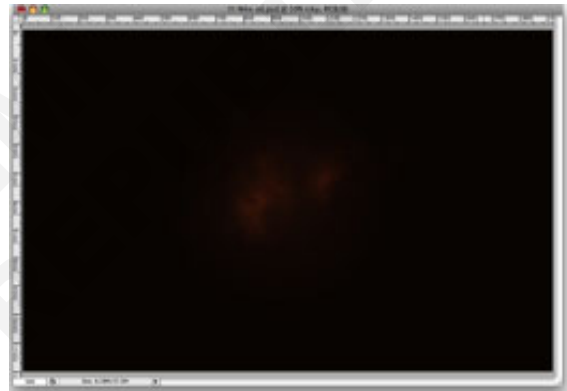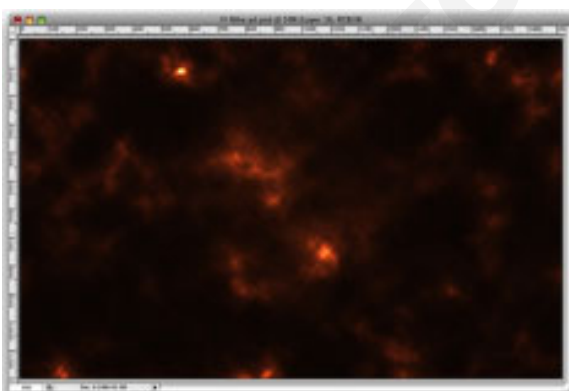
Fig 5
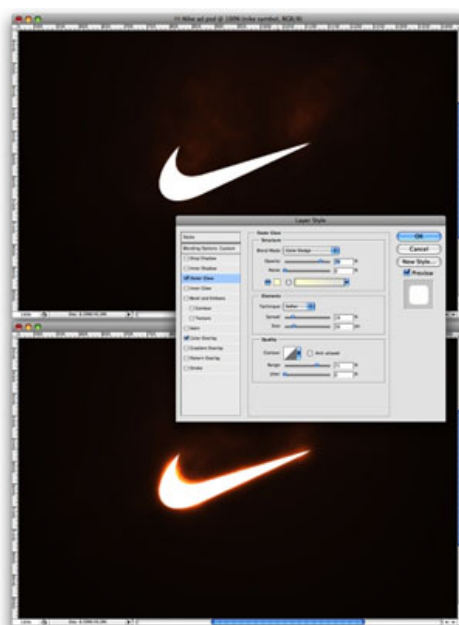
6   Create some effects like the Hejz work (Fig 6).

Fig 6
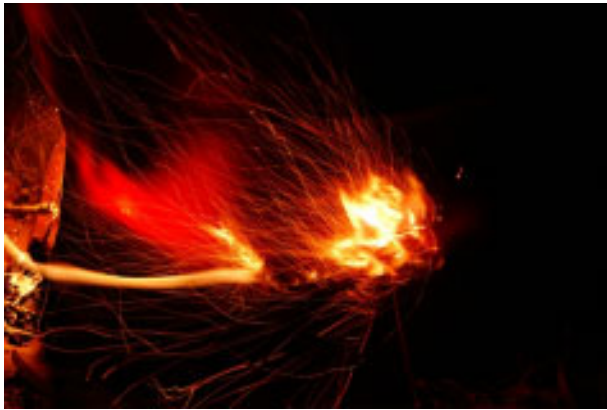
7   Cut an area of the image and paste it in your document. Rotate and resize it to fit with the symbol. After that change the Blend Mode to Screen (Fig 7).

Fig 7

8   Go to Image>Adjustments>Levels. Increase the black and the a bit of the white of the image. That's necessary to match the colors of the image with the backgournd (Fig 8).

Fig 8

9   Go to Edit>Transform>Scale, reduce the size of the streaks. Then go to Edit>Transform>Warp. Move the grid to make the streaks follow the symbol (Fig 9).

Fig 9
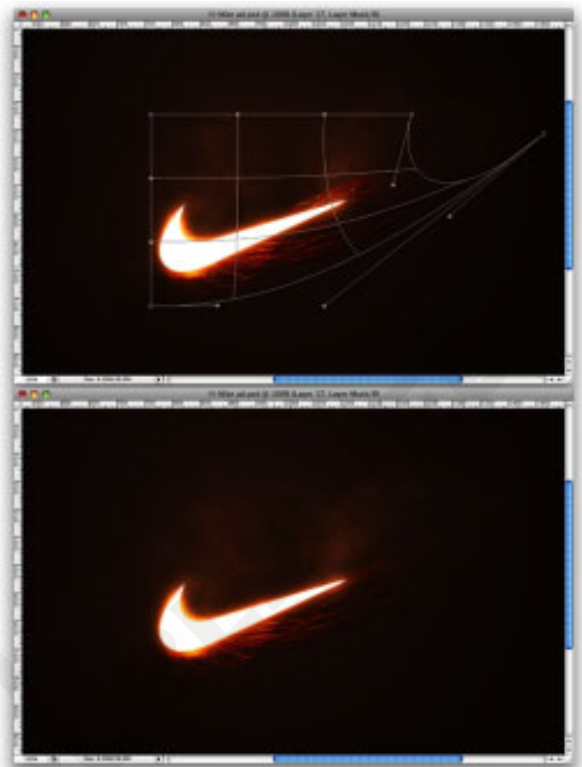
10 Go to Image>Adjustments>Hue and Saturation. Increase the Saturation and the Hue. Reduce the Lightness (Fig 10).

Fig 10

11 Duplicate the sparks layer. Go to Edit>Transform>Flip Vertical. Then resize it and adjust the position like the image below (Fig 11).

12 Copy another art of the original Photo and paste it in your document. Repeat the steps 8, 9, and 10 (Fig 12).

Fig 11

Fig 12

13 Repeat again the Steps 8,9, and 10 to create a tail to the symbol, like the image below (Fig 13).

Fig 13

14 Create a new layer and fill it with black. Make sure you have black and white for the background and foreground colors.

15 Go to Filter>Noise>Add Noise. Use Gaussian for, 15% Amout, and Monochromatic.

16 Change the layer's Blend Mode to Screen and go to Image>Adjustments>Levels. Increase the black and white levels untill you get nice stars. Then just repeat the same steps again in this same layer (Fig 14).

Fig 14
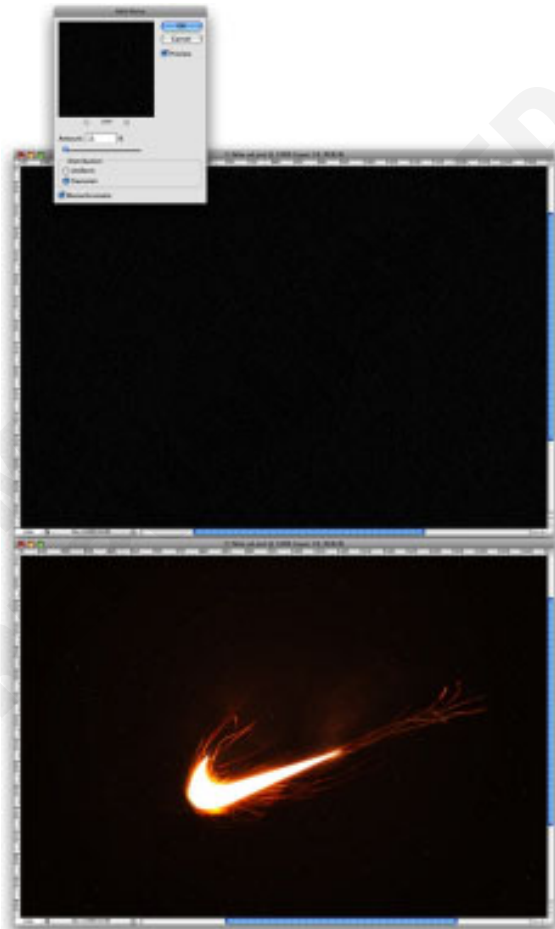
17 Check the golf player that hit the ball (Fig 15).

18 Place the golfer in your image and align it at the botton of the page. Also select the Brush Tool. (Example) use #d88c4d for the color and with a big brush, very soft create a light behind the player. Use 25% Opacity (Figs 16 & 17).

Fig 15

Fig 16

Fig 17
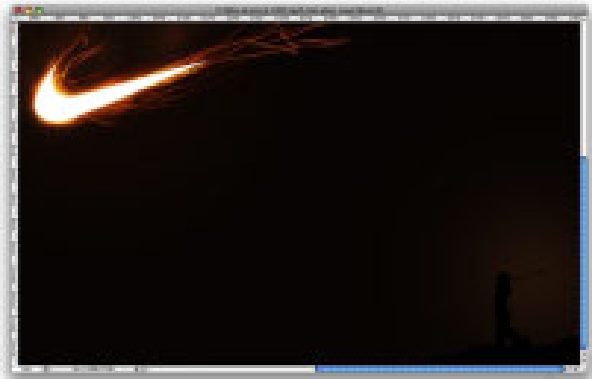
Practice on import photo image from file and edit photo image

Objectives: At the end of this exercise you shall be able to
• **create, open and import images in adobe photoshop**
• **open a file with adobe bridge**
• **import images from file or digital camera and scanner**
• **import photos from a scanner.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• UPS	- 1 No.
• Photoshop manual	- 1 No.	• Printer	- 1 No.
Equipments/Machineries		**Materials**	
• Computer system with photoshop	- 1 No.	• Paper	- as reqd.
• Computer table	- 1 No.	• Pencil	- as reqd.

PROCEDURE

TASK 1: Install a Creative Suite 6 suite or stand-alone product from disc

1 Insert the Adobe Creative Suite 6 suite or stand-alone product Application DVD into your DVD drive.

2 Double-click Set-up.exe (Windows) or Install.app (Mac OS) to begin the installation.

> **Depending on your Autoplay settings in Windows, the Set-up.exe file can launch automatically.**

3 Follow the onscreen instructions to complete the installation.

4 When prompted to enter a serial number, enter your Adobe Creative Suite 6 suite or stand-alone product serial number and complete the installation.

5 You must accept the license agreement and warranty terms to use this product. This product doesn't function without mandatory activation and registration via the Internet.

6 Adobe's single user license allows installation of a single product license on two machines.

> **If you want to install the product on a third computer, first deactivate the software on one computer. To deactivate, choose Help > Deactivate.**

7 If your product is on multiple discs, wait for first disc to complete. Once completed, remove the first disc and insert the second disc in same DVD drive.

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TASK 2: Create, Open, and import images in Adobe Photoshop

Open a Adobe Photoshop CS6

1 Click 'Start' Button from the left corner of the Task Bar of the windows 8.1 version OS the down arrow will appear on the left bottom of the screen (Fig 1).

2 Click the Down arrow and select the Adobe Photoshop CS6 (Fig 2).

3 The Adobe Photoshop will appear to creation image (Fig 3).

• Choose File > New.

• In the New dialog box, type a name for the image.

• (Optional) Choose document size from the Preset menu.

Fig 1
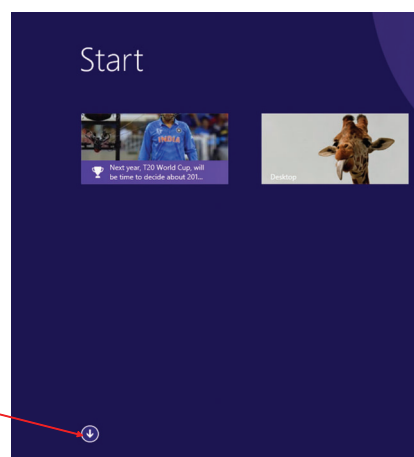
Fig 2
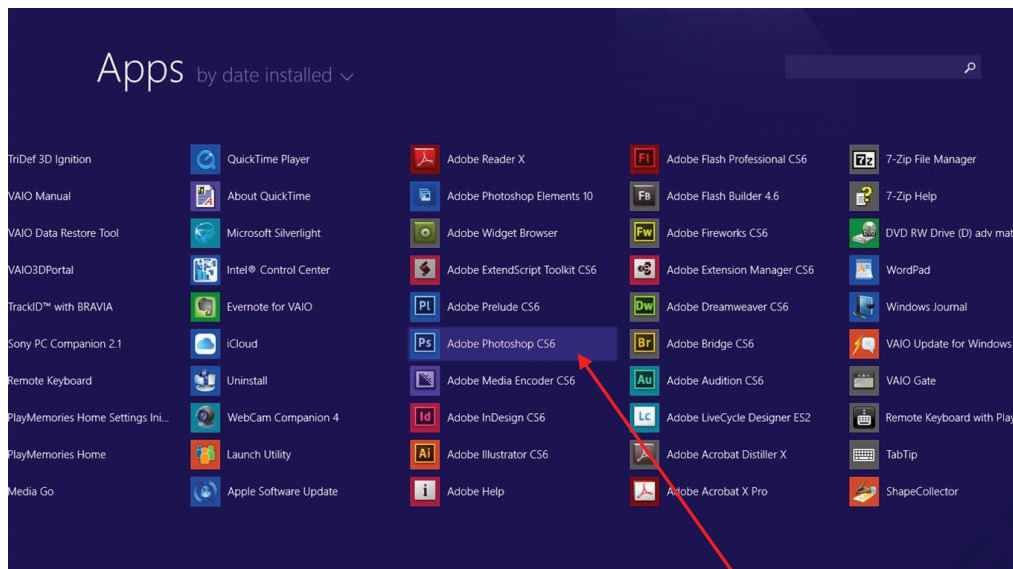
Fig 3
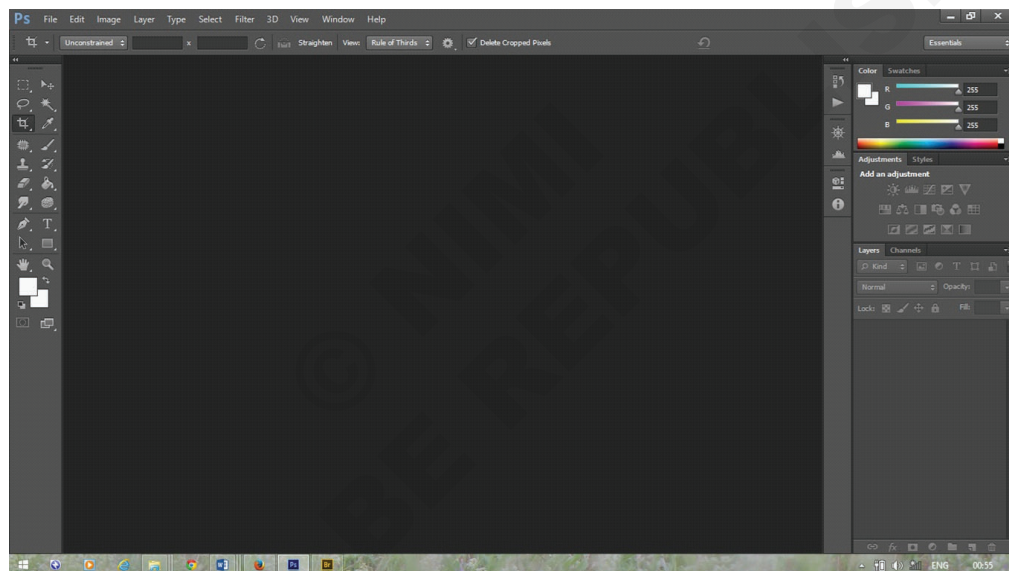
To create a document with the pixel dimensions set for a specific device, click the Device Central button.

4 Set the width and height by choosing a preset from the Size menu or entering values in the Width and Height text boxes.

5 Match the width, height, resolution, color mode, and bit depth of the new image to that of any open image, choose a filename from the bottom section of the Preset menu.

6 Set the Resolution, Color Mode and bit depth.

7 If you've copied a selection to the clipboard, the image dimensions and resolution are automatically based on that image data.

8 Select a canvas color option white Fills the background layer with white, the default background color (Fig 3).

9 Fills the background layer with the current background color.

10 Transparent Makes the first layer transparent, with no color values. The resulting document has a single, transparent layer as its contents.

11 If necessary, click the Advanced button to display more options.

12 Under Advanced, choose a color profile, or choose Don't Color Manage This Document. For Pixel Aspect Ratio, choose Square unless you're using the image for video. In that case, choose another option to use nonsquare pixels.

13 When you finish, you can save the settings as a preset by clicking Save Preset, or you can click OK to open the new file. See the figure and follow the same option in the dialog box (Fig 4).

14 The New Document will appear (Fig 5).

Open a file using the Open command 1 Choose File> Open	Fig 4

Fig 4

15 Select the name of the file you want to open. If the file does not appear, select the option for showing all files from the Files of Type pop-up menu.

16 Click Open. In some cases, a dialog box appears, letting you set format-specific options. See the figure and follow the same option in the Fig 6. (Select the image file from already saved in your computer or download from the web site.)

17 Click Ok button. The new document will appear as shown in the following figure 7.
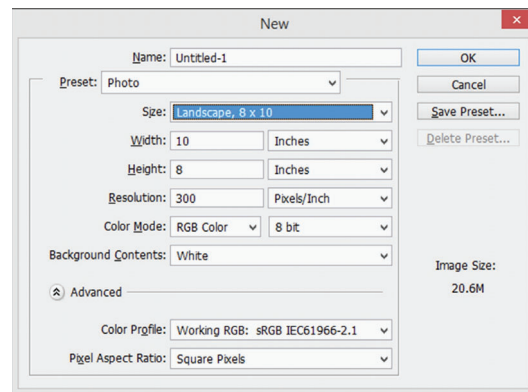
Fig 5
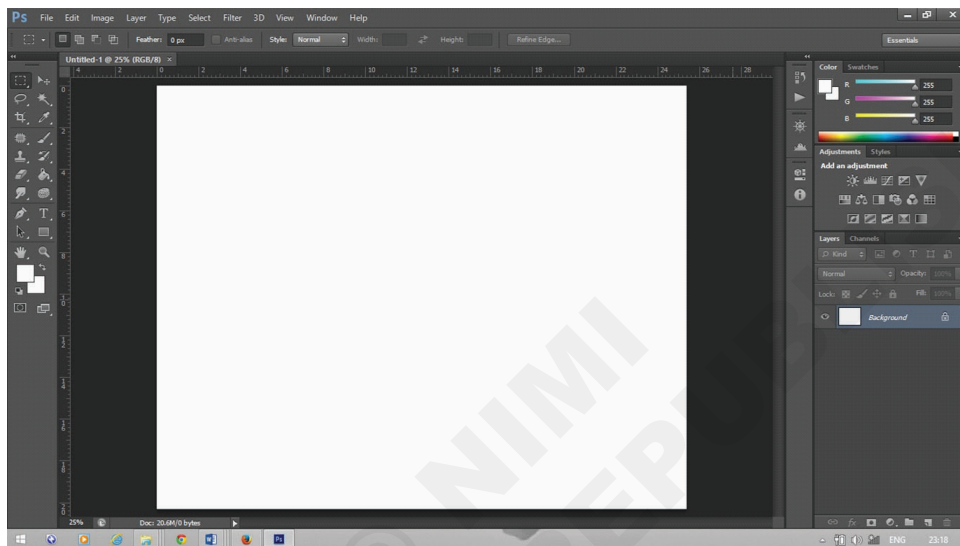
Fig 6
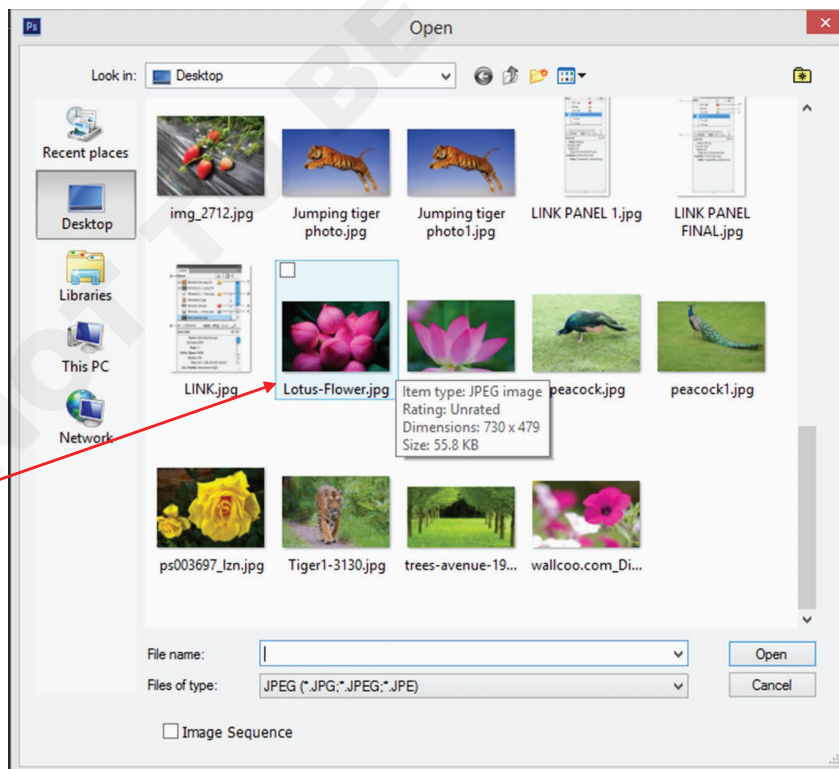
Fig 7
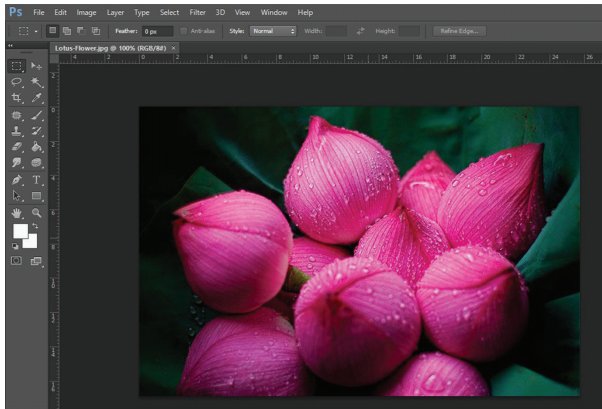
18 Duplicate an entire image (including all layers, layer masks and channels) into available memory without saving to disk.

- Open the image you want to duplicate.

- Choose Image > Duplicate.

- Enter a name for the duplicated image. See the figure 8.

Fig 8
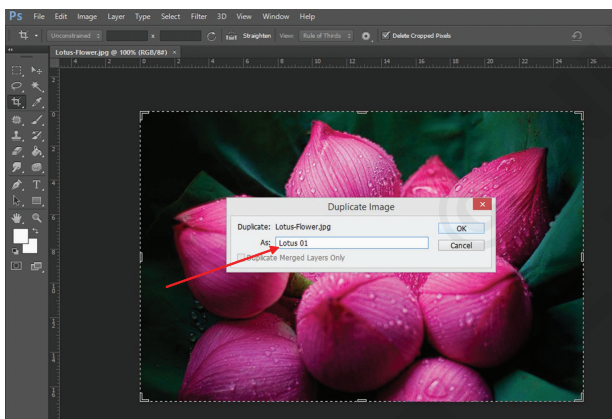
- If you want to duplicate the image and merge the layers, select Duplicate Merged Layers Only. To preserve the layers, make sure this option is deselected (Fig 8).

- Click OK. The duplicate image document will appear as shown in figure Fig 9.

Open a recently used file

1 Choose File > Open Recent, and select a file from the submenu.

Open PDF files

1 Choose File (Photoshop) > Open.

2 In the Open dialog box, select the name of the file, and click Open.

3 Under Select in the Import PDF dialog box, select Pages or Images, depending on what elements of the PDF document you want to import.

Fig 9
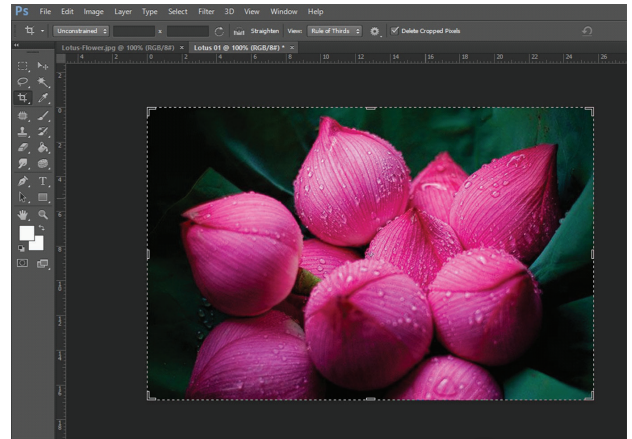
4 Click the thumbnails to select the pages or images you want to open. Shift-click to select more than one page or image. The number of selected items appears under the preview window. If you're importing images (Fig 10).

Use the Thumbnail Size menu to adjust the thumbnail view in the preview window. The Fit Page option fits one thumbnail in the preview window. A scroll bar appears if there are multiple items.

5 To give the new document a name, type it in the Name text box. If you're importing more than one page or image, multiple documents open with the base name followed by a number.

6 Under Page Options, choose from the Crop To menu to specify what part of the PDF document to include:

- Use the Bounding Box Crops to the smallest rectangular region that includes all the text and graphics of the page.

- The option eliminates extraneous white space and any document elements outside the Trim Box.

- Use the Media Box Crops to the original size of the page.

- Use the Crop Box Crops to the clipping region (crop margins) of the PDF file.

- Use the Bleed Box Crops to the region specified in the PDF file for accommodating limitations inherent in production processes such as cutting, folding and trimming.

- Use the Trim Box Crops to the region specified for the intended finished size of the page.

- Use the Art Box Crops to the region specified in the PDF file for placing the PDF data into another application.

7 Under Image Size, enter values (if necessary) for Width and Height:

Fig 10
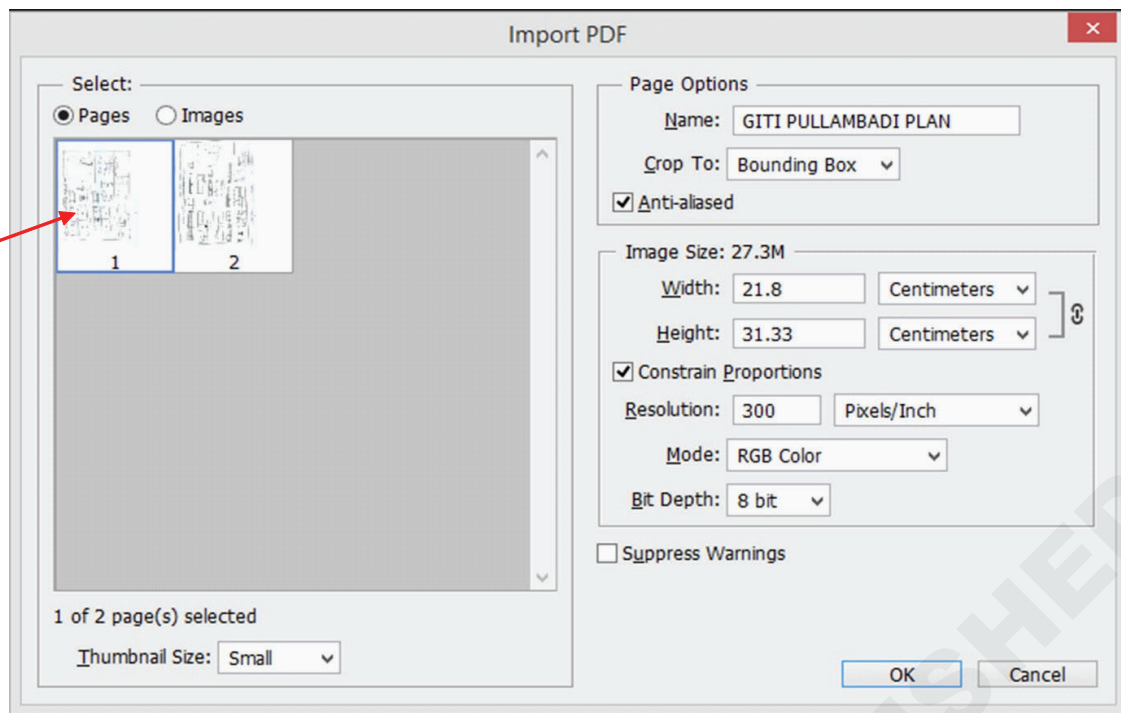
- To preserve the aspect ratio of the pages as they're scaled to fit within the rectangle defined by the Width and Height values, select Constrain Proportions.

- To scale the pages exactly to the Width and Height values, deselect Constrain Proportions. Some distortion might occur when the pages are scaled.

- If more than one page is selected, the Width and Height text boxes display the maximum width and height values of the selected pages.

- All pages are rendered at their original size if Constrain Proportions is selected and you don't change the Width and Height values. Changing the values will scale all pages proportionately as they're rasterized.

8 Specify the following options under Image Size:

- Resolution Sets the resolution for the new document.

- Mode Sets the color mode for the new document.

- Bit Depth Sets the bit depth for the new document.

- The Width and Height values plus the Resolution determine the final pixel dimension of resulting document.

9 To suppress color profile warnings, select Suppress Warning.

10 Click OK. The image file will appear.

Open an EPS file

1 PostScript artwork into Photoshop using the Place command, the Paste command, and the dragand-drop feature.

2 Choose File > Open.

3 Select the file you want to open, and click Open.

4 Indicate the desired dimensions, resolution, and mode. To maintain the same height-to-width ratio, select Constrain Proportions.

5 To minimize jagged lines at the edges of artwork, select Anti-aliased.

Change the screen mode

1 The screen mode options to view images on your entire screen. You can show or hide the menu bar, title bar, and scroll bars.

2 To display the default mode (menu bar at the top and scroll bars on the side), choose View > Screen Mode > Standard Screen Mode. Or, click the Screen Mode button in the Application bar, and select Standard Screen Mode from the pop-up menu.

3 Navigator panel to quickly change the view of your artwork using a thumbnail display. The colored box in the Navigator (called the proxy view area) corresponds to the currently viewable area in the window.

4 To display the Navigator panel, select Window > Navigator (Fig 11).

Fig 11
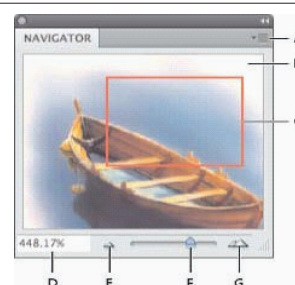
A Panel menu button B Thumbnail display of artwork C Proxy preview area D Zoom text box E Zoom Outbutton F Zoom slider

or

To change the magnification, type a value in the text box, click the Zoom Out or Zoom In button, or drag the zoom slider.

or

To move the view of an image, drag the proxy view area in the image thumbnail. You can also click the image thumbnail to designate the viewable area.

Magnify a specific area

1   Select the Zoom tool.

2   Drag over the part of the image that you want to magnify.

3   The area inside the zoom marquee is displayed at the highest possible magnification.

4   To move the marquee around the artwork in Photoshop, begin dragging a marquee and then hold down the spacebar (Fig 12).

Fig 12

— — — — — — — —
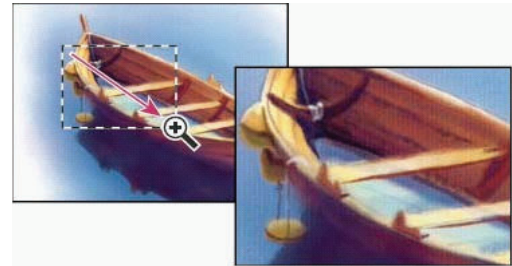
TASK 3: **Opening a file with Adobe Bridge (Fig 1)**

Fig 1
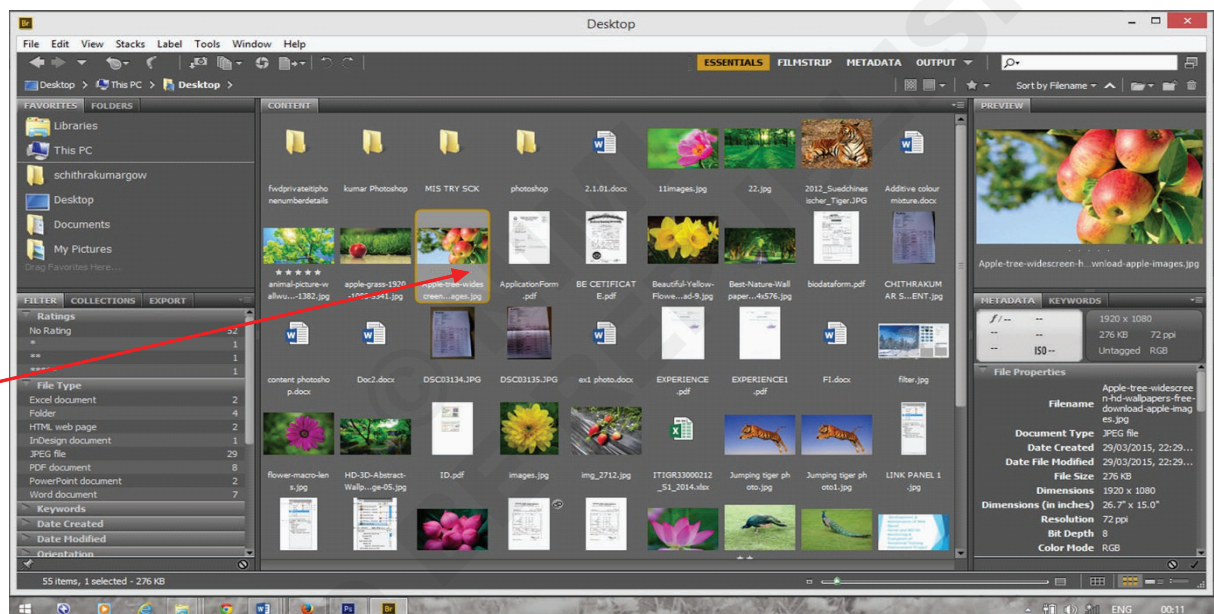
1   Choose File > Browse In Bridge. If you're prompted to enable the Photoshop extension in Bridge, click OK.

2   Select the Folders tab in the upper left corner, and then browse to the particular folder you copied from the DVD onto your hard disk.

3   Select the specify folder, and choose File > Add To Favorites. Adding files, folders, application icons, and other assets that you use often to the Favorites panel lets you access them quickly.

4   Select the Favorites tab to open the panel, and click the particular folder to open it. See the figure and follow.

5   Select and double click image. The image file window will appear in the Adobe Photoshop.

— — — — — — — —

TASK 4: **Import images from a digital camera and scanner**

Import images from a digital camera using WIA (Windows only)

Certain digital cameras import images using Windows Image Acquisition (WIA) support. When you use WIA,

Photoshop works with Windows and your digital camera or scanner software to import images directly into Photoshop.

1   Choose File > Import > WIA Support.

2   Choose a destination in which to save your image files on your computer.

3   Make sure that Open Acquired Images in Photoshop is selected. If you are importing a large number of images, or if you want to edit the images later, deselect Open Acquired Images.

4   To save the imported images directly into a folder whose name is the current date, select Unique Subfolder.

5   Click Start.

6   Select the digital camera from which to import images.

> **If the name of your camera does not appear in the submenu, verify that the software and drivers were properly installed and that the camera is connected.**

7   Choose the image or images you want to import:

•   Click the image from the list of thumbnails to import the image.

•   Hold down Shift and click multiple images to import them at the same time.

•   Click Select All to import all available images.

8   Click Get Picture to import the image.

— — — — — — — —

TASK 5: **Import photos from a scanner in Photoshop elements- Instructions**

A picture of the "Get Photos from scanner" dialog box in Photoshop Elements

1   To scan the image and import it into the Organizer, click the "OK" button at the bottom of the "Get Photos from Scanner" dialog box. At this point, depending on the installed scanner driver.

2   You may see another scanner-dependent dialog box appear. If it appears, you can then specify any additional scanner settings shown.

3   Follow the instructions in any dialog boxes that appear to finish scanning the image and importing it into the Organizer window.

Import Photos from a Scanner in Photoshop Elements - Instructions

1   To import photos from a scanner in Photoshop Elements directly into the Organizer, ensure your scanner is correctly connected and configured for your computer. This often involves updating your scanner driver (Fig 1).

Fig 1

2   Open the Photoshop Elements Organizer window (Fig 2).

3   Then select "File| Get Photos and Videos| From Scanner…" from the Menu Bar (Fig 3).

4   Alternatively, click the "Import" drop-down at the left end of the Shortcuts Bar (Fig 4).

5   Then select the "From Scanner…" command from the drop-down menu (Fig 5).

6   In the "Get Photos from Scanner" dialog box, the "Scanner" drop-down to select the scanner from which to import the photo (Fig 6).

Fig 2

Fig 3

Fig 5

Fig 4

Fig 6
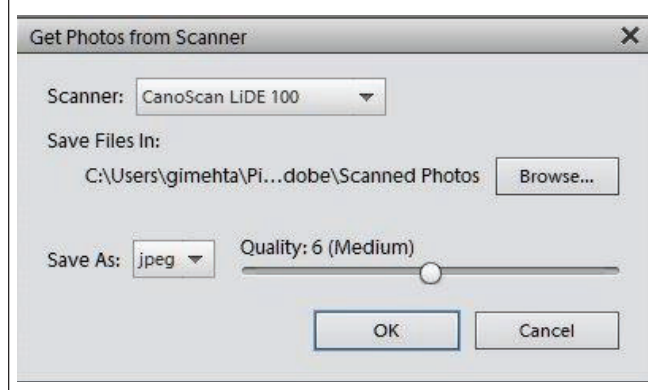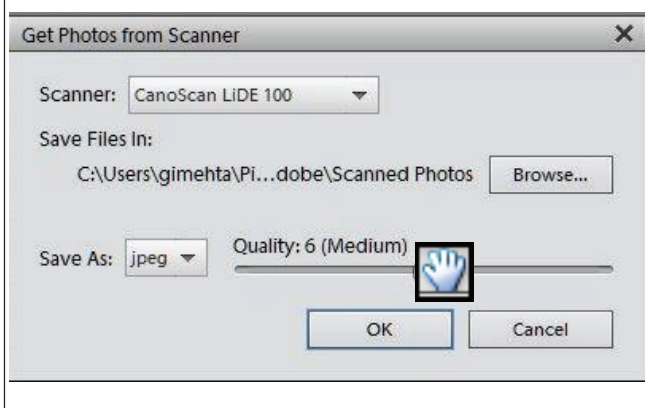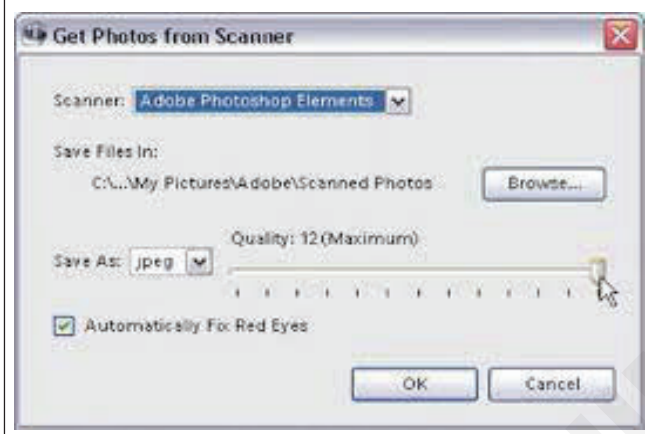
7   If the words "None Detected" appear in this drop-down list, double-check that your scanner is connected to your computer and turned on.

8   The default folder into which to save the scanned photos appears below the "Save Files In" label.

9   To change this location, click the adjacent "Browse…" button to open a "Browse for Folder" dialog box.

10 Use this dialog box to navigate to, and select, the folder into which to save the scanned image.

11 Click the "OK" button in the "Browse for Folder" dialog box to set the new folder destination.
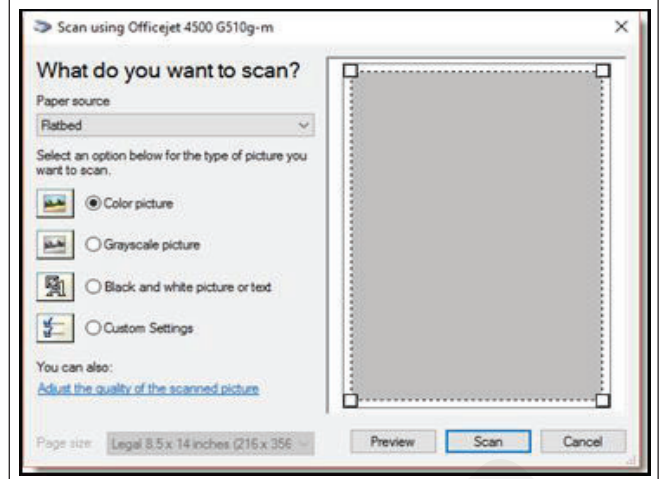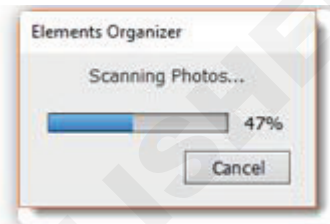
12 Use the "Save As" drop-down to select which file format to use to save the scanned image.

13 If you select the "jpeg" choice, use the adjacent slider to set the image quality.

14 Drag the slider left to decrease the quality or right to increase the quality.

15 To scan the image and import it, click the "OK" button at the bottom of the "Get Photos from Scanner" dialog box.

16 Depending on the scanner driver installed, another scanner-dependent dialog box may appear and let you specify more scanner settings.

17 Follow the instructions in any dialog boxes that appear to finish (Fig 7).

Fig 7

Practice on edit image adjustment effects and layer style effects

Objectives: At the end of this exercise you shall be able to
• **edit the image brightness and contrast**
• **correction on the image colour**
• **adjusting the levels with the curves tool**
• **working with images colour separation.**

Requirements		
Tools/Instruments		**Materials**
• Trainee's tool kit - 1 No.		• Paper - as reqd.
		• Photoshop software - as reqd.
Equipments/Machineries		• Windows 07 software - as reqd.
• Computer system with photoshop - 1 No.		
• Computer table - 1 No.		
• UPS - 1 No.		

PROCEDURE

TASK 1: **Edit the image colour**

1 Switch on the computer and open the window.

2 Open the Photoshop file.

3 Select the image for image colour correction.

4 Create the image using the open document from menu bar

5 Select the file name places.*jpeg

6 Select the image menu from menu bar

7 Copy the image from duplicate click the mouse

8 Select window menu from menu bar and click the adjustments panel menu.

> **The exposure dialog box, will appear as shown in Fig 1.**

9 Click the exposure button

10 Select the eye dropper to set a base line for setting the exposure

11 Select the black eye dropper to select a black image

12 Select the white eye dropper to select a white pixel

Fig 1
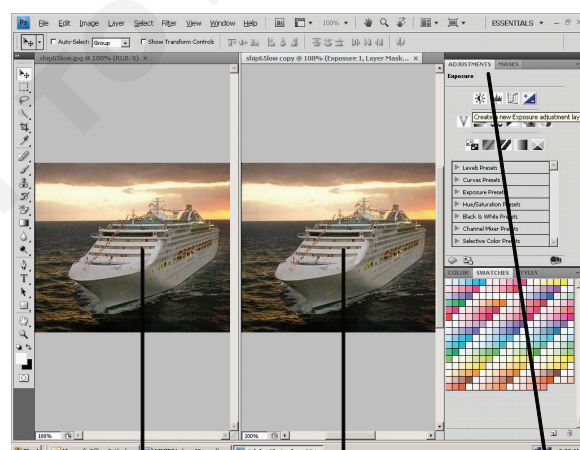
Figure 1

Original Image

Duplicate Image

Adjustment panel

13 Select the mid tone eye dropper to select a gray pixel

14 Adjust the exposure (+1.92) to get the overall light pixel in the image

15 Adjust the offset(-0.0368),typically in the opposite direction

16 Adjusted the exposure, image is less faded

17 Adjust the gamma correction (0.94), the image looks better.

> **Tweak the exposure, offset and gamma correction will appear as shown in Fig 2.**

Fig 2

Black eye dropper
Mid-tone eye dropper
White eye dropper

- - - - - - - -
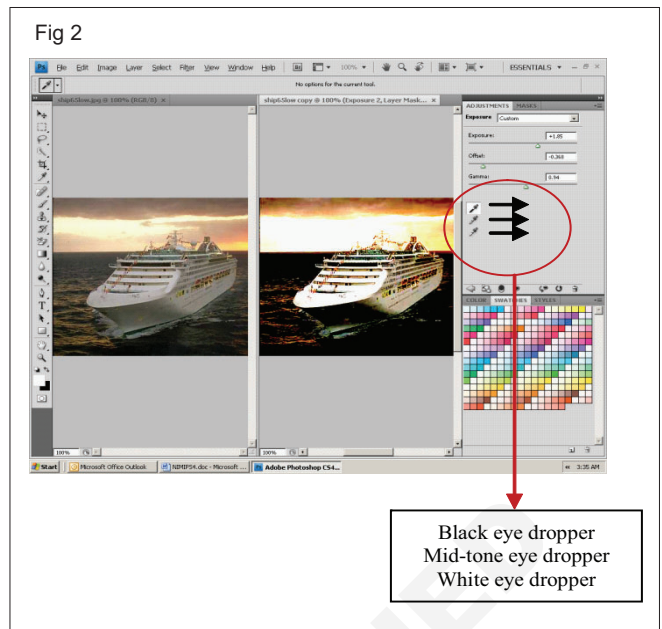
TASK 2: **Brightness and contrast adjustment**

1 Select the widow menu from menu bar

2 Click the adjustment panel

3 Select the brightness and contrast button press

4 Select the image adjusting the brightness up increases the level

5 Apply the color channels in an image, making the image lighter

6 Adjusting the brightness down decrease the levels values

7 Apply the color channels in an image, making the image darker.

> **Adjust the brightness level apply the image will appear as shown in Fig 1.**

Fig 1

8 Select the adjusting the contrast up spreads level values out

9 More contrast apply the image adjusting contrast down

10 Contracts the level values more tightly, giving less contrast.

> **Adjust the contrast level and apply. The image will appear as shown in Fig 2.**

Fig 2

Original   Modified image

- - - - - - - -
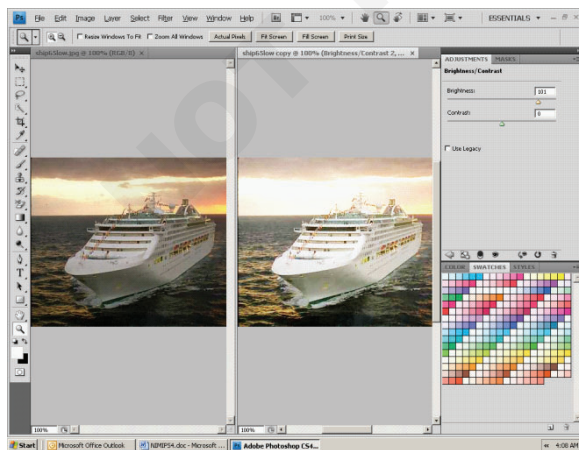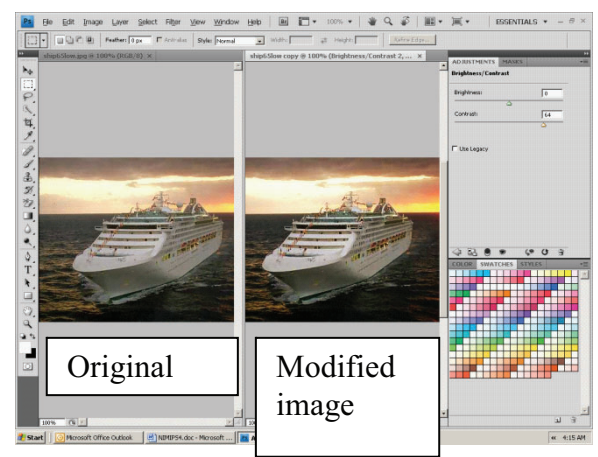
TASK 3: **Changing the color balance**

1   Click the color balance button, adjustment layer to the image (Fig 1).

Fig 1

Color balance button
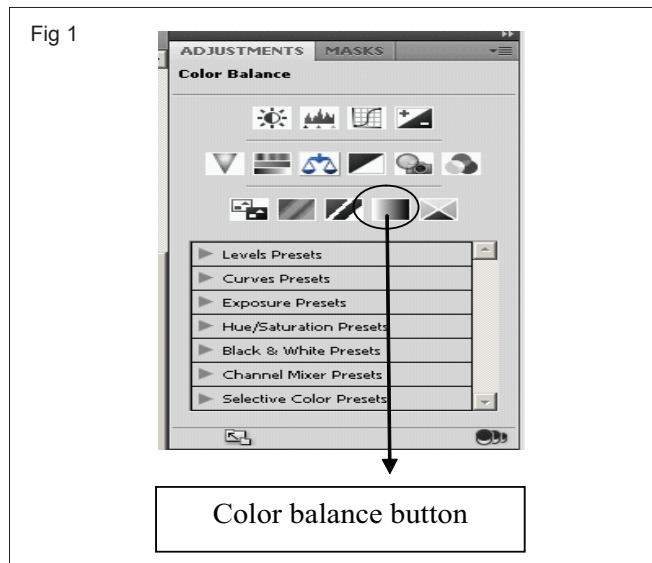
2   Select the highlights tone,adjust the blue color up+10 (Fig 2).

Fig 2
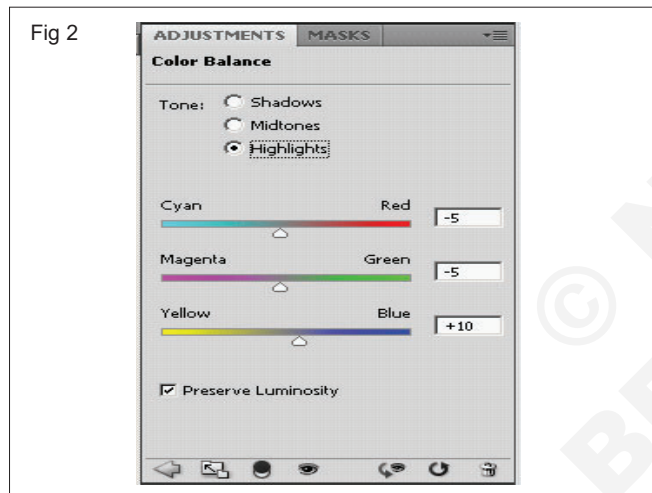
3   Adjust the red and green tones down -5 to compensate

4   Brings more blue in to the lighter

5   Select the shadows, adjust the Blue color up+20

6   Adjust the Red and Green tones down-5 (Fig 3).

7   Select the mid tones,adjust the blue +10 (Fig 4).

8   Adjust the Red and green color down-10 to give the mid tones a bit less green.

Adjust the color balance apply the image will appear as shown in Fig 5.

Fig 3

Fig 4

Fig 5

— — — — — — — —
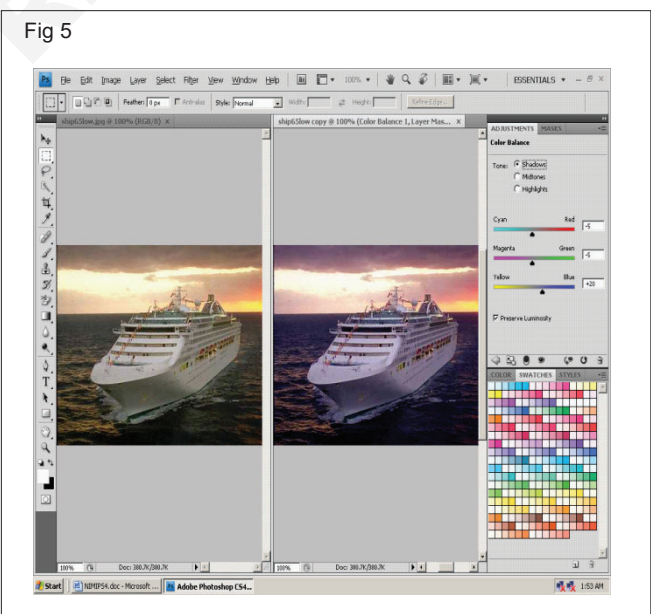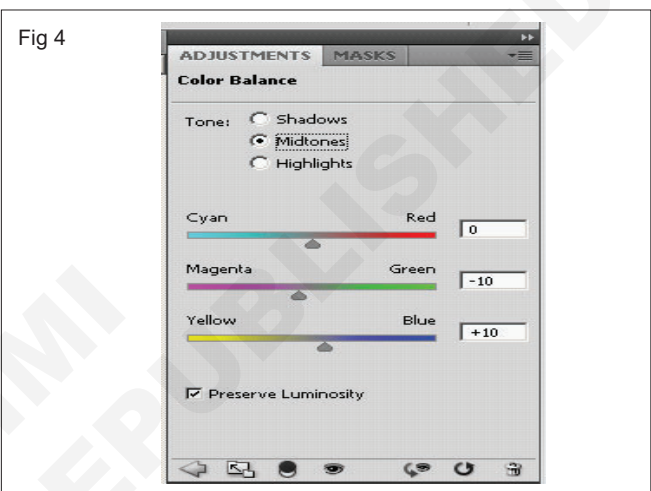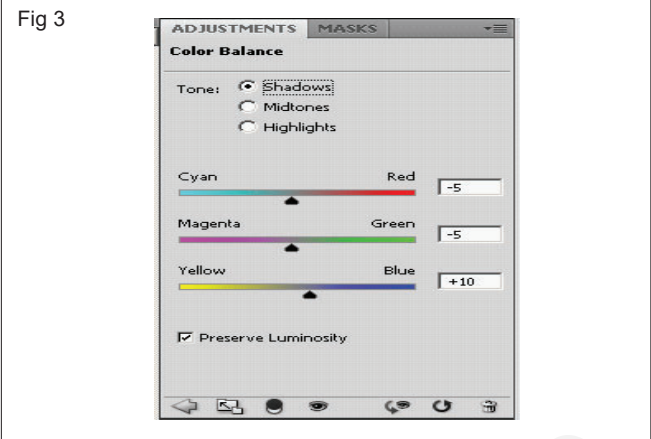
TASK 4: **Adjusting level with curve tool**

Click the Curves button, adjustment layer to the image (Fig 1).

1   Select the curves, choose the option default click

2   select the RGB Channel

3   To add a anchor point to the curve, adjust the mid tones in the midlevel

Fig 1

Curves button

4 Select the anchor point drag to the input values166

5 Select the anchor point drag to the output values 178

6 Adjust the black slider to drag the left edge

7 Adjust the White slider drag the right edge of the histogram

8 Change the over all color levels

Adjust the curves apply the image will appear as shown in Fig 2.

Fig 2

Anchor point

Black slider   White slider

— — — — — — — —

TASK 5: **Working with images color separation**

1 Click the Levels button, adjustment layer to the image (Fig 1)

Fig 1

Level Button
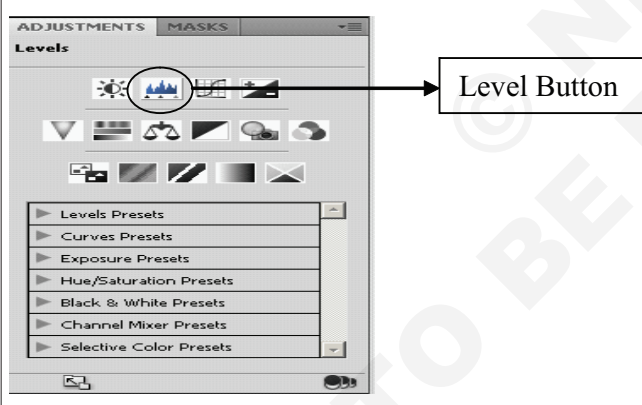
2 Select the Levels, choose the option default click

3 Select the Red Channel or ctrl+3

4 Select the values of the Histogram panel

5 Select the black slider right edge of the drag the input levels 56

6 Select the black slider right edge of the drag the output levels 83

7 Change of the color value red

Red channels increase the values apply the image will appear as shown in Fig 2.

8 Select the Levels, choose the option default click

9 Select the green Channel or ctrl+4
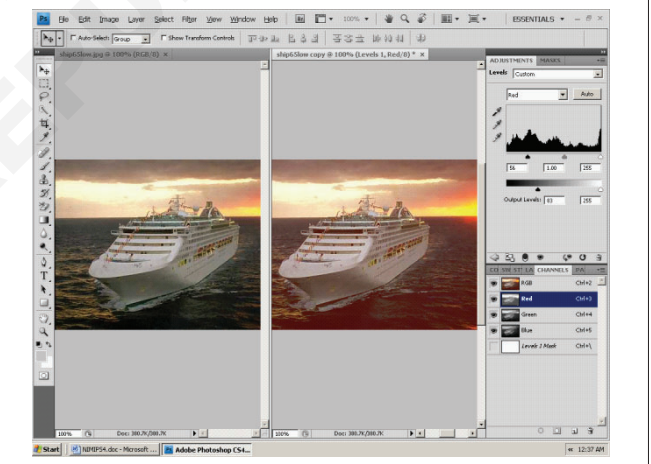
10 Select the values of the Histogram panel

11 Select the black slider right edge of the drag the input levels 53

12 Select the black slider right edge of the drag the output levels 40.

Green channels increase the values apply the image will appear as shown in Fig 3.

13 Change of the color value green

14 Select the Levels, choose the option default click

15 Select the Blue Channel or ctrl+5

16 Select the values of the Histogram panel

17 Select the black slider right edge of the drag the input levels 32

Fig 2

Fig 3
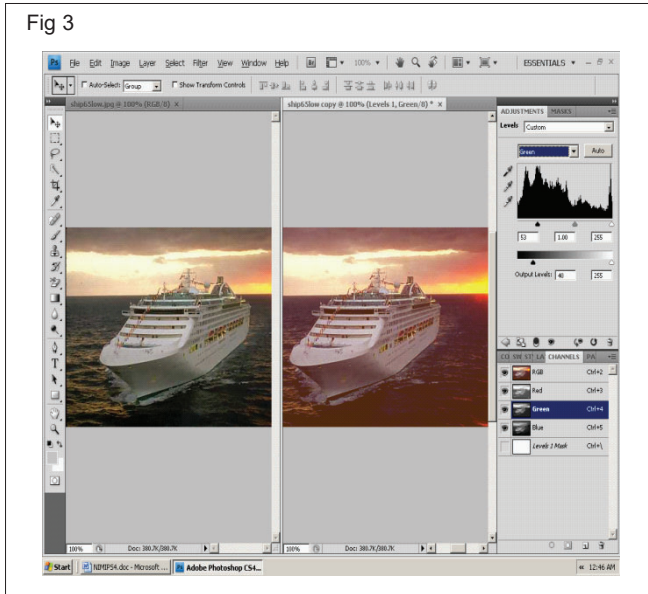
18 Select the black slider right edge of the drag the output levels 34.

Blue channels increase the values apply the image will appear as shown in Fig 4.

19 Save the file and exit document.

20 Get the skill practiced verified by your Instructor.

Fig 4

— — — — — — —
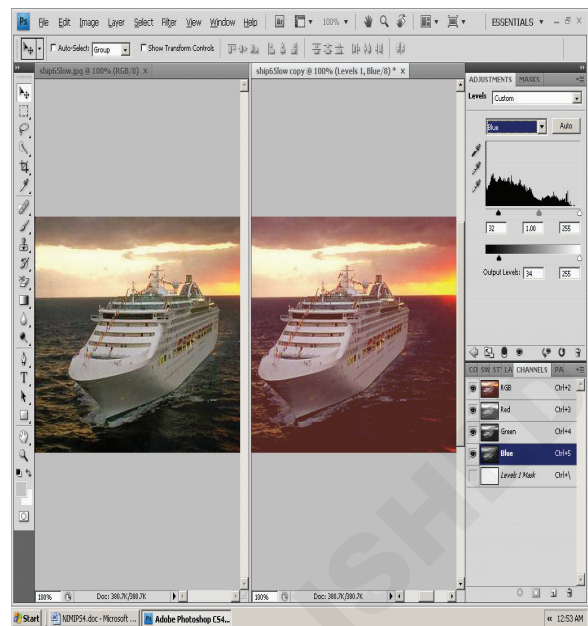
Edit special effect on different layers, colours, features and filter effects

Objectives: At the end of this exercise you shall be able to
• **add a hue/saturation adjustment layer**
• **select the back ground of layer**
• **invert the image**
• **convert the layer into a smart object**
• **apply the radial blur filter.**

Requirements		
Tools/Instruments		
• Trainee's tool kit - 1 No.	• Printer	- 1 No.
Equipments/Machineries	**Materials**	
• Computer system - 1 No.	• Paper	- as reqd.
• Computer table - 1 No.	• Photoshop software	- 1 No.
• UPS - 1 No.	• Baniyan cloth	- as reqd.

PROCEDURE

TASK 1: **Add a Hue/Saturation adjustment layer**

1 Switch on the computer system and open the photo shop file.

2 Create an image in background layer.

3 The Layers panel showing the image on the Background layer as in Fig 1.

4 Click the Hue/Saturation icon as in Fig 2.

Fig 2
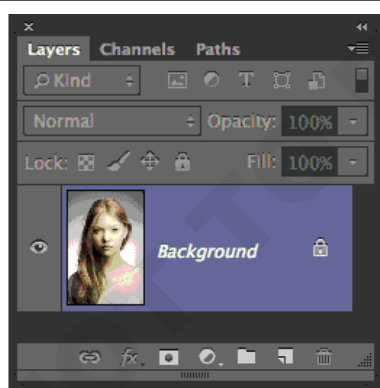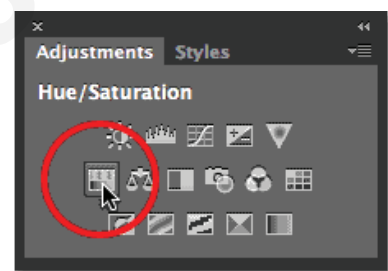
Fig 1

5 The adjustment layer sitting above the Background layer as in Fig 3.

Fig 3

- - - - - - - -
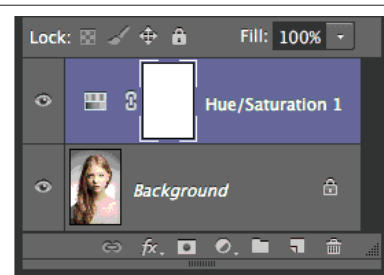
TASK 2: **Drag the saturation slider to -100**

1 Drag the Saturation slider to the far left as shown in Fig 1.

2 This removes all color from the photo, leaving it in black and white.

3 The image after removing colors as shown in Fig 2.
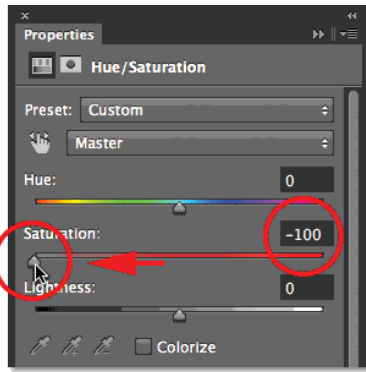
Fig 1

Fig 2

— — — — — — — —

TASK 3: **Select the background layer**

1 Click on the Background layer in the Layers panel to select it as in Fig 1.

Fig 1

— — — — — — — —
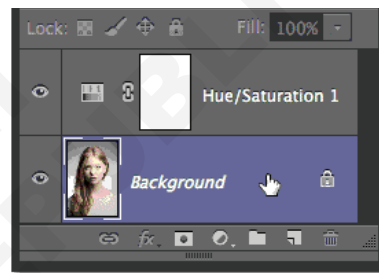
TASK 4: **Duplicate the background layer**

> **We need to make a copy of the Background layer.**

1 To do that, go up to the **Layer** menu in the Menu Bar along the top of the screen.

2 Choose **New,** then choose **Layer via Copy** as shown in Fig 1. Or, for a faster way to duplicate a layer, simply press **Ctrl+J** (Win)/ **Command+J** (Mac) on your keyboard.

3 Go to Layer > New > Layer via Copy (Fig 1).

Fig 1
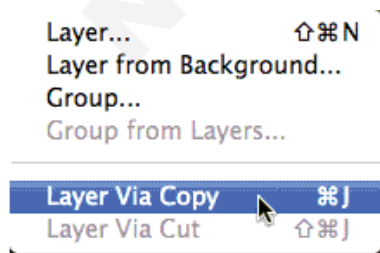
4 Nothing will seem to have happened with the image, but if we look in the Layers panel, we see that a copy of the Background layer has appeared between the original and the Hue/Saturation adjustment layer.

5 The Layers panel showing the new Background copy layer as in Fig 2.

Fig 2

— — — — — — — —
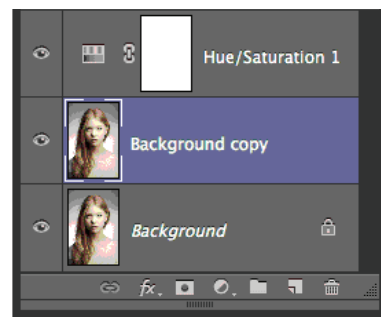
TASK 5: **Invert the image**

We need to invert the layer.

1 Go up to the **Image** menu at the top of the screen, choose **Adjustments,** then choose **Invert.** as shown in Fig 1 Or, press **Ctrl+I** (Win)/ **Command+I** (Mac) on your keyboard for the shortcut (Fig 1).

2 Go to Image > Adjustments > Invert.

3 This inverts the image, giving it a film negative appearance as shown in Fig 2. The image is now inverted.

Fig 1
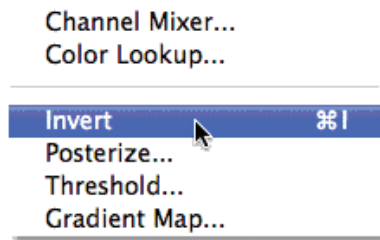
Fig 2

TASK 6: **Change the layer blend mode to color dodge**

1 In the upper left of the Layers panel, change the **blend mode** of the Background copy layer from Normal (the default blend mode) to **Color Dodge** as shown in Fig 1.

2 Change the blend mode of the layer to Color Dodge. The image after changing the blend mode to Color Dodge as in Fig 2.

Fig 1
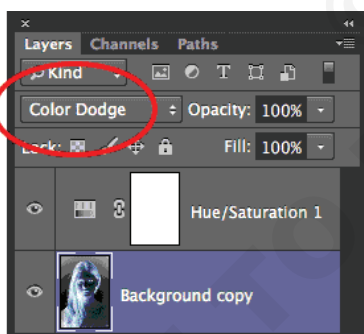
Fig 2
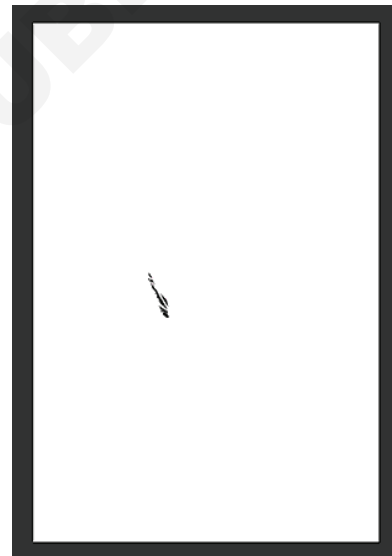
TASK 7: **Convert the layer into a smart object**

Convert the layer to a Smart Object.

1 With the Background copy layer still selected, click on the small **menu icon** in the upper right corner of the Layers panel as shown in Fig 1.

2 Click the Layers panel menu icon.

3 Choose **Convert to Smart Object** from the list that appears as shown in Fig 2.

4 The new Smart Object icon in the preview thumbnail as shown in Fig 3.

Fig 1

Fig 2

Fig 3

— — — — — — —
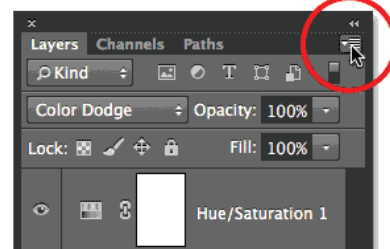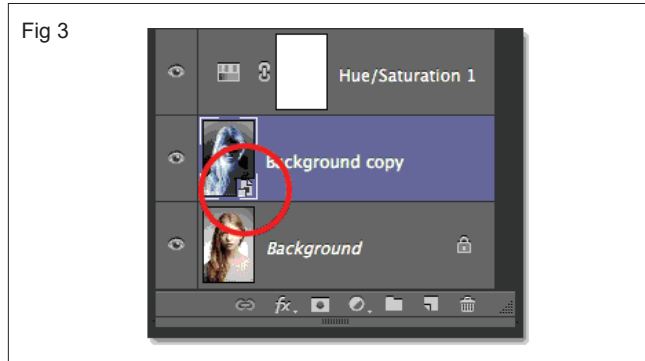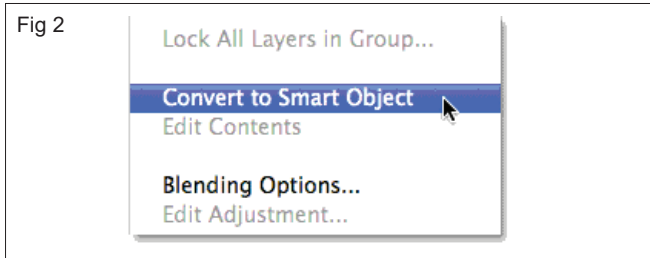
TASK 8: **Apply the gaussian blur filter**

1 Go up to the **Filter** menu at the top of the screen, choose **Blur**, then choose **Gaussian Blur** as shown in Fig 1.

Or Go to Filter > Blur > Gaussian Blur.

Fig 1

2 Drag the Radius slider to apply a small amount of blurring.

3 Click OK when you are done to accept your setting and close out of the Gaussian Blur dialog box as shown in Fig 2.

4 The sketch effect after applying the Gaussian Blur filter as in Fig 3.

Fig 2

Fig 3
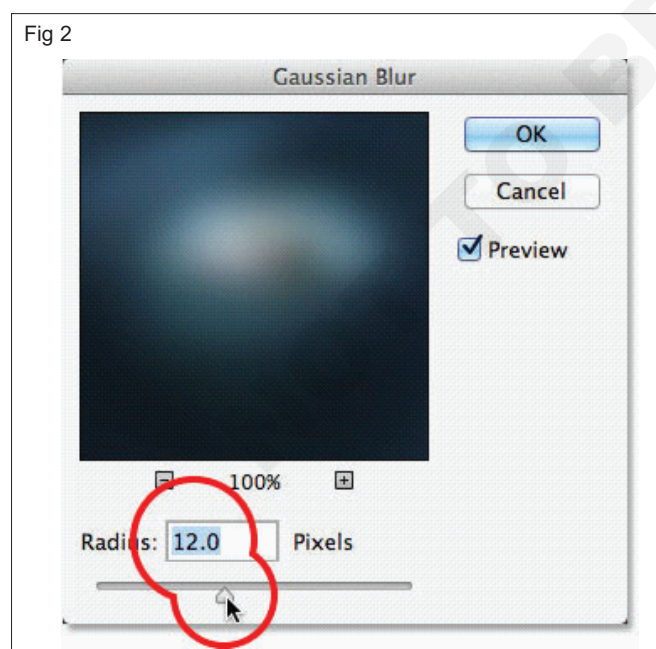
5 Double-clicking on the Gaussian Blur Smart Filter will re-open it for further editing as shown in Fig 4.

Fig 4

— — — — — — —
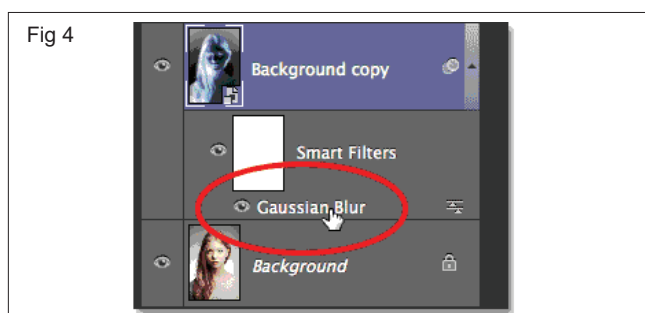
TASK 9: Add a levels adjustment layer

1 Click the Levels icon in the Adjustments panel as shown in Fig 1.

Fig 1
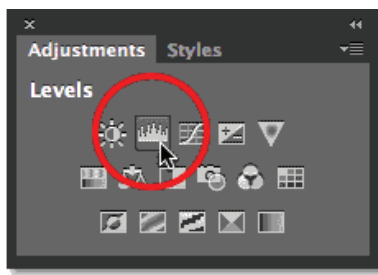
2 Photoshop adds a Levels adjustment layer named Levels 1 directly above the Background copy Smart Object (and below the Hue/Saturation adjustment layer) as shown in Fig 2.

3 The Layers panel showing the new Levels 1 adjustment layer.

Fig 2

— — — — — — — —
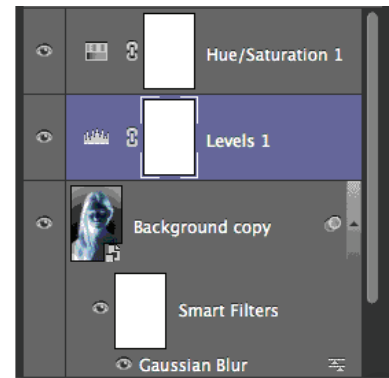
TASK 10: Change the blend mode to multiply

1 Change the blend mode of the Levels adjustment layer to Multiply as shown in Fig 1.

2 The effect after changing the blend mode to Multiply as shown in Fig 2.

Fig 1
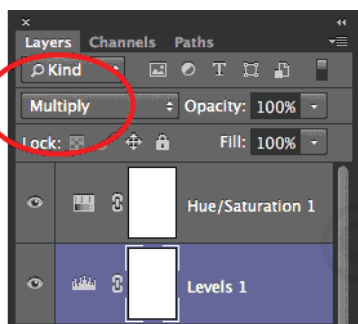
Fig 2

— — — — — — — —

TASK 11: Lower the opacity if needed

1 Lower the opacity of the Levels adjustment layer as in Fig 1.

2 Now the image is a little bit lighter as shown Fig 2 due to effect of lowering the layer opacity.

Fig 1
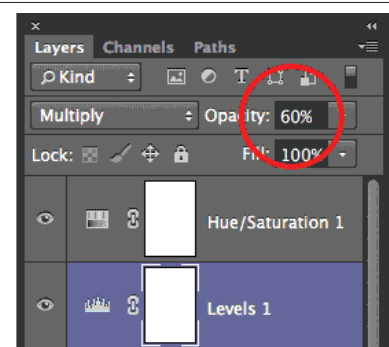
Fig 2

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TASK 12: **Select and duplicate the background layer again**

1 Click the Background layer to select it as shown in Fig 1.

Fig 1
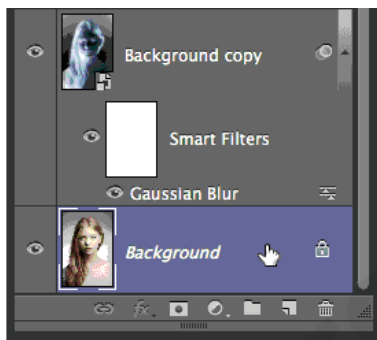
2 Then, just do as we did back in Task 4, duplicate the Background layer by going up to the **Layer** menu at the top of the screen.

3 Choose **New,** then choosing **Layer via Copy**, as shown in Fig 2 or by pressing **Ctrl+J** (Win) / **Command+J** (Mac) on your keyboard or

4 Go to Layer > New > Layer via Copy.

5 A second copy of the Background layer, this one cleverly named Background copy 2, will appear directly above the original as shown in Fig 3.

6 The Layers panel showing the new Background copy 2 layer.

Fig 2
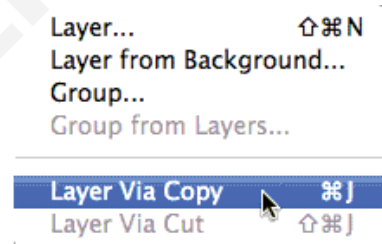
Fig 3

— — — — — — — —
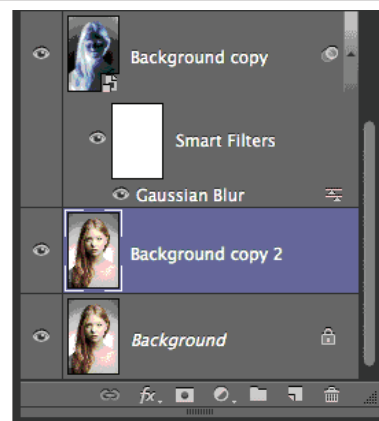
TASK 13: **Rename the Layer "Color"**

1   Rename the Background copy 2 layer to Color as shown in Fig 1.

Fig 1

— — — — — — — —
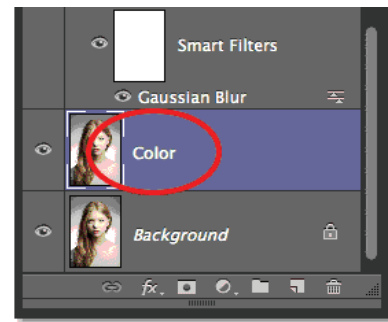
TASK 14: **Drag the layer above the others**

1   Drag the Color layer above the other layers as shown in Fig 1.

Fig 1

2   When the white bar appears, release your mouse button to drop the Color layer into place as shown in Fig 2.

3   The Color layer now sits at the top of the layer stack.
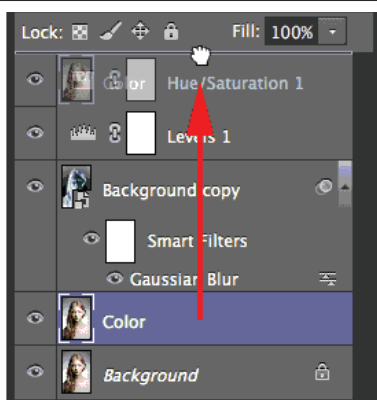
Fig 2

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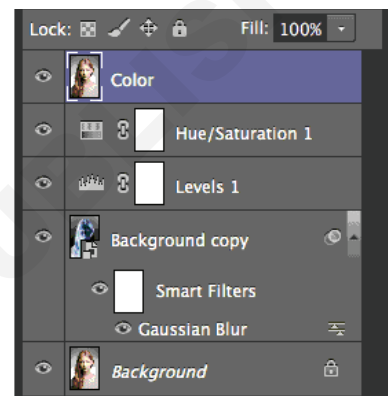
TASK 15: **Change the blend mode of the layer to color**

1   To colorize the sketch with the colors from the original image:

2   Change the blend mode of the Color layer from Normal to Color as shown in Fig 1.

3   The **Color blend mode** hides all the tonal information (the brightness values) on the layer and allows only the colors to show through, creating our colorizing effect.

4   The result after changing the blend mode to Color is shown in Fig 2.

Fig 1
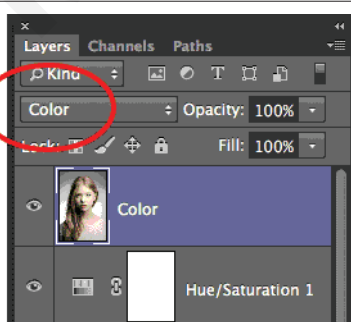
Fig 2

TASK 16: **Lower the color layers opacity**

1   If the color looks too intense. Finally you can reduce it by lowering the **Opacity** value of the Color layer.

2   We will lower down opacity of the color layer by **65%** as shown in Fig 1.

3   And here, with more subtle colors, is the final "portrait to sketch" result.

4   The desired output is shown in Fig 2.

5   Get the result Verified by your instructor.

Fig 1

Fig 2

— — — — — — — —
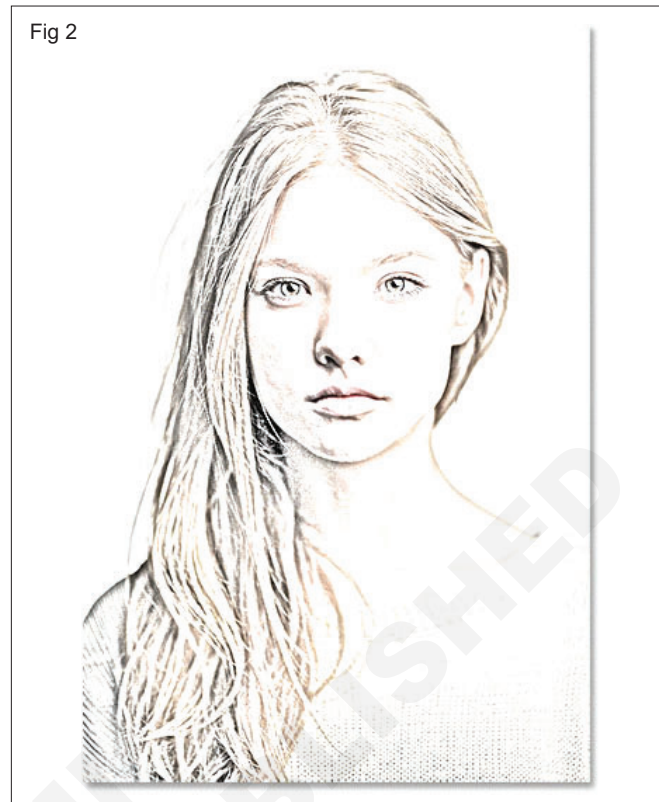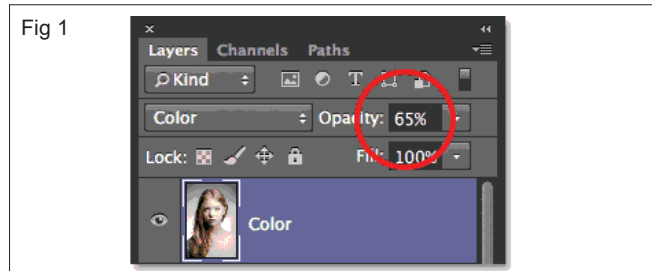
TASK 17: **Select the elliptical marquee tool**

1   Start with the eye on the left of the photo and go through the Tasks needed to create the effect in one eye, then it's simply a matter of repeating the same Tasks for the other eye.

2   To begin, select the Elliptical Marquee Tool as in Fig 1 from the Tools panel.

3   By default, it's hiding behind the Rectangular Marquee Tool, so click on the Rectangular Marquee Tool and hold your mouse button down until a fly-out menu appears listing the other tools that are available in that same spot.

4   Choose the Elliptical Marquee Tool from the list.

5   Selecting the Elliptical Marquee Tool.

Fig 1

— — — — — — — —
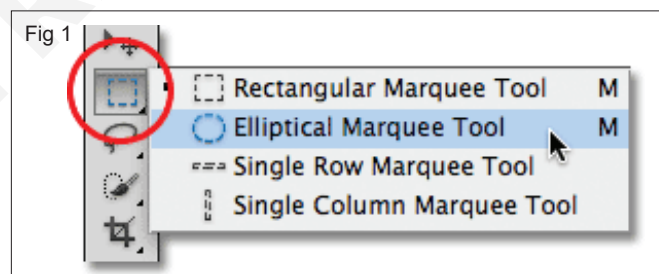
TASK 18: **Select the iris**

1   Use the Elliptical Marquee Tool to draw a selection around the iris (the colored part of the eye).

2   The upper part of the iris is covered by the woman's eyelid, selecting the iris with the Elliptical Marquee Tool will be a two-Task process.

3   Begin by clicking and dragging out a selection outline around the iris, ignoring for the moment that the top of the selection is extending up into the eyelid.

4   You can reposition the selection outline as you're drawing it, which is often helpful for getting the selection exactly where you need it, by holding down your spacebar, dragging the selection outline into position, then releasing your spacebar and continuing to drag out the selection as shown in Fig 1.

Fig 1

4   The initial elliptical selection extends up into the eyelid, but we'll fix that next.
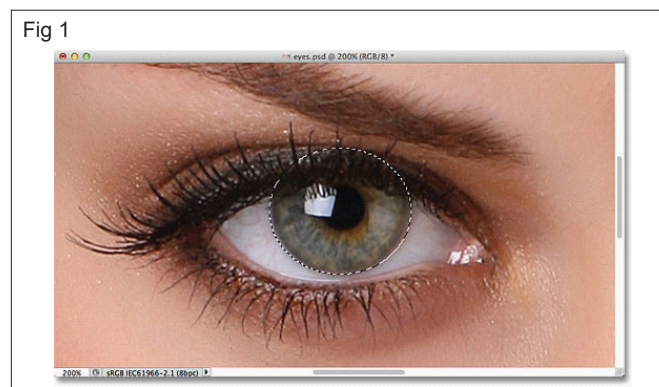
5 To remove the part of the selection that extends over the eyelid, with the Elliptical Marquee Tool still selected, we will choose the Intersect With Selection option in the Options Bar by clicking on its icon as in Fig 2.

Fig 2
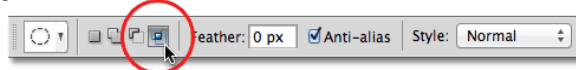
6 Click on the Intersect With Selection icon (fourth icon from the left in the row).A small "x" will appear in the lower right of the mouse cursor, letting me know I'm in the Intersect With Selection mode.

7 Then, with the initial selection still active, we will click and drag out a second selection around just the part of the initial selection that we want to keep, which is everything except for the top area that extends over the eyelid.

8 See in the screenshot that the top of the second selection is cutting off the unwanted top area of the initial selection as in Fig 3.

9 Draw a second selection around the part of the initial selection we want to keep.

10 With the second selection outline in place, we will release the mouse button, and because we were in the Intersect With Selection mode, Photoshop keeps only the part of the initial selection that was surrounded by the second selection.

11 The unwanted top area over the eyelid is now gone.

12 The top part of the initial selection has been removed as in Fig 4.

Fig 3
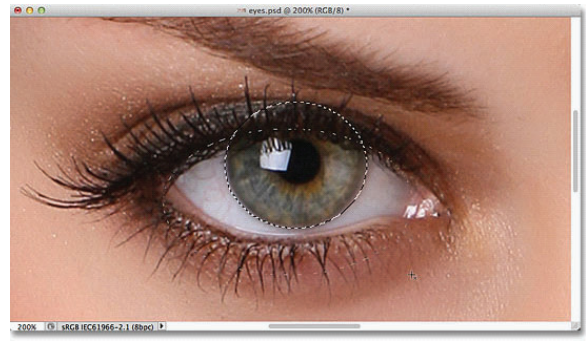
Fig 4
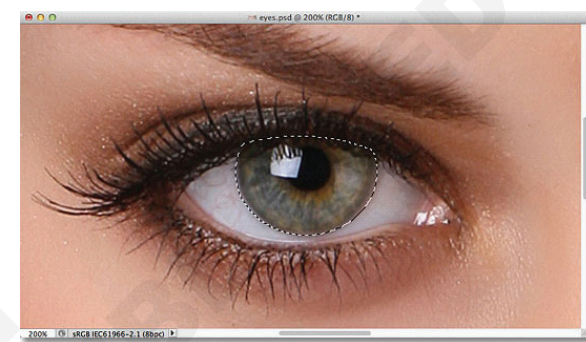
TASK 19: **Copy the selection to a new layer**

1 Hold down your **Alt** (Win) / **Option** (Mac) key and, with the key still held down, go up to the **Layer** menu in the Menu Bar along the top of the screen as shown in Fig 1, choose **New**, then choose **Layer via Copy** or

2 Hold down Alt (Win) / Option (Mac) and go to Layer > New> Layer via Copy.

Fig 1
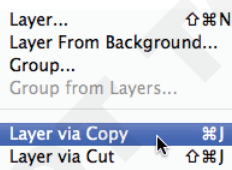
3 Holding down the Alt (Win) / Option (Mac) key as we select the command tells Photoshop to first pop open the **New Layer** dialog box as shown in Fig 2.

Fig 2
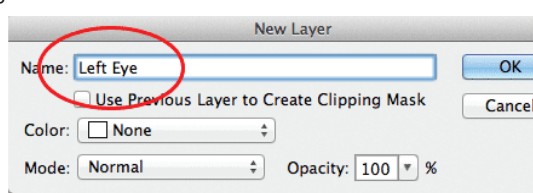
4 Chance to name the new layer before it's added. Name the layer "Left Eye" (or "Right Eye" if you're working on the right eye):

3 Name the new layer "Left Eye".

4 Click OK when you're done to close out of the dialog box.

5 Nothing will seem to have happened in the document window (except that the selection outline will disappear)

6 See in the Layers panel that our selection is now sitting on its own layer directly above the main photo on the Background layer as in Fig 3.

7 The selection now appears on its own layer above the photo.

Fig 3
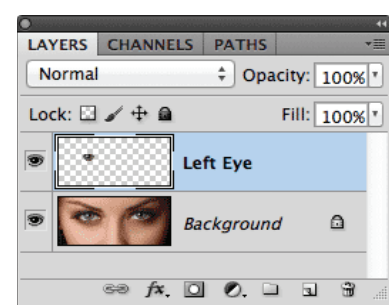
TASK 20: **Draw a circular selection around the iris**

1 With the Elliptical Marquee Tool still selected in the Tools panel, click in the very center of the pupil (the black area in the center of the eye), then begin dragging out another elliptical selection outline.

2 Once you've started dragging, press and hold Shift+Alt (Win) / Shift+Option (Mac) on your keyboard, then continue dragging.

3 Holding the Shift key down as you drag will force the selection into a perfect circle , while the Alt (Win) / Option (Mac) key tells Photoshop to draw the selection outward from the point you clicked on.

4 Draw your circular selection outward until it's just a bit larger than the iris as shown in Fig 1. When you're done, release your mouse button, then release your Shift and Alt (Win) / Option (Mac) keys.

(Make sure you release your mouse button before releasing the keys, otherwise you won't end up with a circular selection.)

Fig 1
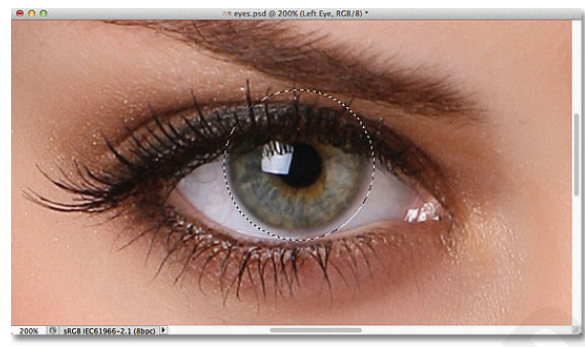
TASK 21: **Add noise to the selection**

Let's add some noise to our selection, which will help to create our blur streaks. For that, we'll use Photoshop's Add Noise filter.

1 Go up to the **Filter** menu at the top of the screen, choose **Noise**, then choose **Add Noise** as shown in Fig 1 or

Go to Filter > Noise > Add Noise.

Fig 2

Fig 1
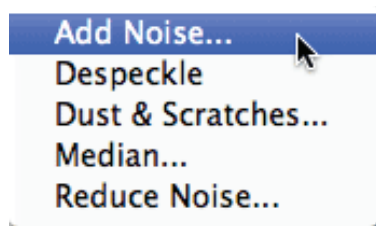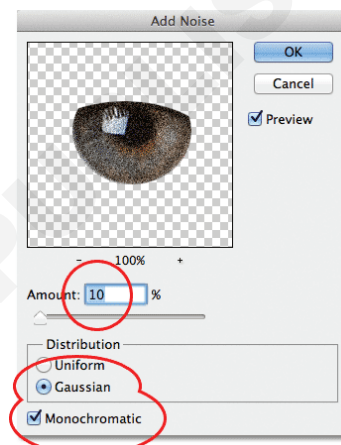
2 This opens the Add Noise dialog box. Set the noise **Amount** to around 10%, then make sure the **Gaussian** and **Monochromatic** options are both selected at the bottom of the dialog box.

3 Set the noise amount to 10% as in Fig 2 and make sure Gaussian and Monochromatic are selected.

4 Click OK to close out of the dialog box. The area inside the selection is now filled with noise as in Fig 3.

Fig 3
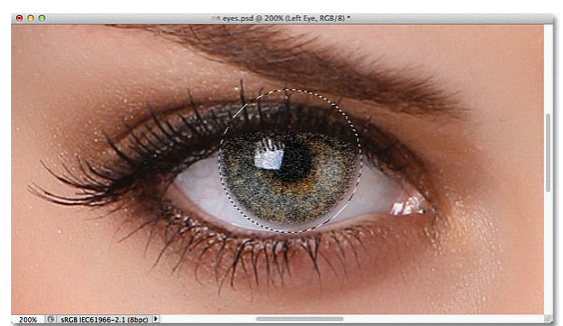
TASK 22: **Apply the radial blur filter**

1 With the noise added, go back up to the **Filter** menu at the top of the screen and this time choose **Blur,** then **Radial Blur** as in Fig 1 or

Go to Filter > Blur > Radial Blur.

Fig 1

2   This opens the Radial Blur filter's dialog box. Increase the **Amount** value at the top of the dialog box to around 80 or so as shown in Fig 2

3   Then set the **Blur Method** to **Zoom** and the **Quality** to **Best**.

Fig 2
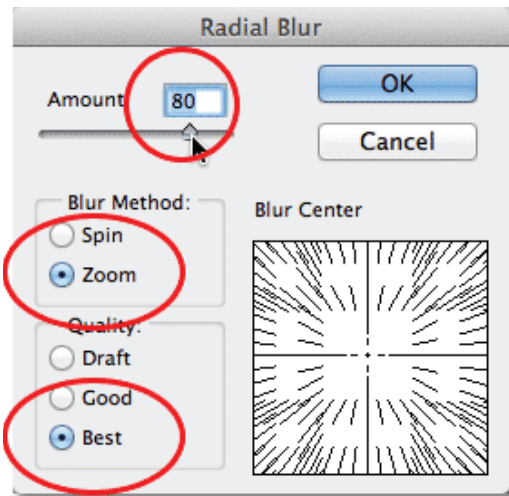
Don't touch the Blur Center box in the lower right of the dialog box. We want to leave the blur center exactly where it is (in the center) so that our blur streaks will appear to be zooming out from the center of our selection.

4   Go to the Radial Blur dialog box.

5   Click OK to close out of the dialog box. Photoshop applies the blurring to the selection which creates a "zoom" effect from the center of the eye as in Fig 3.

6   The image after applying the Radial Blur filter.

Fig 3
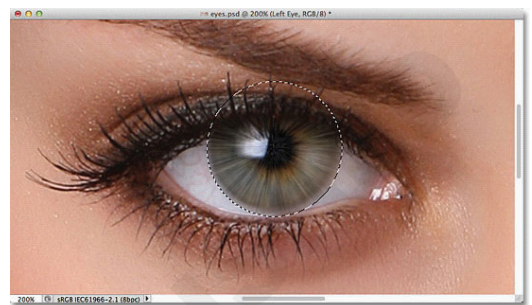
TASK 23: **Turn the selection into a layer mask**

1   Clean up the area around the iris to remove the blur streaks that are extending into the white part of the eye, and for that, we'll use a layer mask.

2   With your selection outline still active, click on the **Layer Mask** icon at the bottom of the Layers panel as in Fig 1. or

    Click the Layer Mask icon.

Fig 1

3   This adds a layer mask to the "Left Eye" layer, and because we had a selection active, Photoshop used the selection to create the mask.

4   If we look at the **layer mask thumb nail** in the Layers panel, we see that the mask is filled with black except for a small area of white, which is the area that was inside of our selection outline.

5   White areas on a layer mask represent the areas on the layer that are visible in the document, while black represents areas that are hidden as shown in Fig 2.

6   The layer mask thumbnail tells us that a mask has been added to the layer.

Fig 2

TASK 24: **Select the brush tool**

We're going to paint away the unwanted blurred areas around the iris, which means we need Photoshop's Brush Tool.

1   Select the Brush Tool from the Tools panel as in Fig 1.

2   Selecting the Brush Tool.

Fig 1

TASK 25: Paint away any unwanted areas

1   Photoshop uses the **Foreground color** as the color of the brush, so let's make sure the Foreground color is set to **black** by pressing the letter **D** on the keyboard.

2   Which will reset the Foreground and Background colors to their defaults, making the Foreground color white and the Background color black (the normal default colors are reversed when we have a layer mask selected).

3   Then press the letter X on the keyboard to swap the colors, which sets the Foreground color to black. You can see the current Foreground and Background colors in the color swatches near the bottom of the Tools panel as in Fig 1.

Fig 1

3   The Foreground (upper left) and Background (lower right) color swatches.

4   With black as the Foreground color, use a small, soft-edge brush and paint around the outer edge of the iris to clean up the unwanted blur streaks in the white part of the eye.

5   Since we're painting on the layer mask, not on the layer itself, any areas we paint over with black will disappear from the image.

6   You can adjust the size and edge hardness of the brush directly from the keyboard.

7   Press the **left bracket key ([ )** will make the brush size smaller by 5 pixels each time you press the key, while pressing the **right bracket key ( ])** will make the brush larger by 5 pixels.

8   If you hold down your **Shift** key while pressing the **left bracket key**, you'll make the brush edge softer by 25% each time you press the key. Holding **Shift** and pressing the r**ight bracket key** will make the edge harder by 25% each time

9   Paint with black to clean up the white part of the eye around the iris as shown in Fig 2.

Fig 2
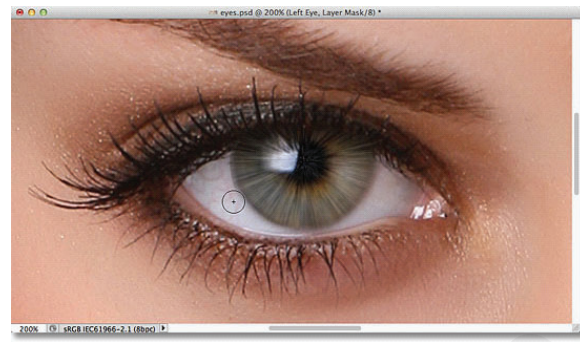
10 If you make a mistake and accidentally paint over the iris, simply press the letter **X** on your keyboard to swap the Foreground and Background colors, which makes your Foreground color **white**.

12 Paint over the mistake to bring back the blur effect, then press **X** again to change your Foreground color back to **black** and continue painting around the iris.

13 We also want to remove the blur streaks inside the pupil, so again using a small, soft-edge brush.

14 Paint with black over the pupil to clean up that area. When you're done, the blur streaks should be visible only inside the iris itself as in Fig 3.

15 Painting away the blur streaks in the pupil.

Fig 3

— — — — — — — —
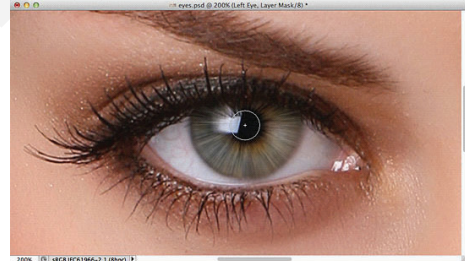
TASK 26: Add a hue-saturation adjustment layer

> **We've created our zoom effect, so now let's brighten the iris and increase its color saturation.**

1   Hold down your **Alt** (Win) / **Option** (Mac) key and click on the **New Adjustment Layer** icon at the bottom of the Layers panel as shown in Fig 1 or

Hold Alt (Win) / Option (Mac) and click on the New Adjustment Layer icon.

2   Choose **Hue/Saturation** from the list of adjustment layers that appear as in Fig 2 or

Select Hue/Saturation from the list.

3   Holding down the Alt (Win) / Option (Mac) key while selecting the adjustment layer tells Photoshop to first pop open the **New Layer** dialog box. (The same dialog box we saw back in Task 3.)

Fig 1
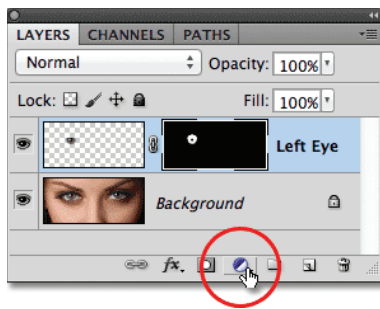
Fig 2
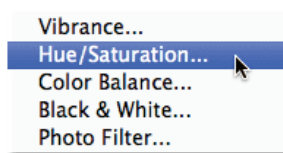
4 You can leave the adjustment layer's name set to its default, but select the option directly below the name, **Use Previous Layer to Create Clipping Mask,** by clicking inside its checkbox.

5 Change the **Mode** (the layer blend mode) of the adjustment layer from Normal to **Screen** as in Fig 3.

Fig 3
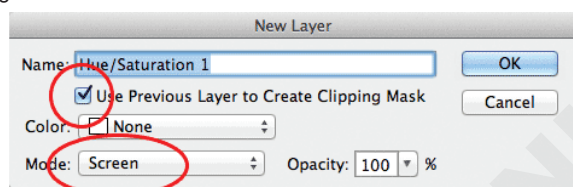
6 Select "Use Previous Layer to Create Clipping Mask" and change the Mode to Screen.

7 Click OK to close out of the dialog box, at which point Photoshop adds the new Hue/Saturation adjustment layer directly above the "Left Eye" layer.

8 Notice in the Layers panel that the adjustment layer is indented to the right with a small arrow pointing down at the layer below it. This tells us that the adjustment layer is **clipped** to the "Left Eye" layer, which means it will affect only the contents of the "Left Eye" layer.

9 The original photo on the Background layer will not be affected. Also, note that the adjustment layer's blend mode has been set to Screen in the top left corner of the Layers panel as in Fig 4.

Fig 4
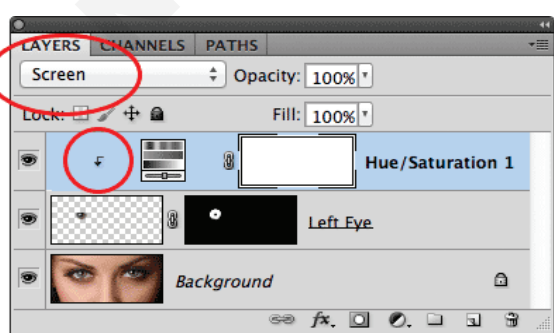
10 The Layers panel showing the newly added Hue/ Saturation adjustment layer.

11 The Screen blend mode is one of several layer blend modes in Photoshop that has the effect of lightening the image, and with the Hue/Saturation adjustment set to Screen, the iris in the eye is now much brighter as shown in Fig 5.

Fig 5
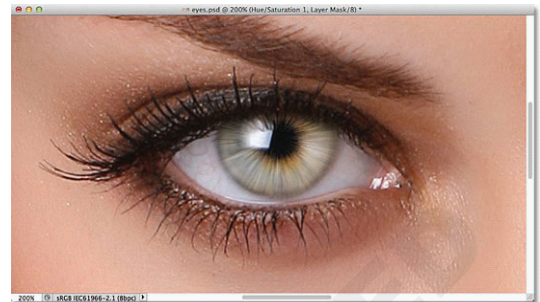
12 The iris is now brighter thanks to the Screen blend mode.

13 We can increase the color saturation in the iris as well. If you're using Photoshop CS4 or higher, you'll find the controls and options for the Hue/Saturation adjustment layer in the **Adjustments Panel** which was first introduced in CS4. For Photoshop CS3 and earlier users, a separate Hue/Saturation dialog box will be open on your screen.

14 To increase color saturation in the iris, drag the **Saturation** slider towards the right. Keep an eye on the effect in the document window as you drag the slider so you don't push the Saturation level too far. I'm going to set the Saturation value to around 60 as in Fig 6.

Fig 6
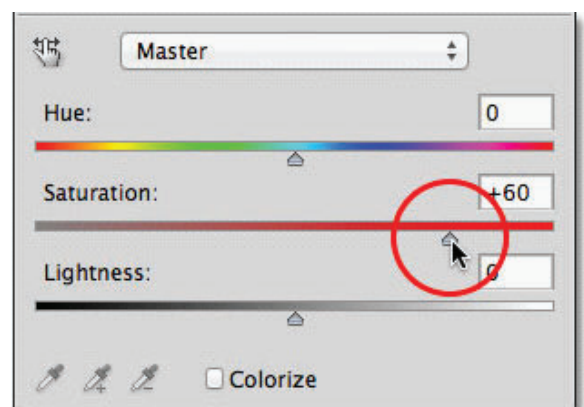
15 Drag the Saturation slider towards the right to boost color saturation in the iris.

16 Photoshop CS3 and earlier users, click OK when you're done to close out of the Hue/Saturation dialog box.

17 Photoshop CS4 and higher users can leave the Adjustments Panel open.

18 The image after boosting color saturation in the iris. Depending on the original eye color, the increased saturation may appear subtle, as in Fig 7 or more intense.

19 The image after increasing color saturation in the iris.

Fig 7

— — — — — — — —
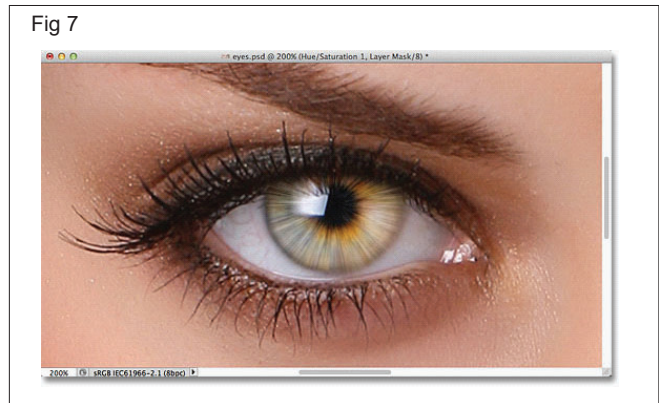
TASK 27: **Try a different lightening blend mode (optional)**

The Screen blend mode is just one of several layer blend modes in Photoshop designed to lighten the image, and it's by far the most commonly used of the lightening modes.

1 However, for a different result, try changing the blend mode of the Hue/Saturation adjustment layer to either **Color Dodge or Linear Dodge,** both of which will give a stronger, more intense result.

2 We will change the blend mode from Screen to Color Dodge as in Fig 1 or

Change the blend mode of the adjustment layer to Color Dodge.

Fig 1
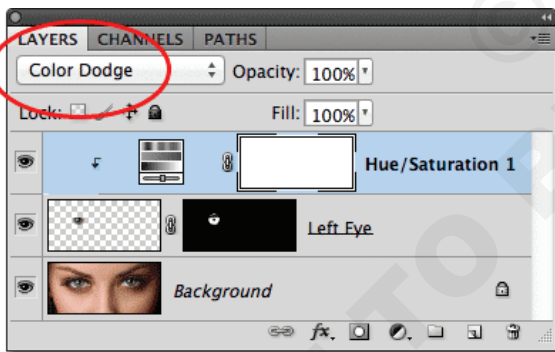
3 Here's the result that Color Dodge gives to you as shown in Fig 2.

Fig 2
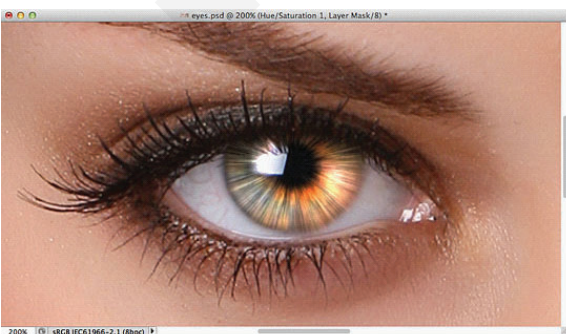
4 The image after changing the blend mode to Color Dodge.

5 Next, we will try change the blend mode from Color Dodge to Linear Dodge.

6 Try out and apply the Linear Dodge blend mode as in Fig 3.

Fig 3
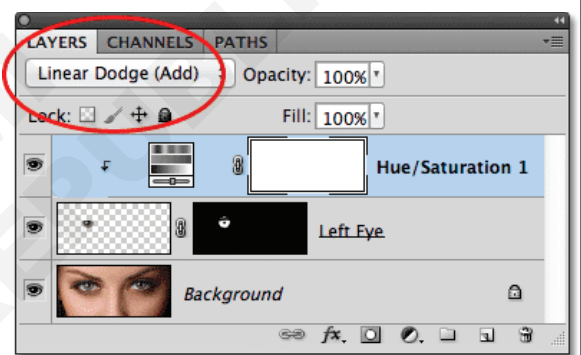
7 And here's the result as shown in Fig 4. In this case, the Linear Dodge blend mode might give the best result,

8 To try all three blend modes and choose the one that works best for your image.

9 The same effect using the Linear Dodge blend mode.

Fig 4

— — — — — — — —
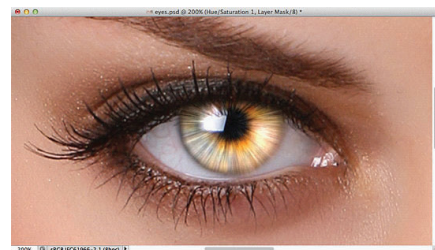
TASK 28: **Fine-tune the result with the layer opacity option**

1   Once you've decided on a blend mode to use, you can further fine-tune the results by lowering the adjustment layer's opacity value which controls the layer's level of transparency.

2   You'll find the **Opacity** option directly across from the Blend Mode option at the top of the Layers panel. I'm going to leave mine set to 100% as shown in Fig 1.

Fig 1
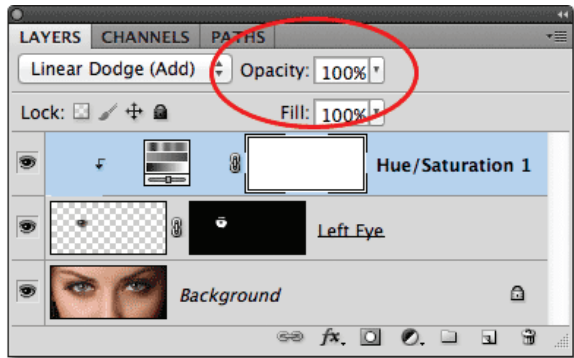
3   If needed, you can reduce the intensity of the brightening effect simply by lowering the opacity value.

4   Lower the Opacity value if needed to reduce the brightness.

5   After you've completed the effect in one eye, simply repeat the same Tasks with the other eye.

6   However, before you begin, make sure you re-select the original image by clicking on the **Background layer** in the Layers panel to make it active as in Fig 2.

Fig 2
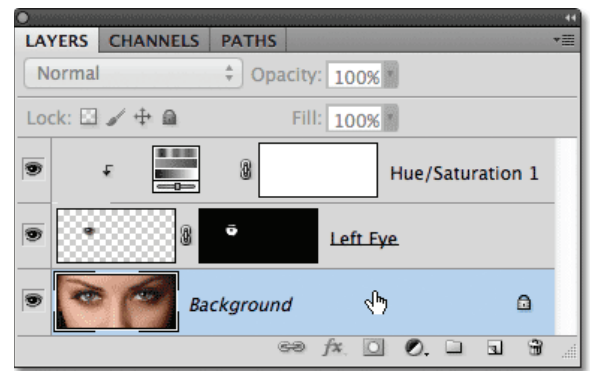
7   Make sure you re-select the Background layer before starting on the other eye.

8   With the Background layer re-selected, you can repeat the same Tasks to add the effect to the other eye. As in Fig 3. The final result looks like.

9   The final "Radial Zoom Enhanced Eyes" effect.

10 Get your work verified by your Instructor.

Fig 3

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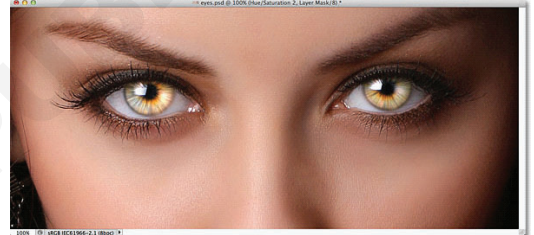
Practice on edit and save image in PSD, JPEG and other format

Objectives: At the end of this exercise you shall be able to
• **creating an action for repetitive image processing commands**
• **apply and edit the action for various image**
• **use the automation batch command**
• **save files in various graphic formats.**

Requirements		
Tools/Instruments	**Materials**	
• Trainee's tool kit - 1 No.	• Papers	- as reqd.
Equipments/Machineries	• Baniyan cloth	- as reqd.
	• Photoshop software	- as reqd.
• Computer system - 1 No.	• Windows software	- as reqd.
• Computer table - 1 No.		
• UPS - 1 No.		
• Printer - 1 No.		

PROCEDURE

TASK 1: **Open Actions Pallette**

1 Actions are a powerful feature in Photoshop which can save you time by performing repetitive tasks for you automatically, and for batch processing multiple images when you need to apply the same set of Tasks to many images.

2 In this exercise we will learn how to record a simple action for resizing a set of images and then we will use it with the **batch automate command** for processing multiple images.

3 To record an action, you'll need to use the actions palette. If the actions palette is not visible on your screen,

4 Open it by going to **Window > Actions.**

5 Notice the menu arrow at the top right of the actions palette. This arrow brings up the actions menu shown here as shown in Fig 1.

Fig 1

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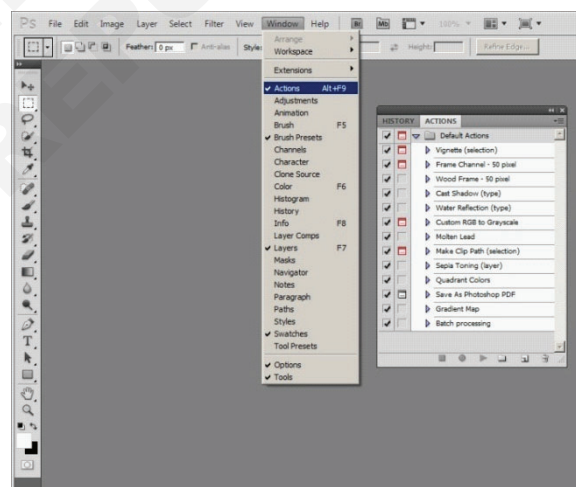
TASK 2: **Create an action set**

1 Click the arrow to bring up the menu and choose New Set as in Fig 1.

Fig 1
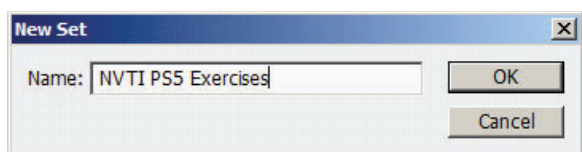
2 An action set can contain several actions. If you've never created actions before, it's a good idea to save all your personal actions in a set.

3 Give your set a name like "NVTI PS5 Exercises" as in Fig 2 and click OK.

Fig 2
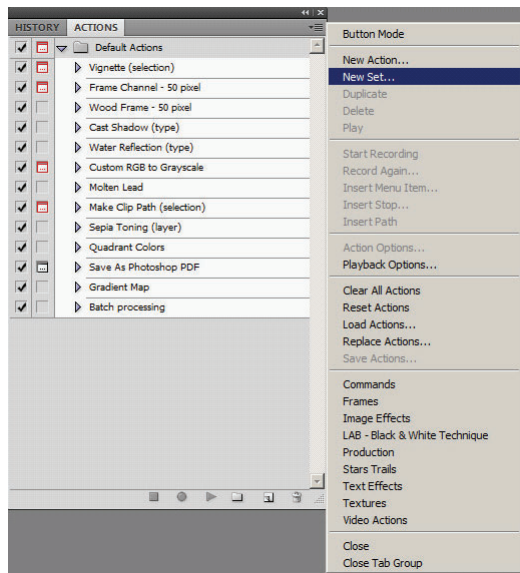
TASK 3: **Name your new action**

1   Choose New Action from the Actions palette menu.

> **You will find the new action option above the new set option in actions palette.**

2   Give your action a descriptive name, such as "Fit image to 800x600 " for this exercise as shown in Fig 1.

3   After you click Record, you'll see the red dot as in Fig 2 on the actions palette to show you're recording.

Fig 1
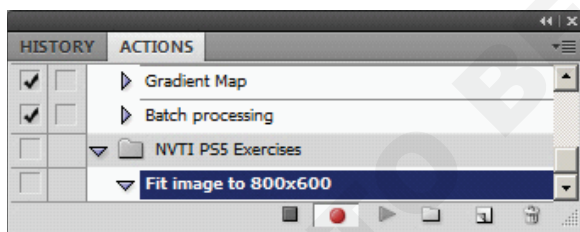
Fig 2
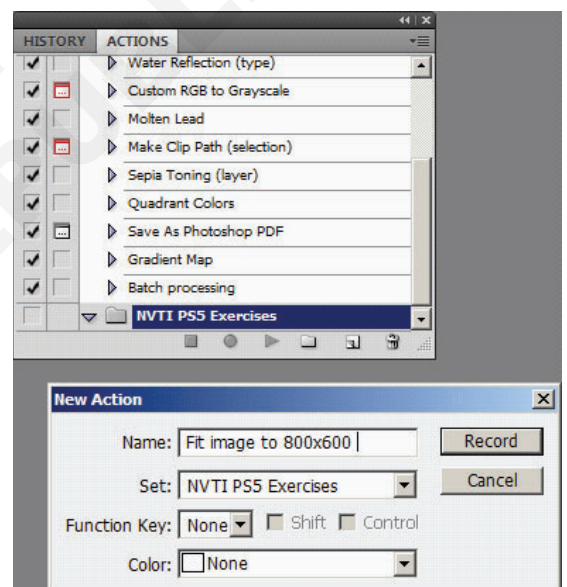
TASK 4: **Executing the desired commands**

1   Go to **File > Automate > Fit Image** as in Fig 1 and enter 800 for the width and 600 for the height.

2   We will use this command instead of the Resize command, because it will ensure that no image is taller than 800 pixels or wider than 600 pixels, even when the aspect ratio doesn't match.

Fig 1
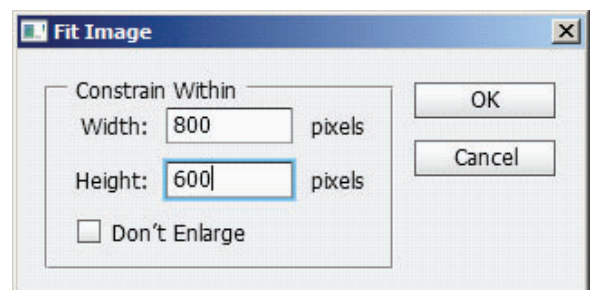
TASK 5: Recording the Save As Command

1. Next, go to File > Save As

2. Choose JPEG for the save format and make sure "As a Copy " is checked in the save options as in Fig 1.

Fig 1
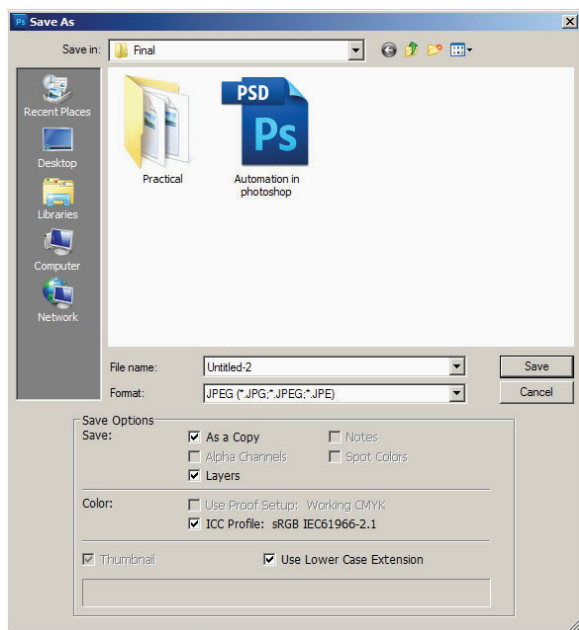
3. Click OK, and the then JPEG Options dialog will appear as in Fig 2.

4. Choose your quality and format options, the click OK again to save the file.

Fig 2
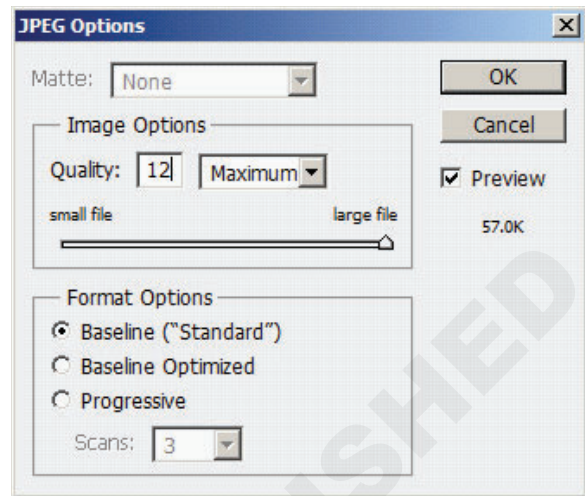
TASK 6: Stop Recording

1. Finally, go to the Actions palette and hit the stop button to end recording as in Fig 1.

2. We get the required set of action.

Fig 1
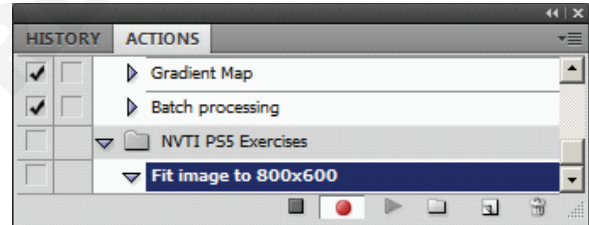
TASK 7: Use the action in batch mode

> **Now, we will use the recorded action in batch processing.**

1. To use the action in batch mode, go to **File> Automate> Batch** as in Fig 1.

2. You'll see the dialog box shown here.

3. In the dialog box, select the set and the action you just created under the "Play" section.

4. For the source, choose Folder then click "Choose…" to browse to the folder that contains the images you want to process.

5. For the destination, choose Folder and browse to a different folder for Photoshop to output the resized images as shown in Fig 2.

6. You can choose "None" or "Save and Close" to have Photoshop save them in the source folder, but it is not advised. It's too easy to make a mistake and overwrite your original files. Once, you're sure your batch processing was successful, you can relocate the files if you desire.

7. Be sure to check the box for **Override Action "Save As" Commands** so that your new files will be saved without prompting. (You can read more about this option in Photoshop Help under Automating tasks > Processing a batch of files > Batch and droplet processing options.)

8. In the file naming section, you can choose how you want your files to be named. You can append anything to the original document name for e.g. 800x600.

Fig 1
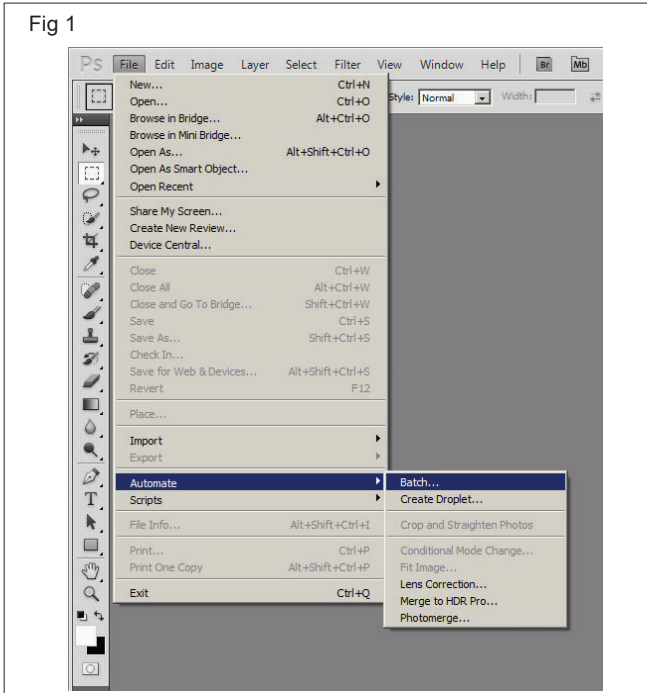
9 You can also use the pull down menus to select predefined data for these fields, or type directly into the fields.

10 For errors you can either have the batch process stop, or create a log file of the errors.

11 After setting your options, click OK, then sit back and watch as Photoshop does all the work for you! Once you have an action and you know how to use the batch command, you can use it anytime you have several photos you need to resize.

12 You could even do any other action to rotate a folder of images or perform any other image processing that you normally do manually.

13 Get the skill practiced verified by your Instructor.

Fig 2

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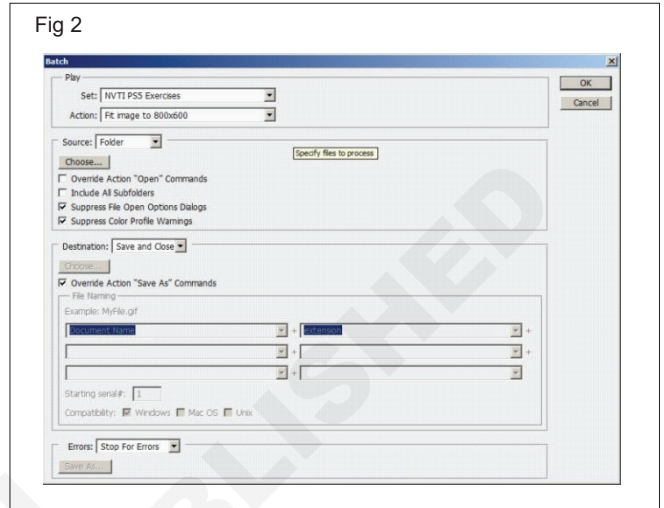
TASK 8: **Saving files in various graphics formats**

Save in TIFF format

1 Choose File > Save As, choose TIFF from the Format menu, and click Save.

2 In the TIFF Options dialog box, select the options you want, and click OK.

Save in JPEG format

1 Choose File > Save As, and choose JPEG from the Format menu.

2 In the JPEG Options dialog box, select the options you want, and click OK.

Save in PNG format

1 Choose File > Save As, and choose PNG from the Format menu.

2 Select an Interlace option:

3 **None** Displays the image in a browser only when download is complete.

4 **Interlaced** Displays low-resolution versions of the image in a browser as the file downloads. Interlacing

makes download time seem shorter, but it also increases file size Click OK.

Save in GIF format

1 Choose File > Save As, and choose CompuServe GIF from the Format menu.

2 For RGB images, the Indexed Color dialog box appears. Specify conversion options and click OK.

3 Select a row order for the GIF file, and click OK:

Save in BMP format

1 Choose File > Save As, and choose BMP from the Format menu.

2 Specify a filename and location, and click Save.

3 In the BMP Options dialog box, select a file format, specify the bit depth and, if necessary, select Flip Row Order.

4 For more options, click Advanced Modes and specify the BMP options Click OK.

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Construction: Painter (General) (NSQF - Revised 2022) - Exercise 1.8.87   **235**

Create a colour advertise design for festival offer

Objectives: At the end of this exercise you shall be able to
• **create a colour advertise design for festival offer.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.

Equipments/Machineries

• Computer system	- 1 No.
• Computer table	- 1 No.
• UPS	- 1 No.

• Printer	- 1 No.

Materials

• Paper	- as reqd.
• Baniyan cloth	- as reqd.

PROCEDURE

TASK 1: **Create a colour advertisement design for festival offer**

1 Clean the computer system with clean cloth.

2 Switch on the power to computer system.

3 Switch on the CPU on button.

4 Check the moniter screen display.

5 Open the adope photo shop by click start button from the left corner of the task bar of the windows the arrow will appear on the left bottom of the screen.

6 Click the Down arrow and select the Adobe Photoshop CS6. See the Fig 1 and follow.

7 The Adobe Photoshop will appear as shown in the following Fig 2.

Create advertise design image

1 Choose File > New.

2 In the New dialog box, type a name for the image.

3 (Optional) Choose document size from the Preset menu.

> To create a document with the pixel dimensions set for a specific device, click the Device Central button.

Fig 1
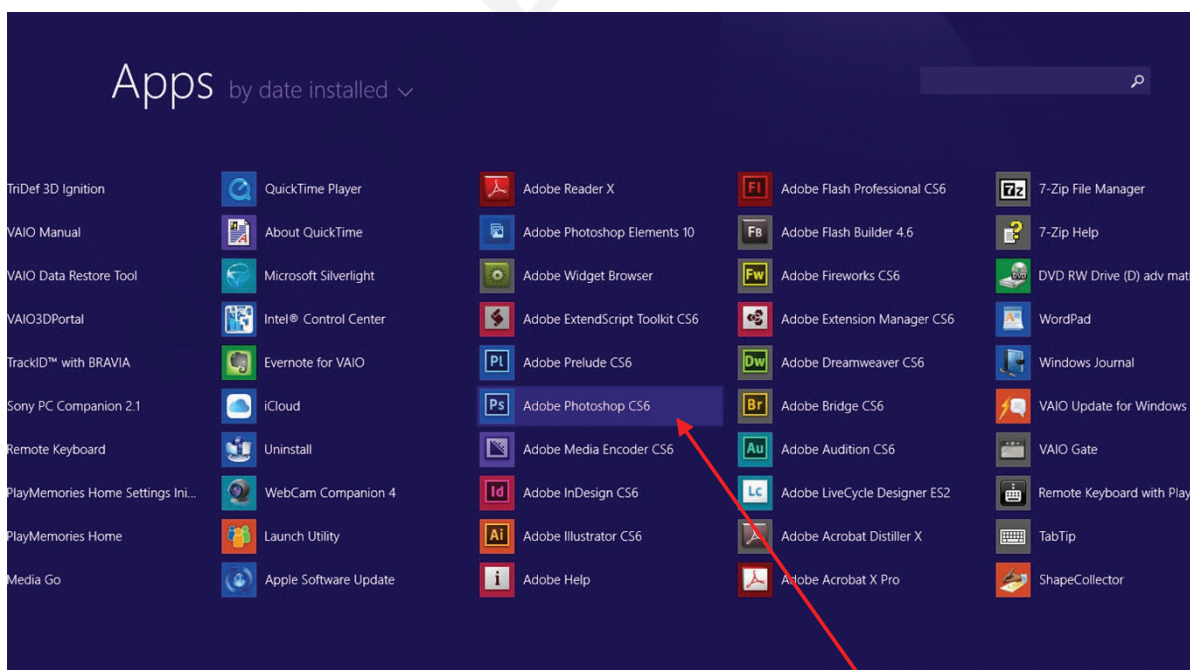
Fig 2
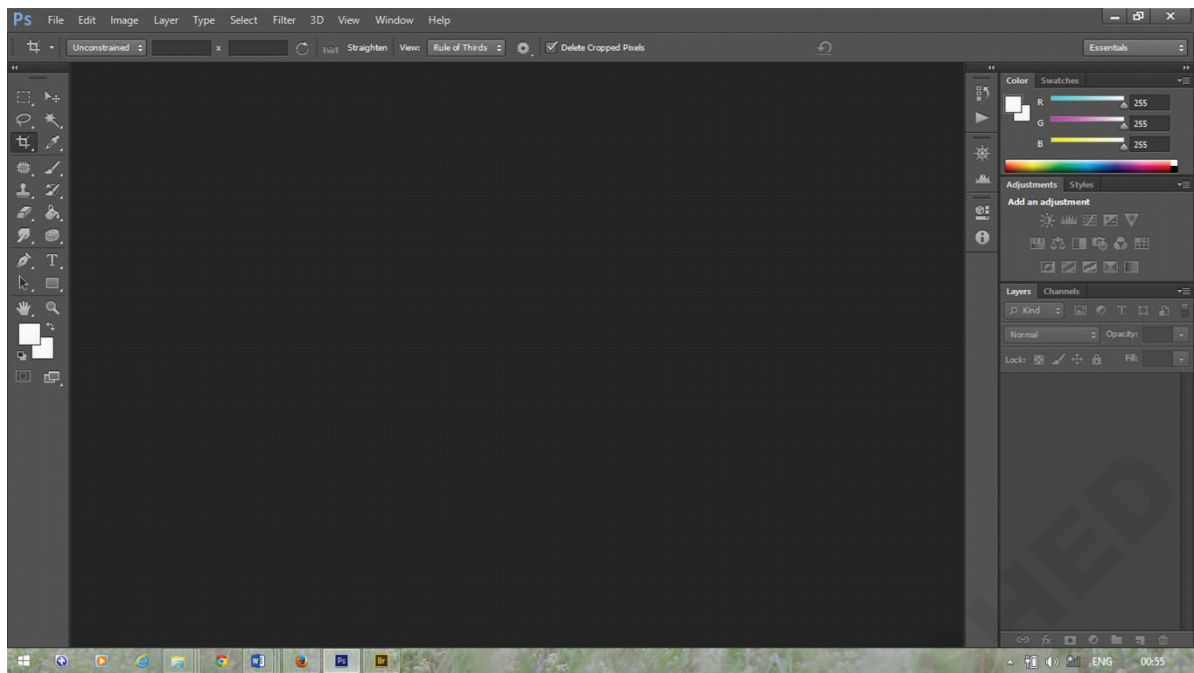
4 Set the width and height by choosing a preset from the Size menu or entering values in the Width and Height text boxes.

5 To match the width, height, resolution, color mode, and bit depth of the new image to that of any open image, choose a filename from the bottom section of the Preset menu.

6 Set the Resolution, Color Mode, and bit depth.

7 If you've copied a selection to the clipboard, the image dimensions and resolution are automatically based on that image data.

8 Select a canvas color option:

9 **White** Fills the background layer with white, the default background color.

10 **Background Color** Fills the background layer with the current background color.

11 **Transparent** Makes the first layer transparent, with no color values. The resulting document has a single, transparent layer as its contents.

12 (Optional) If necessary, click the Advanced button to display more options.

13 (Optional) Under Advanced, choose a color profile, or choose Don't Color Manage This Document. For Pixel Aspect Ratio, choose Square unless you're using the image for video. In that case, choose another option to use nonsquare pixels.

14 When you finish, you can save the settings as a preset by clicking Save Preset, or you can click OK to open the new file. See the figure and follow the same option in the dialog box

15 The New Document will appear as shown in the Fig 3.

Fig 3
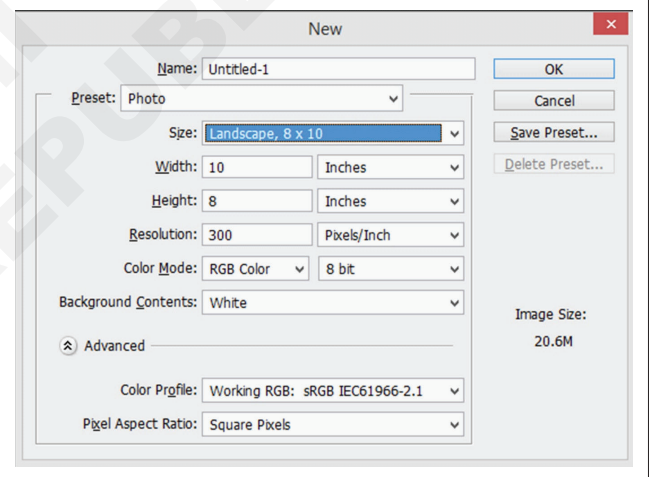
Open a file using the Open command 1 Choose File> Open

> **Select the name of the file you want to open. If the file does not appear, select the option for showing all files from the Files of Type pop-up menu.**

1 Click Open. In some cases, a dialog box appears, letting you set format-specific options. See the figure and follow the same option in the figure (select the image file from already saved in your computer or download from the web site.)

2 Download the festival offer figures from website or already saved in your computer files.

3 Select and click OK button. The new document will appear as shown in Fig 4.

4 You can also bring post script art work into photo shop using the place command, the command and the drag and drop feature.

   • Choose file > Open

     Select the file you want to open and click open

   • Indicate the desired dimensions resolution and mode. To maintain the same height to width ratio, select constrain proportion.

   • To minimize jagged lines at the edges of art work select anti-aliased.

5 You can use the screen mode options to view advertise design on your entire screen. You can show or hide the menu bar, title bar and scroll bars.

6 To display the default mode choose view > screen mode > standard screen mode or click the screen mode button.

7 If you want zoom the advertise image select the zoom tool.

8 Ensure your creative advertise design is as fulfil customer choice.

Fig 4

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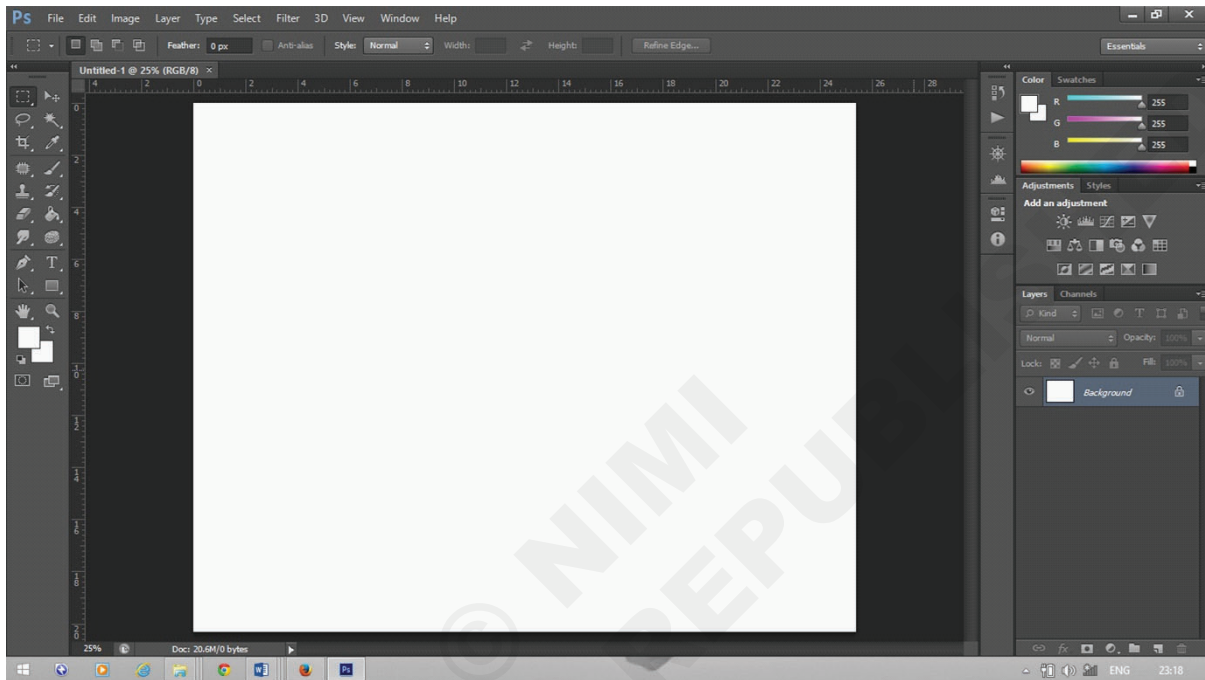
Practice on export design, image, photograph from photoshop to other format and make a print file for different printer

Objectives: At the end of this exercise you shall be able to
• **copy and paste the text from a non-photoshop file**
• **copy and paste from another photoshop document**
• **exporting photos from photoshop**
• **print a photoshop document from desktop printer**
• **print with the help of printer colour management system.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Paper	- as reqd.
Equipments/Machineries		• Baniyan cloth	- as reqd.
		• Pencil	- as reqd.
• Computer system	- 1 No.		
• Printer	- 1 No.		
• Computer table	- 1 No.		
• UPS	- 1 No.		

PROCEDURE

TASK 1: **Copy and paste text from a non-Photoshop file**

1 In your non-Photoshop file such as a Word file, PDF, or web page, click and drag the cursor over the text to select it.

2 Press Command+C (on macOS) or Control+C (on Windows) to copy the selected text.

3 Open the Photoshop document (PSD) in which you want to paste the copied text and then select the Type tool in the tool bar.

4 Select the type layer from the Layers panel in which you want to paste the text. If you don't have type layers or want to add another type layer, see steps 2 and 3 in how to add text.

5 Choose Edit > Paste or press Command+V (on macOS) or Control+V (on Windows) to paste your text. To undo, choose Edit > Undo Paste Text.

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TASK 2: **Copy and paste from another Photoshop document (PSD)**

1 Open the PSD you want to copy the text from.

2 Select the text you want to copy and choose Edit > Copy or simply press Command+C (on macOS) or Control+C (on Windows).

3 Open the PSD you want to paste the text in and select a type layer. If you don't have type layers or want to

add another type layer, see steps 2 and 3 in how to add text.

4 Choose Edit > Paste to paste your text in the center of your canvas. You can also choose Edit > Paste Special > Paste in Place to place the text as it was in the PSD from which you had copied.

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TASK 3: **Resize the entire text on a type layer**

1 Open the Photoshop document with the text you want to edit.

Note: The text must be on a type layer. Don't see type layers in your document. See steps 2 and 3 in how to add text.

2 Select the Move tool ✛ in the tool bar.

3 In the options bar, do this:(macOS users) Check that Auto-select. Layer and Show Transform Controls are selected (Fig 1).

Fig 1

☑ Auto-Select: Layer ∨   ☑ Show Transform Controls

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4 Select Auto-Select Layer and Show Transform Controls in macOS (Windows users) Check that Layer and ▦ icon are selected (Fig 2).
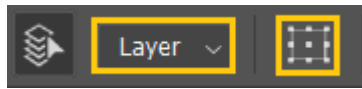
5 Ensure that the highlighted fields are selected in Windows

6 Click to select the text you want to resize.

7 In the transform box that appears, drag one of the anchor points to resize your text proportionally. You can also do the following when you drag an anchor point:

• Hold down the Shift key to resize your text non-proportionally.

• Hold down the Alt key to keep the center of your text in the same place when you resize text.

• Hold down the Command (on macOS) or Control (on Windows) to explore skewed angles when you resize your text.

8 Finally, click ☑ in the options bar to save your edits. That's it! Your entire text is now resized.

9 Resize one or more characters on a type layer

10 To change the size of specific letters, numbers, or words in your text, you can do this:

11 Open the Photoshop document with the text you want to edit.

Note : The text must be on a type layer. Don't see type layers in your document. See steps 2 and 3 in how to add text.

12 Select the Type tool in the toolbar.

13 Select text that you want to resize.

14 In the ▯T field of the options bar, select the text size option you want. You can see the changes in real time.

Note: If you have a paragraph text and are unable to view the entire paragraph after resizing it, drag the corners of the bounding box.

15 Click ☑ in the options bar and you're done! To cancel your changes, click ⊘ in the options bar.

16 Resize text in two ways - use the Move tool or specify a text size value in the options bar

Move text

To move your text around on the Photoshop canvas:

1 Open the Photoshop document with the text you want to edit (Fig 3).

Note: The text must be on a type layer. Don't see type layers in your document. See steps 2 and 3 in how to add text.

2 Select the type layer that has the text you want to move.

3 Select the Move tool ✛ in the toolbar.

4 In the options bar, ensure that Auto Select Layer (on macOS) or Layer (on Windows) is selected and then click the text you want to move. You can then view the transform box with the dark arrow.

5 Click and move the transform box and then release it to place the text where you want.

Change color of text

Change the color of your entire text.

Fig 3
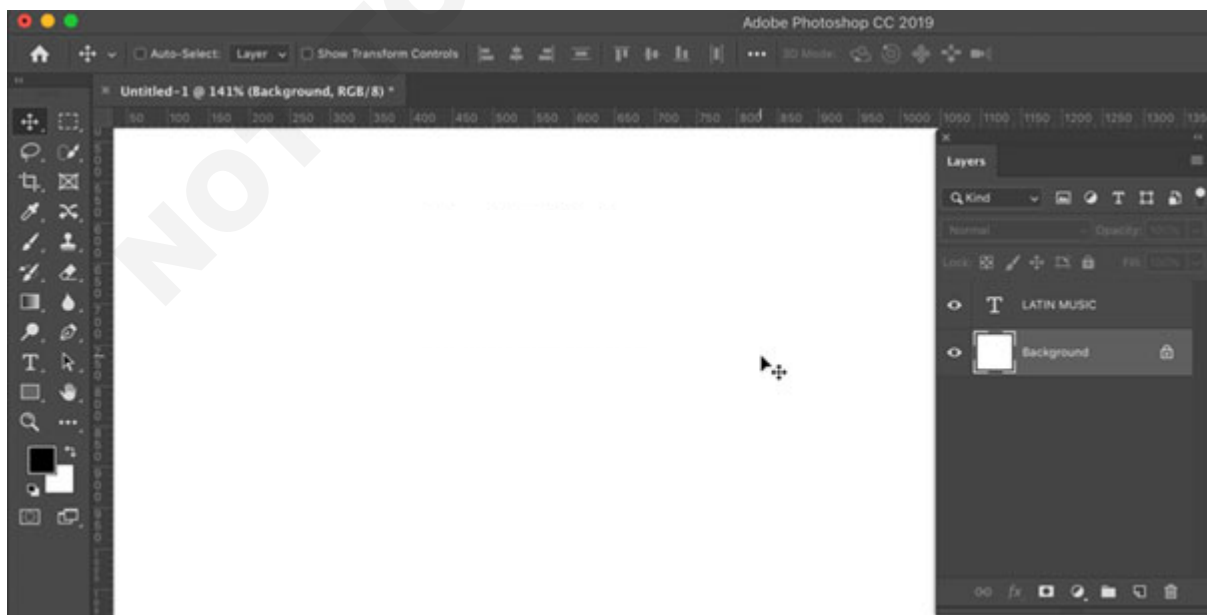
1   Open the Photoshop document with the text you want to edit.

> **Note: The text must be on a type layer. Don't see type layers in your document. See steps 2 and 3 in how to add text.**

2   Select the Type tool in the toolbar and click the text for which you want to change color. The entire text in the type layer is selected.

3   Click the Color Picker (Text Color) icon in the options bar Click the Color picker icon in the options bar (Fig 4).

Fig 4

4   Move the color slider as you want and pick your color. You can see your text color change in real time as you pick different colors.

5   Once you're happy with your text color, click OK.

Change the color of one or more characters in your text

1   Open the Photoshop document with the text you want to edit.

> **Note: The text must be on a type layer. Don't see type layers in your document. See steps 2 and 3 in how to add text.**

2   Select the Type tool in the toolbar.

3   Click and drag the cursor over the characters you want to select.

4   Click the Color Picker (Text Color) icon in the options bar. Click the Color picker icon in the options bar (Fig 5).

Fig 5

5   Move the color slider as you want and pick your color. You can see your text color change in real time as you pick different colors.

6   Once you're happy with the text color, click OK. Voila! You're done.

How to align and justify text?

Unable to align your text properly? Here's how you can justify and align your text.

1   Open the Photoshop document with the text you want to edit.

> **Note: The text must be on a type layer. Don't see type layers in your document. See steps 2 and 3 in how to add text.**

2   Select the type layer from the Layers panel that has the paragraph you want to justify. If you want to justify a specific paragraph on a type layer, then select it.

Exporting Photos

1   Select "Save As" from the File menu.

-   Export a photo from Photoshop by selecting "Save As" from the File menu. If you use the "Save" option, of course, Photoshop merely writes over your original photo file (Fig 6).

Fig 6
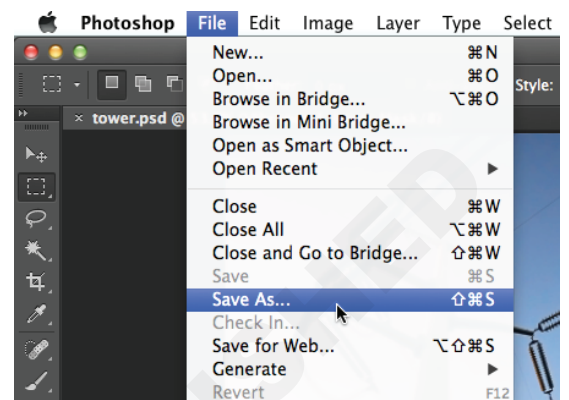
2   Click the "Save as Type" menu.

-   Click the "Save as Type" menu in the Save As menu to specify a file format for the photo. Save the photo in any of the many available image formats, including JPG, PNG, or Photoshop's own PSD format (Fig 7).

Fig 7
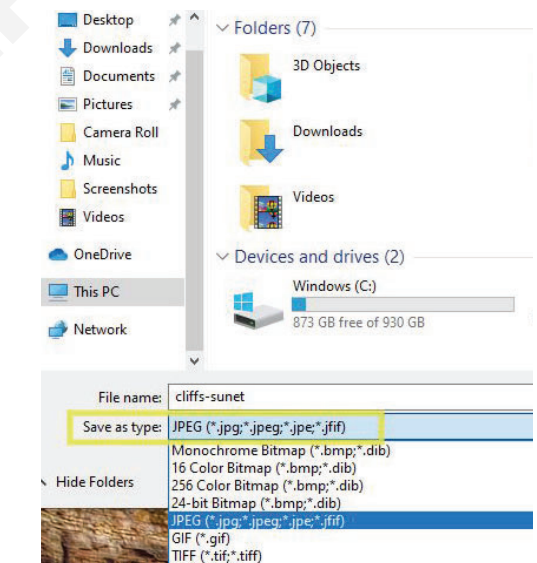
3   Specify a Web-friendly file format.

-   Click "Save for Web" under the File menu if you want a Web-optimized version of a photo. This saves the image with a low file size, but keeps the image sharp enough that it displays well in a Web browser.

-   Click the "File Type" menu to specify which format you want. You can then specify the image size and, in the case of JPEG files, how quality of the photo. The higher the quality, the larger the file size (Fig 8).

4   Photoshop windows tiled Vertically.

Fig 8

Save for Web (100%)

- Import an image from one Photoshop file to another by dragging it. The easiest way to do this is to first tile the windows. Click the "Window" menu, select "Arrange" and then select "Tile All Vertically" or "Tile All Horizontally." You can then simply drag the photo from one window to another (Fig 9).

5 Drag a photo from File Explorer onto a Photoshop canvas (Fig 10).

Fig 10

Save in TIFF format

> TIFF is a flexible raster (bitmap) image format supported by virtually all paint, image-editing, and page-layout applications.

1 Choose File > Save As, choose TIFF from the Format menu, and click Save.

2 In the TIFF Options dialog box, select the options you want, and click OK.

Bit depth (32 bit only)

1 Specifies the bit depth (16, 24, or 32 bit) of the saved image.

Image Compression

1 Specifies a method for compressing the composite image data. If you are saving a 32 bit TIFF file, you can specify that the file be saved with predictor compression but you don't have the option to use JPEG compression.

> Note: JPEG compression is available only for opaque RGB and grayscale images that are 8-bits-per-channel and no more than 30,000 pixels wide or high.

Pixel Order

- To Write the TIFF file with the channels data interleaved or organized by plane.

- Before Photoshop always wrote TIFF files with the channel order interleaved.

Byte Order

- To Select the platform on which the file can be read. This option is useful when you don't know what program the file may be opened in.

Save Image Pyramid

- Preserves multiresolution information.

Fig 9

Save Transparency

- Preserves transparency as an additional alpha channel when the file is opened in another application.

Layer Compression

- Specifies a method for compressing data for pixels in layers (as opposed to composite data) choose discard layers and save a copy if you want to flatten the image.

> **Note: To have Photoshop prompt you before saving an image with multiple layers. Select ask before saving layered TIFF Files in the File handling area of the preferences dialog box.**

Save in JPEG format

- Use to save in JPEG format to save CMYK, RGB and grayscale images in JPEG (*jpg) format.

> **Note: To quickly save a medium-quality JPEG, play the Save As JPEG Medium action on the file. You can access this action by choosing Production from the Actions panel menu.**

- Choose File > Save As, and choose JPEG from the Format menu.

- In the JPEG Options dialog box, select the options you want, and click OK.

- Use the matte color choices to simulate the appearance of background transparency in images that contain transparency.

- Use the image options from the Quality menu, drag the Quality pop-up slider, or enter a value between 0 and 12 in the Quality text box.

- Use the format options Specifies the format of your JPEG file.

> **Note: Some applications may not be able to read a CMYK file saved in JPEG format. Likewise, if you find that a Java application can't read a JPEG file, try saving the file without a thumbnail preview.**

Save in PNG format

> **Save as command to save RGB, Indexed Color, Grayscale, and Bitmap mode images in PNG format.**

- Choose File > Save As, and choose PNG from the Format menu.

- Select an Interlace option.

None

- Displays the image in a browser only when download is complete.

Interlaced

- Use the displays low-resolution versions of the image in a browser as the file downloads. Interlacing makes

download time seem shorter, but it also increases file size Click OK.

> **Note: You can export artboards, layers, layer groups, or documents as JPEG, GIF, or PNG images. Select the items in the Layers panel, right-click the selection, and then select Quick Export or Export As from the context menu.**

Save in GIF format

> **Save as command to save a Photoshop document with one or more frames as animated GIF.**

- Choose File > Save As, and choose GIF from the Format menu.

- Specify options in the GIF Save Options dialog. GIF Save Options dialog Click OK.

Save in Photoshop EPS format

- Use to Virtually all page-layout, word-processing, and graphics applications accept imported or placed EPS (Encapsulated PostScript) files.

- To print EPS files, you should use a PostScript printer.

- Non-Post script printers will print only the screen-resolution preview.

- Choose File > Save As, and choose Photoshop EPS from the Format menu.

- In the EPS Options dialog box, select the options you want, and click OK.

Preview

- To create a low-resolution image to view in the destination application.

- Choose TIFF to share an EPS file between Windows and Mac OS systems.

- An 8 bit preview is in color and a 1 bit preview is in black and white with a jagged appearance.

- An 8 bit preview creates a larger file size than a 1 bit preview. See also Bit depth.

Encoding

- To determine the way image data is delivered to a PostScript output device. Encoding options are described below.

- Control print specifications for high end commercial print jobs. Consult your printer before selecting these options.

- Displays white areas as transparent. This option is available only for images in Bitmap mode.

- Converts file data to the printer's color space. Do not select this option if you plan to place the image in another color-managed document.

- Preserves any vector graphics (such as shapes and type) in the file. However, vector data in EPS and DCS files is available only to other applications.

- Vector data is rasterized if you reopen the file in Photoshop. This option is only available if your file contains vector data.

- Applies bicubic interpolation to smooth the low-resolution preview if printed.

Photoshop EPS encoding options

- Encodes if you're printing from a Windows system, or if you experience printing errors or other difficulties.

- Use the Binary to produces a smaller file and leaves the original data intact. However, some page-layout applications.

- Some commercial print spooling and network printing software may not support binary Photoshop EPS files.

- Use the JPEG to compresses the file by discarding some image data.

- Use the DCS (Desktop Color Separations) format is a version of EPS that lets you save color separations of CMYK or multichannel files.

- Choose File > Save As, and choose Photoshop DCS 1.0 or Photoshop DCS 2.0 from the Format menu.

- In the DCS Format dialog box, select the options you want, and click OK.

- The dialog box includes all the options available for Photoshop EPS files. Additionally, the DCS menu gives you the option of creating a 72 ppi composite file that can be placed in a page-layout application or used to proof the image:

- Use the DCS 1.0 format to creates one file for each color channel in a CMYK image. You can also create a fifth file: a grayscale or color composite.

- To view the composite file, you must keep all five files in the same folder.

- Use the DCS 2.0 format to retains spot color channels in the image. You can save the color channels as multiple files (as for DCS 1.0) or as a single file.

- The single-file option saves disk space. You can also include a grayscale or color composite.

- Use the Photoshop Raw format for transferring images between applications and computer platforms.

- Choose File > Save As, and choose Photoshop Raw from the Format menu.

- In the Photoshop Raw Options dialog box, do the following:

  • (Mac OS) Specify values for File Type and File Creator, or accept the default values.

  • Specify a Header parameter.

  • Select whether to save the channels in an interleaved or non-interleaved order.

- Use the BMP format is an image format for the Windows operating system.

- The images can range from black-and-white (1 bit per pixel) up to 24 bit color (16.7 million colors).

- Choose File > Save As, and choose BMP from the Format menu.

- Specify a filename and location, and click Save.

- In the BMP Options dialog box, select a file format, specify the bit depth and, if necessary.

- Select Flip Row Order. For more options, click Advanced Modes and specify the BMP options click OK.

- RGB images that are 16 bits per channel can be saved in Cineon format for use in the Kodak Cineon Film System.

- Choose File > Save As and choose Cineon from the Format menu.

- Use the Targa (TGA) format to supports bitmap and RGB images with 8 Bits/Channel.

- It is designed for Truevision® hardware, but it is also used in other applications.

- Choose File > Save As, and choose Targa from the Format menu.

- Specify a filename and location, and click Save.

- In the Targa Options dialog box, select a resolution, select the Compress (RLE) option if you want to compress the file, and then click OK.

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TASK 4: **Set Photoshop print options and print**

1 Choose File>Print. The window will open as in Fig 1.

2 Select the printer, number of copies, and paper orientation.

3 Adjust the position and scale of the image in relation to the selected paper size and orientation.

4 Set Color Management and Output options, which you access from the pop-up menu in the upper-right corner.

5 Do one of the following:

  • To print the image, click Print.

- To close the dialog box without saving the options, click Cancel.

- To preserve the options and close the dialog box, click Done.

If you get a warning that your image is larger than the printable area of the paper, click Cancel, choose File > Print.

Select the Scale To Fit Media box. To make changes to your paper size and layout, click Print Settings, and attempt to print the file again.

Fig 1

— — — — — — — —
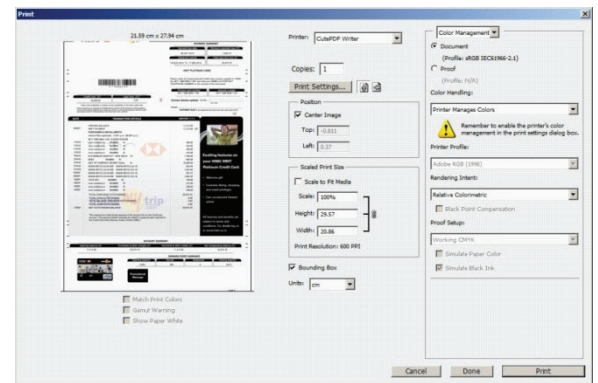
TASK 5: Set printer options

1 In the Print dialog box, click Print Settings.

2 Set paper size, source, and page orientation as desired.

The available options depends on the printer, printer drivers, and operating system.

— — — — — — — —

TASK 6: Reposition an image on the paper

1 Choose File > Print, and do one of the following;

- To center the image in the printable area, select Center Image.

- To position the image numerically, deselect Center Image, and then enter values for Top and Left.

- Deselect Center Image, and drag the image in the preview area.

— — — — — — — —

TASK 7: Scale the print size of an image

1 Choose File > Print, and do one of the following:

- To fit the image within the printable area of the selected paper, click Scale To Fit Media.

- To rescale the image numerically, deselect Scale To Fit Media, then enter values for Height and Width.

- To achieve the desired scale, select Bounding Box, and drag a bounding box handle in the preview area.

The Print dialog box may not reflect accurate values for Scale, Height, and Width if you set a scaling percentage in the Print Settings dialog box.

To avoid inaccurate scaling, specify scaling using the Print dialog box rather than the Print Settings dialog box; do not enter a scaling percentage in both dialog boxes.

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TASK 8: Printing vector data

1 If an image includes vector graphics, such as shapes and type, Photoshop can send the vector data to a PostScript printer.

2 When you choose to include vector data, Photoshop sends the printer a separate image for each type layer and each vector shape layer.

3 These additional images are printed on top of the base image, and clipped using their vector outline.

4 Consequently, the edges of vector graphics print at the printer's full resolution, even though the content of each layer is limited to the resolution of your image file.

Some blending modes and layer effects require rasterized vector data.

5 Choose File > Print.

6 Choose Output from the pop-up menu.

7 Select the Include Vector Data option click Print.

If you get a warning that your image is larger than the printable area of the paper, click Cancel, choose File > Print, and select the Scale To Fit Media box.

To make changes to your paper size and layout, click Print Settings, and attempt to print the file again.

TASK 9: **Print an image with the help of printer color management system**

If you don't have a custom profile for colour conversion for your printer and paper type, leave it to the printer driver.

1 Choose File > Print.

2 Choose Color Management from the pop-up menu as shown in Fig 1.

3 Select Document. The profile is displayed in parentheses on the same line.

4 For Color Handling, choose Printer Manages Colors.

5 Choose a rendering intent for converting colors to the destination color space (if desired).

6 Access the color management options for the printer driver from the Print Settings dialog box, which automatically appears after you click Print.

7 In Windows, click Print Settings to access the printer driver options. In Mac OS, use the pop-up menu from the Print Settings dialog box to access the printer driver options.

8 Specify the color management settings to let your printer driver handle the color management during printing Click Print.

Every printer driver has different color management options.

8 Get your work verified by your Instructor.

Fig 1
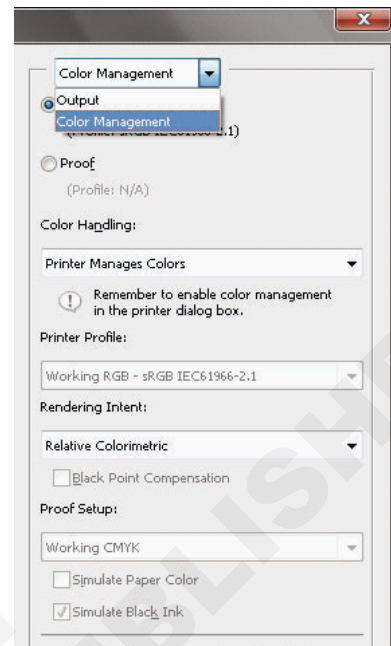
Practice on apply select/move/copy/objects retire skew and size objects

Objectives: At the end of this exercise you shall be able to
• **prepare the computer system**
• **apply, select and copy the object**
• **move the object**
• **retire skew and size the object.**

Requirements			
Tools/Instruments			
• Trainee's tool kit	- 1 No.	• Computer table	- 1 No.
Equipments/Machineries		**Materials**	
• Computer system with coral draw software	- 1 No.	• Paper	- as reqd.
• Printer	- 1 No.	• Baniyan cloth	- as reqd.
• UPS	- 1 No.	• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Prepare the computer system**

1 Clean the computer system and check the cable connections.

2 Switch on the computer and open the Microsoft windows.

3 Open the coral draw software.

4 Identify the coraldraw software standard tool bar.

5 Select the tool box and pick tools.

6 Use the shape tools, shape editing tool, fill tool and interactive tools, cropping and erasing tools, dimension tool, connector and test tool to practice this exercise.

7 For more information about workspace components, see "CorelDRAW workspace tour" in the Help.

Starting a document

1 When you start a new document (File New) you can set various document properties in the Create a new document dialog box.

2 You can name the document, set the page size, select a color mode, such as CMYK or RGB, and set color profiles.

3 The create a new document dialog box lets you specify a wide range of document properties (Fig 1).

Fig 1

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TASK 2 : **Basic Operation of COREL DRAW**

To open a drawing

1 Click File ⇦ Open.

2 Locate the folder where the drawing is stored.

3 Click a file name.

- To make sure that you are opening the drawing you want, enable the Preview check box to view a thumbnail of the drawing.

4 Click Options to display additional options and file information.

- If the drawing is from CorelDRAW version 11 or earlier and contains text in a language different from the language of your operating system.

- Choose the corresponding option from the Code page list box to ensure text is converted into Unicode characters properly.

5   Enable any of the following check boxes:

   • Extract embedded ICC profile - lets you save the embedded International Color Consortium (ICC) profile to the color folder in which the application is installed

   • Maintain layers and pages - lets you maintain layers and pages when you open files. If you disable the check box, all layers are combined in a single layer.

6   Click Open.

To browse for clipart, photos, and sound files

1   Click Window ⇦ Dockers ⇦ Scrapbook.

2   Insert a Corel content CD into the CD drive.

3   Double-click an icon in the CD list and navigate to a folder.

You can also

•   Browse for files on your computer or network

•   Double-click the Desktop icon, and navigate to a folder.

•   Browse for images online

•   Click the Content on the Web button.

To browse for images online, you must be connected to the Internet.

> **Note: To change your browsing view in the Scrapbook docker, click the flyout arrow, click View and choose a view type.**

To search for clipart, photos, and sound files

1   Click Window ` Dockers ` Scrapbook ` Search.

2   Insert a Corel contents CD into the CD drive.

3   Type a keyword in the Search for text box.

To insert a graphic or sound file

•   Drag the graphic or sound file from the Scrapbook docker to the drawing window.

To undo, redo and repeat actions

To	Do the following
Undo an action	Click Edit ⇦ Undo.
Redo an action	Click Edit ⇦ Redo.
Undo or redo a series of actions	Click Tools ⇦ Undo Docker. Choose the action that precedes all the actions you want to undo, or choose the last action you want to redo.
Revert to the last saved version of a drawing	Click File ⇦ Revert.
Repeat an action	Click Edit ⇦ Repeat.

Zooming and panning

-   You can use the Hand tool to pan around a large image and view particular areas.

To zoom

1   Open the Zoom flyout and click the Zoom tool (Fig 1).

Fig 1
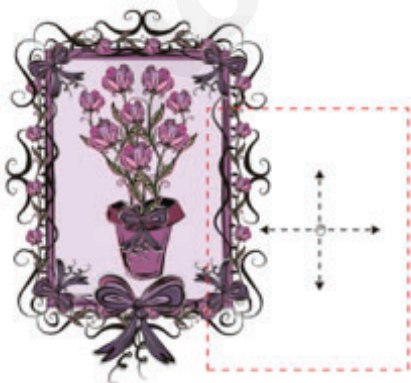
2   On the property bar, click one of the following buttons:

   •   Zoom in

   •   Zoom out

   •   Zoom to selected

   •   Zoom to all objects

   •   Zoom to page

   •   Zoom to page width

   •   Zoom to page height

To pan in the drawing window

1   Open the Zoom flyout and click the Hand tool.

2   Drag in the drawing window until the area you want to view appears.

Using the Navigator, you can display any part of a drawing without having to zoom out (Fig 2).

Fig 2

To save a drawing

1. Click File ⇦ Save as.

2. Type a filename in the File name list box.

3. Locate the folder where you want to save the file.

- If you want the drawing to be compatible with a previous version of CorelDRAW, choose a version from the Version list box.

- If you want to save the drawing to a vector file format

other than CorelDRAW (CDR), choose a file format from the File type list box.

4. Click Options, specify the settings you want, and click Save.

To close drawings

To	Do the following
Close one drawing	Click File ` Close.
Close all open drawings	Click Window ` Close all.

To quit Corel DRAW

- Click File ` Exit.

Note: Quit CorelDRAW by pressing Alt + F4. Save a drawing to other vector file formats as well. If you want to use a drawing in another application, you must save it to a file format that is supported by that application. For information about file formats supported by Corel DRAW, see "File formats" in the Help.

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TASK 3: **Drawing basic shapes and lines**

1. To draw a rectangle or square by dragging diagonally.

2. To create a rectangle by first drawing its baseline and then drawing its height. The resulting rectangle is angled (Fig 1).

Fig 1

3. Use the 3 point ellipse tool, you can draw an ellipse by first drawing its centerline and then drawing its height (Fig 2).

Fig 2
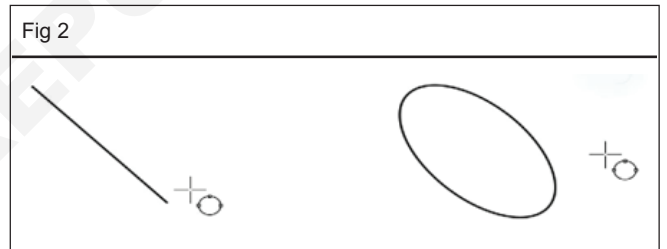
To	Do the following
Draw a rectangle	Open the Rectangle flyout and click the Rectangle tool. Drag in the drawing window until the rectangle is the size you want.
Draw a square	Open the Rectangle flyout and click the Rectangle tool. Hold down Ctrl, and drag in the drawing window until the square is the size you want.

To draw an ellipse or a circle by dragging diagonally

To	Do the following
Draw an ellipse	Open the Ellipse flyout, and click the Ellipse tool. Drag in the drawing window until the ellipse is the shape you want.
Draw a circle	Open the Ellipse flyout, and click the Ellipse tool. Hold down Ctrl, and drag in the drawing window until the circle is the size you want.

4 Left to right - a polygon, a perfect star, and a complex star, each with a fountain fill applied.

5 Modify polygons and stars. For example, you can change the number of sides on a polygon or the number of points on a star, and you can sharpen the points of a star.

Fig 3

Fig 4
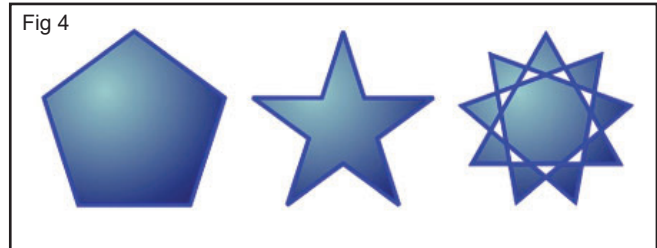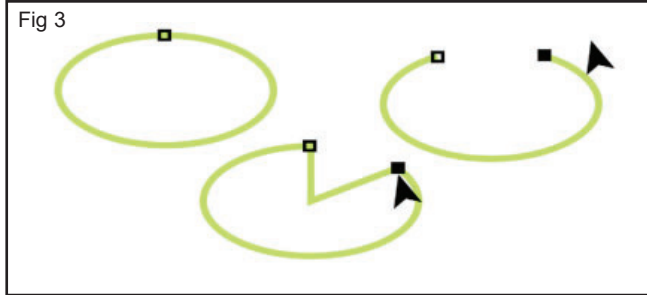
To draw an arc or a pie shape

To	Do the following
Draw an arc	Open the Ellipse flyout, and click the Ellipse tool. Click the Arc button on the property bar. Drag in the drawing window until the arc is the shape you want.
Draw a pie shape	Open the Ellipse flyout, and click the Ellipse tool. Click the Pie button on the property bar. Drag in the drawing window until the pie is the shape you want.

To draw a polygon

To	Do the following
Draw a perfect star	Open the Object flyout, click the Star tool, and drag in the drawing window until the star is the size you want.
Draw a complex star	Open the Object flyout, click the Complex star tool, and drag in the drawing window until the star is the size you want.

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TASK 4: **Selecting the objects**

1 A bounding box appears around a selected object, and an "X" appears at its center. (Fig 1)

Fig 1
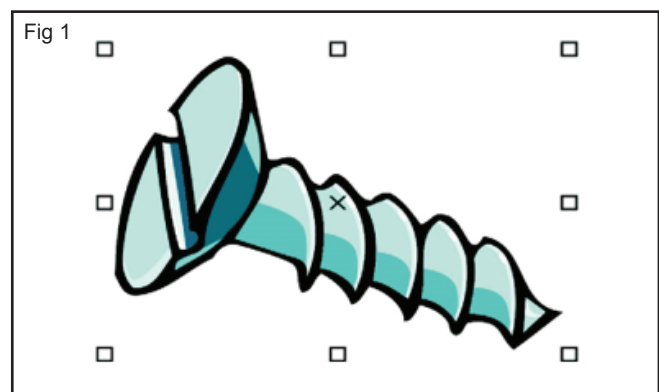
To select objects

To	Do the following
Select an object	Click an object using the Pick tool.
Select multiple objects	Hold down Shift, and click each object that you want to select.

Select an object, starting with the first object created and moving toward the last object created	Press Shift + Tab until a selection box appears around the object you want to select.
Select an object, starting with the last object created and moving toward the first object created	Press Tab until a selection box appears around the object you want to select.
Select all objects	Click Edit ⇦ Select all ⇦ Objects.
Select an object in a group	Hold down Ctrl, click the Pick tool, and then click an object in a group.
Select an object in a nested group	Hold down Ctrl, click the Pick tool, and then click an object you want to select until a selection box appears around it.

You can also select one or more objects by clicking the Pick tool dragging around the object or objects. This method is known as marquee selecting.

To deselect objects

To	Do the following
Deselect all objects	Click the Pick tool 🔧, and click a blank space in the drawing window.
Deselect a single object among multiple	Hold down Shift, click the Pick tool 🔧,selected objects and then click the object.

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TASK 5: **Copying, duplicating, and deleting objects**

To cut or copy an object

1 Select an object.

2 Click Edit, and click one of the following:

   • Cut

   • Copy

Note: Cut or copy an object by right-clicking the object and clicking Ctrl + x or Ctrl+ c. To paste an object into a drawing.

   • Click Edit ` Paste.

Note: Use this procedure to paste an object from another application.

3 If you want to paste an object from an unsupported file format or specify options for the pasted object, click Edit ⇦ Paste special or Ctrl + V.

To duplicate an object

1 Select an object.

2 Click Edit ⇦ Duplicate.

3 When you duplicate objects for the first time, the Duplicate offset dialog box appears.

4 To specify the distance between the duplicate and the original object along the x and y axes, type values in the Horizontal offset and Vertical offset boxes.

   • Offset values of 0 place the duplicate on top of the original.

   • Positive offset values place the duplicate up and to the right of the original.

   • Negative offset values place the duplicate down and to the left of the original.

5 Change the offset at which duplicates are created. To do this, click Tools ⇦ Options, click General in the Document list of categories, and type values in the Horizontal offset and Vertical offset boxes. You can also duplicate a selected object by pressing Ctrl + D (Fig 1).

Fig 1

duplicate offset
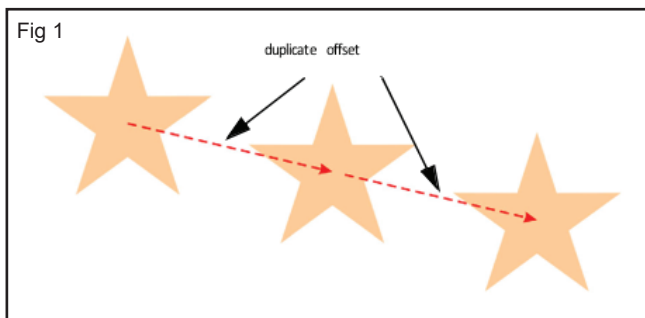
To create copies of an object at a specified position

1 Select an object.

2 Click Edit ` Step and Repeat.

3 In the Step and repeat docker, type a value in the Number of copies box.

To	Do the following
Distribute object copies horizontally	In the Vertical offset area, choose No offset from the Mode list box. box. In the Horizontal offset area, choose Spacing from the Mode list To specify the spacing between object copies, type a value in the Distance box. To place the object copies to the right or left of the original, choose Right or Left from the Direction list box.
Distribute object copies vertically	In the Horizontal offset area, choose No offset from the Mode list box. In the Vertical offset area, choose Spacing from the Mode list box. To specify the spacing between object copies, type a value in the Distance box. To place the object copies above or below the original, choose Up or Down from the Direction list box.
Offset all object copies by a specified distance	In the Horizontal offset and Vertical offset areas, choose Offset from the Mode list box, and type values in the Distance boxes.

4   Offsetting multiple copies of an object by a specified distance. (Fig 2)

Fig 2
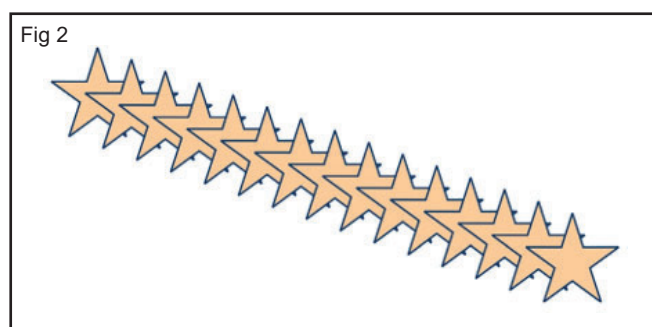
5   Access the Step and repeat docker by pressing Ctrl+Shift+D.

To delete an object

1   Select an object.

2   Click Edit ` Delete.

To retrieve a deleted object, you must use the Undo command. For more information, see "Undoing, redoing, and repeating actions" on page 38.

3   Delete an object by clicking it and pressing Delete.

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TASK 6: **Sizing and scaling objects**

1   Corel DRAW lets you size and scale objects. In both cases, you change the dimensions of an object proportionally by preserving its aspect ratio.

2   You can size an object's dimensions by specifying values or by changing the object directly.

3   Scaling changes an object's dimensions by a specified percentage.

4   You can change an object's anchor point from its center to any of its eight selection handles.

5   Set a precise size for the object by typing values in the Object size boxes on the property bar.

To size an object

To	Do the following
Size a selected object	Drag any of the corner selection handles.
Size a selected object from its center	Hold down Shift, and drag one of the selection handles.
Size a selected object to a multiple of its original size	Hold down Ctrl, and drag one of the selection handles.
Stretch a selected object as you size it	Hold down Alt, and drag one of the selection handles.

To scale an object

1   Select an object.

2   Click Window ⇦ Dockers ⇦ Transformations ⇦ Scale.

3   In the Transformations docker, type values in the following boxes:

•   H - lets you specify a percentage by which you want to scale the object horizontally

•   V - lets you specify a percentage by which you want to scale the object vertically

4   If you want to change the object's anchor point, enable the check box that corresponds to the anchor point you want to set.

5   If you want to maintain the aspect ratio, disable the Non-proportional check box.

6   Scale an object by dragging a selection handle.

To move an object

- Drag an object to a new position in the drawing.

- Move an object to another page by dragging the object over a page number tab and then dragging over the page (Fig 3).

Fig 3
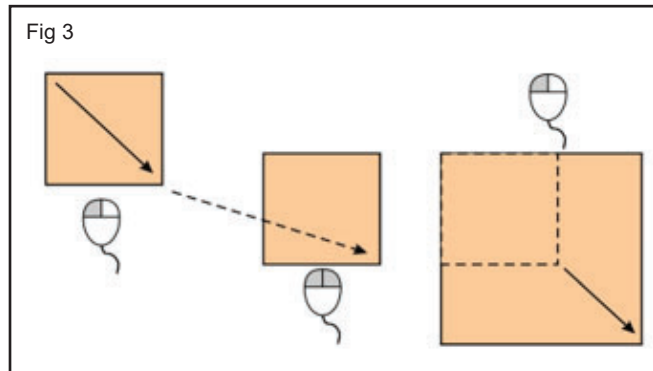
To move an object while drawing

- Start drawing a shape such as a rectangle, ellipse, or polygon.

- Hold down the right mouse button without releasing the left mouse button, and drag the unfinished object to its new position.

- Release the right mouse button, and continue drawing.

Rotating and mirroring objects

- Rotating objects around a single point (Fig 4).

Fig 4
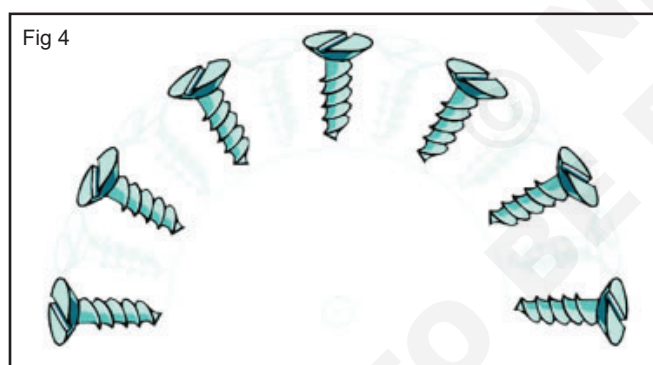
To rotate an object

- Select an object.

- Click Window ⇦ Dockers ⇦ Transformations ⇦ Rotate.

- Disable the Relative center check box in the Transformations docker. To rotate an object around a point relative to its current position, enable the Relative center check box.

- Type a value in the Angle box.

- Specify the point around which you want to Type values in the H and V boxes to specify rotate the object the horizontal and vertical positions, Click **Apply.**

- Rotate a selected object by dragging a rotation handle clockwise or counter clockwise.

To rotate an object around a ruler coordinate

1 Select an object.

2 Click Window ⇦ Dockers ⇦ Transformations ⇦ Rotate.

3 Disable the Relative center check box.

4 Type a value in the Angle box.

5 Type values in any of the following Center boxes:

• H - lets you specify the point on the horizontal ruler around which the object rotates

• V - lets you specify the point on the vertical ruler around which the object rotates

6 Type a value in the Angle of rotation box on the property bar.

7 Press Enter.

To mirror an object

1 Select an object.

2 Click Window ⇦ Dockers ⇦ Transformations ⇦ Scale.

3 In the Transformations docker, click one of the following:

• Horizontal mirror [icon] - lets you flip the object from left to right

• Vertical mirror [icon] - lets you flip the object from top to bottom

4 If you want to flip the object on a specific anchor point, enable the check box that corresponds to the anchor point you want to set. Click Apply.

5 Mirroring an object from top to bottom (Fig 5).

Fig 5
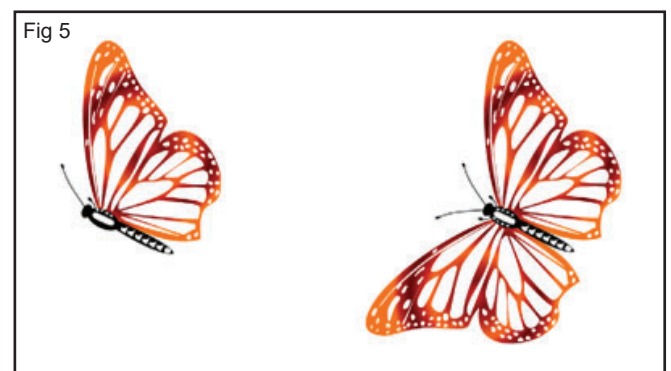
6 Mirror a selected object by holding down Ctrl and dragging a selection handle to the opposite side of the object.

7 You can open the Transformations docker by clicking Arrange ⇦ Transformations and selecting an option from the flyout.

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Practice on apply combine, shape, weld, trim, align group/ungroup the objects

Objectives: At the end of this exercise you shall be able to
• **aligning and distributing objects**
• **grouping and ungrouping the objects**
• **combine and weld, trim the objects**
• **creating power clip objects.**

Requirements			
Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Paper	- as reqd.
Equipments/Machineries		• Baniyan cloth	- as reqd.
		• Soap oil	- as reqd.
• Computer system	- 1 No.	• System cleaning liquid	- as reqd.
• Computer table	- 1 No.		
• UPS	- 1 No.		
• Printer	- 1 No.		

PROCEDURE

TASK 1: **Aligning and distributing objects**

1   Align and distribute objects in a drawing. You can align objects with each other and with parts of the drawing page, such as the center, edges, and grid.

2   When you align objects with objects, you can line them up by their centers or by their edges.

3   Align multiple objects with the center of the drawing page horizontally or vertically. Single or multiple objects can also be arranged along the edge of the page and to the nearest point on a grid.

4   Scattered objects (left) with vertical alignment applied to them (right) (Fig 1).

Fig 1

To align an object with an object

1   Select the objects.

-   The object used to align the left, right, top, or bottom edge is determined by either the order of creation or order of selection. If you marquee select the objects before you align them, the last object created is used.

-   If you select the objects one at a time, the last object selected is the reference point for aligning the other objects.

2   Click Arrange ⇦ Align and distribute ⇦ Align and distribute.

3   Click the Align tab.

4   Enable any of the following check boxes to specify horizontal and vertical alignment:

-   Left, Center, or Right - aligns objects vertically

-   Top, Center, or Bottom - aligns objects horizontally

5   From the Align objects to list box, choose Active objects.

If you are aligning text objects, choose one of the following from the For text source objects use list box:

-   First line baseline - uses the baseline of the first line of text as a reference point

-   Last line baseline - uses the baseline of the last line of text as a reference point

-   Bounding box - uses the bounding box of a text object as a reference point.

Note: Align objects with another object quickly, without using the Align and distribute dialog box, by clicking Arrange ⇦ Align and distribute and clicking any of the first six alignment commands.

The letter beside a command name indicates the keyboard shortcut you can use to align objects.

To align an object with the page center (Fig 2)

1 Select an object.

If you want to align multiple objects, marquee select the objects.

2 Click Arrange ⇦ Align and distribute, and then click one of the following:

• Center to page - aligns all objects with the page center

• Center to page vertically - aligns objects with the page center along a vertical axis

• Center to page horizontally - aligns objects with the page center along a horizontal axis

3 Align all objects with the page center by pressing P.

Top to distribute objects

1 Distributing objects horizontally.

• Left - evenly spaces the objects' left edges.

• Center - evenly spaces the objects' center points; Bottom

2 Distributing objects vertically.

• Top - evenly spaces the objects' top edges.

• Center - evenly spaces the objects' center points.

To distribute objects

1 Select the objects.

2 Click Arrange ⇦ Align and distribute ⇦ Align and distribute.

3 Click the Distribute tab.

4 To distribute the objects horizontally, enable one of the following options from the top-right row:

• Left - evenly spaces the objects' left edges

• Center - evenly spaces the objects' center points

• Spacing - places equal intervals between the selected objects

• Right - evenly spaces the objects' right edges

5 To distribute the objects vertically, enable one of the following options from the column on the left:

• Top - evenly spaces the objects' top edges

• Center - evenly spaces the objects' center points

• Spacing - places equal intervals between the selected objects

• Bottom - evenly spaces the objects' bottom edges

6 To indicate the area over which the objects are distributed, enable one of the following options:

• Extent of selection - distributes the objects over the area of the bounding box surrounding them

• Extent of page - distributes the objects over the drawing page

Fig 2

— — — — — — — —
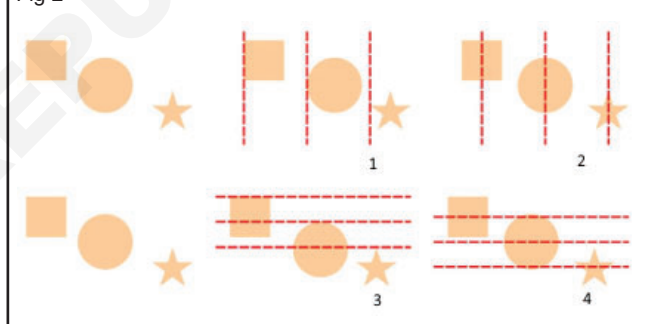
TASK 2: **Grouping and Ungrouping the objects**

Grouping objects

1 Group two or more objects, they are treated as a single unit.

2 Grouping lets you apply the same formatting, properties, and other changes to all the objects within the group at the same time.

3 Add objects to or remove objects from a group, and you can delete objects that are members of a group.

4 Edit a single object in a group without ungrouping the objects. If you want to edit multiple objects in a group at the same time, you must ungroup the objects first.

5 If a group contains nested groups, you can ungroup all objects in the nested groups simultaneously.

6 Single objects retain their attributes when they are grouped.

Fig 1
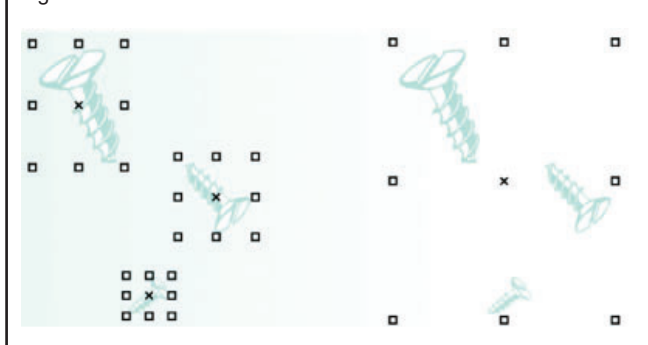
To group objects

1   Select the objects.

2   Click Arrange ⇦ Group.

🖎 The status bar indicates that a group of objects is selected.

3   Select objects from different layers and group them; however, once grouped, the objects reside on the same layer.

4   Create a nested group by selecting two or more groups of objects and clicking Arrange ⇦ Group.

5   You can also group objects by clicking Window ⇦ Dockers ⇦ Object manager and dragging an object's name in the Object manager docker over the name of another object.

To add an object to a group

1   Click Window ⇦ Dockers ⇦ Object manager.

2   In the Object manager docker, drag the name of the object to the name of the group.

To remove an object from a group

1   Click Window ⇦ Dockers ⇦ Object manager.

2   In the Object manager docker, double-click the name of the group.

3   Drag an object from the group to a position outside the group.

— — — — — — —

TASK 3: **Combine and weld, trim the objects**

Combining objects

1   Combining two or more objects creates a single object with common fill and outline attributes.

2   Combine rectangles, ellipses, polygons, stars, spirals, graphs, or text.

3   CorelDRAW converts these objects to a single curve object.

4   If you need to modify the attributes of an object that has been combined from separate objects, you can break apart the combined object.

5   You can extract a subpath from a combined object to create two separate objects. You can also weld two or more objects to create a single object.

6   The two objects (left) are combined to create a single object (right). The new object has the properties of the last object selected before combining (Fig 1).

To combine objects

1   Select the objects to be combined.

2   Click Arrange ⇦ Combine.

🖎 Combined text objects become larger blocks of text.

4   Remove an object from a group by clicking the object in the object list and dragging it out of the group.

5   To delete an object in a group, select the object in the object list, and click Edit ⇦ Delete.

To edit a single object in a group

1   Click the Pick tool 🔧 .

2   While holding down Ctrl, click an object in a group.

3   Edit the object.

4   Select a single object in a group by clicking the object's name in the Object manager docker. To access the Object manager docker, click Tools ⇦ Object manager.

To ungroup objects

1   Select one or more groups.

2   Click Arrange, and click one of the following commands:

  •   Ungroup - breaks a group into individual objects, or a nested group into multiple groups

  •   Ungroup all - breaks a group into individual objects, including objects within nested groups

3   Ungroup all nested groups within a group by clicking the Ungroup all button 🔧 .

3   Combine selected objects by clicking the Combine button 🔧 on the property bar.

4   You can close open lines in a combined object by clicking Arrange ⇦ Close path and clicking a command.

Fig 1

To break apart a combined object

1   Select a combined object.

2   Click Arrange ⇦ Break curve apart.

🖎 If you break apart a combined object that contains artistic text, the text breaks apart first into lines, and then into words. Paragraph text breaks into separate paragraphs.

To extract a subpath from a combined object

1 Click the Shape tool ⟋ and select a segment, node, or group of nodes on a combined object.

2 Click the Extract subpath button ⟆ on the property bar.

✎ After you extract the subpath, the path's fill and outline properties are removed from the combined object.

Welding and intersecting objects

1 Create irregular shapes by welding and intersecting objects. You can weld or intersect almost any object, including clones, objects on different layers, and single objects with intersecting lines. However, you cannot weld or intersect paragraph text, dimension lines, or masters of clones.

2 You can weld objects to create one object with a single outline.

3 The new object uses the welded objects' perimeter as its outline and adopts the fill and outline properties of the target object. All intersecting lines disappear.

4 You can weld objects regardless of whether they overlap each other. If you weld objects that do not overlap, they form a weld group that acts as a single object.

5 Welding the leaves to the apple creates a single object outline (Fig 2).

Fig 2
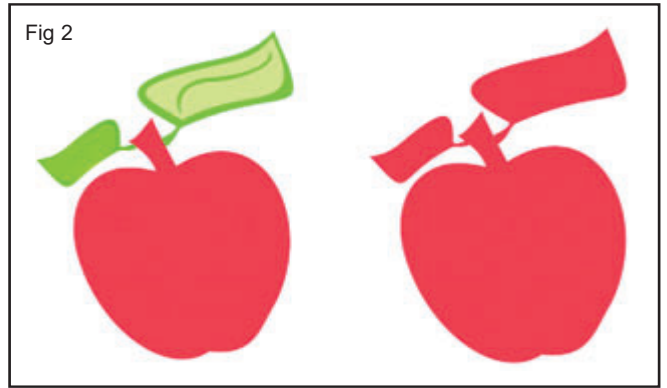
To weld an object

1 Select the source object or objects.

2 Hold down Shift, and click the target object.

3 Click Arrange ⇦ Shaping ⇦ Weld.

4 Weld objects by marquee-selecting the source and target objects and clicking the Weld button ⬓ on the property bar.

To intersect objects

1 Select the source object.

2 Hold down Shift, and select the target object.

3 Click Arrange ⇦ Shaping ⇦ Intersect.

4 Intersect objects by selecting the source and target objects and clicking the Intersect button ⬓ on the property bar.

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TASK 4: **Creating Power clip objects**

1 Create more complex Power Clip objects by placing one Power Clip object inside another Power Clip object to produce a nested Power Clip object. You can also copy the contents of one Power Clip object to another Power Clip object (Fig 1).

Fig 1

2 Create a Power Clip object you can modify the content and the container. For example, you can lock the content, so that when you move the container, the content moves with it.

3 Corel DRAW also lets you extract the content from a Power Clip object, so that you can delete the content or modify it without affecting the container.

4 Power Clip object, the artistic text is the container, and the bitmap forms the contents.

5 The bitmap is shaped to the letters of the artistic text (Fig 2).

Fig 2

To create a PowerClip object

1 Select an object (Fig 3).

2 Click Effects ⇦ PowerClip ⇦ Place inside container.

3 Click the object you want to use as the container.

4 If you want to create a nested Power Clip object, hold down the right mouse button, drag the Power Clip object inside a container, and click Power Clip inside.

To copy the contents of a PowerClip object

1 Select an object.

2 Click Effects ⇦ Copy effect ⇦ Power Clip from.

3   Click a PowerClip object.

To edit the contents of a PowerClip object

1   Select a PowerClip object.

2   Click Effects ⇐ PowerClip ⇐ Edit contents.

3   Edit the contents of the PowerClip object.

4   Click Effects ⇐ PowerClip ⇐ Finish editing this level.

While you edit, the container appears in Wireframe mode and cannot be selected.

To lock or unlock the contents of a PowerClip object

-   Right-click a PowerClip object, and click Lock contents to Power Clip.

-   Examples of Power Clip contents positioned by using the following commands: Center contents (top left).

-   Fit contents proportionally (top right), Fill frame proportionally (bottom left), and Stretch contents to fill frame (bottom right).

Fig 3
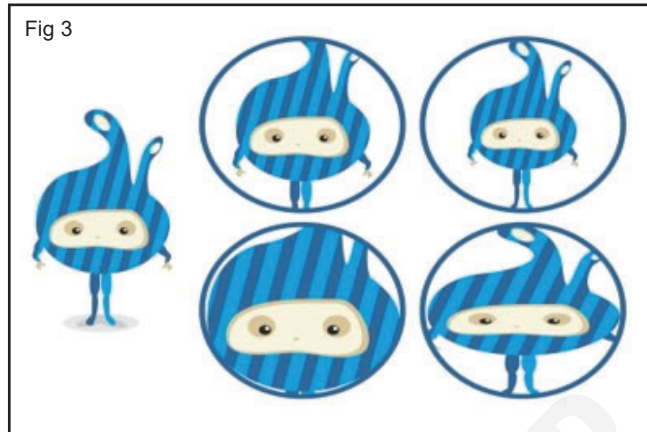
Arrangement in POWER CLIP

To	Do the following
Center the contents inside the PowerClip frame	Click Object ▸PowerClip ▸ Center contents.
Fit the contents proportionally inside the PowerClip frame	Click Object ▸PowerClip ▸Fit contents proportionally. The content is resized so that its longest dimension fits inside the frame. The content is not distorted, and its aspect ratio is preserved. The whole content is visible, but there may be empty areas in the frame.
Fill the PowerClip frame proportionally	Click Object ▸PowerClip ▸Fill frame proportionally. The content is resized so that it fills the frame without being distorted. The content's aspect ratio is preserved. The frame is full, but there may be parts of the content that fall outside the frame and are not visible.
Fill the PowerClip frame by stretching the contents	Click Object ▸PowerClip ▸Stretch contents to fill frame. The content is resized and distorted so that it fills the frame. The content's aspect ratio is not preserved. The frame is full, and all of the content is visible.

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Practice on add text and format text, create different heading and sub heading

Objectives: At the end of this exercise you shall be able to
• **creating nodes to draw curves**
• **adding and selecting text**
• **aligning and selecting text**
• **rotating and hypernating text**
• **fitting text to a path.**

Requirements		
Tools/Instruments		**Materials**
• Trainee's tool kit - 1 No.		• Paper - as reqd.
Equipments/Machineries		• Baniyan cloth - as reqd.
		• System cleaning liquid - as reqd.
• Computer system - 1 No.		• Soap oil - as reqd.
• Computer table - 1 No.		
• UPS - 1 No.		
• Printer - 1 No.		

PROCEDURE

TASK 1: Creating nodes to draw curves

1 Shape curve objects by manipulating their nodes and segments, and by adding and deleting nodes.

2 Move curved segments to change an object's shape. Control the smoothness of curved segments.

Smart drawing tool

1 Use shape recognition to draw straight and curved lines (Fig 1).

2 Draw a curved line by specifying its width (left) and then specifying its height and clicking the page (right).

Fig 1
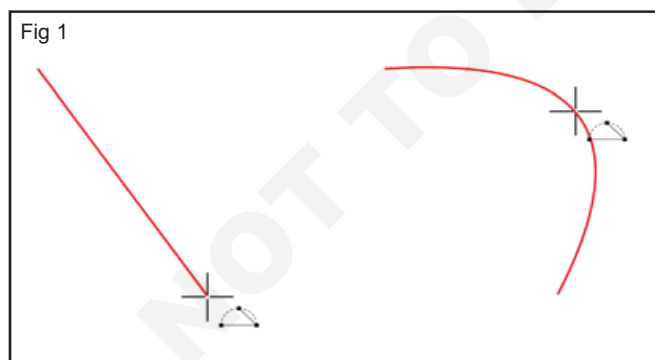
To convert objects to curve objects

1 Select the object.

2 Click Arrange ⇦ Convert to curves.

3 Convert artistic text to curves so that you can shape individual characters (Fig 2).

4 Convert an object to a curve object by selecting the object and clicking the Convert to curves button ⃝ on the property bar.

Fig 2
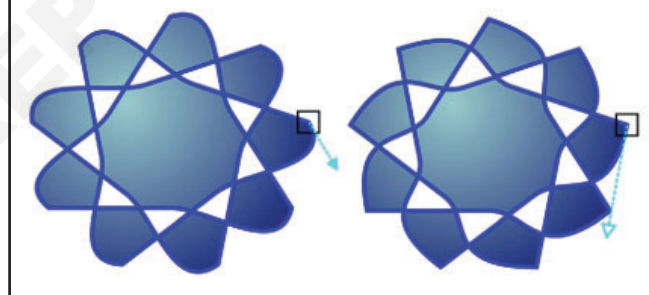
Selecting and moving nodes

1 Select individual, multiple, or all of the object's nodes. Selecting multiple nodes lets you shape different parts of an object simultaneously.

2 Marquee select nodes by enclosing them with a rectangular marquee box, or by enclosing them with an irregularly shaped marquee box.

3 Freehand marquee selection is useful when you want to select specific nodes in complex curves.

4 When a node is selected on curved segments, control handles are displayed.

5 Adjust the shape of the curved segments by moving the nodes and control handles.

6 A control handle is displayed as a solid blue arrowhead (left). When a control handle overlaps with a node, it is displayed as an unfilled blue arrowhead beside the node (right) (Fig 3).

Fig 3
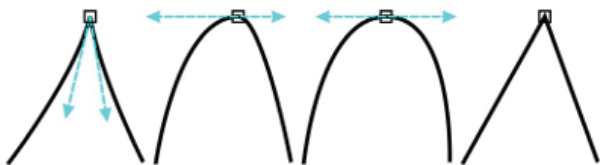
> **Note: A curve object is made up of components called paths. A path can be open (for example, a line) or closed (for example, an ellipse) and can consist of a single line, or a curve segment, or many joined segments. You can add color to the inside of closed paths.**
>
> **To apply a fill to an open path, such as a line, you first need to join its start and end nodes to create a closed object.**

Using node types

1 Change the nodes on a curve object to one of four types: cusp, smooth, symmetrical, or line.

2 Use the control handles of each node type behave differently.

3 Cusp nodes let you create sharp transitions, such as corners or sharp angles, in a curve object.

4 Move the control handles in a cusp node independently of one another, changing only the line on one side of the node.

5 With smooth nodes, the lines passing through the node take on the shape of a curve, producing smooth transitions between line segments.

6 Use the control handles of a smooth node are always directly opposite one another, but they may be at different distances from the node.

7 Left to right: Cusp, smooth, symmetrical, and line nodes

To select a node

1 Open the Shape edit flyout [icons] , and click the Shape tool [icon] .

2 Select a curve object.

3 Click a node.

To move a node or control handle

1 Select an object by using the Shape tool .

2 Click a node.

3 Drag the node or any of the control handles to shape the segments on both sides.

4 Change a control's handle angle and distance from the node to shape a segment.

To add or delete a node

To	Do the following
Add a node	Open the Shape edit flyout [icons] , click the Shape tool [icon] , select a curve object, and double-click where you want to add a node.
Delete a node	Open the Shape edit flyout, click the Shape tool, select a curve object, and double-click a node.

To reduce the number of nodes in a curve object

1 Open the Shape edit flyout [icons] , and click the Shape tool [icon] .

2 Click a curve object, and do one of the following:

• To reduce the number of nodes in the entire object, click the Select all nodes button   on the property bar.

• To reduce the number of nodes in a part of a curve object, marquee select the part you want to change.

3 Do one of the following:

• Click Reduce nodes on the property bar to have overlapping and redundant nodes automatically removed.

• Move the Curve smoothness slider to control the number of nodes that are removed. Removing many nodes can reshape the curve object.

To join the end nodes of a single subpath

1 Open the Shape edit flyout [icons] , and click the Shape tool [icon] .

2 Click a subpath.

3 Click the Auto-close curve button [icon] on the property bar.

4 Close multiple subpaths by clicking Arrange ` Close path.

To join the nodes of multiple subpaths

1 Open the Shape edit flyout [icons] , and click the Shape tool [icon] .

2 Press Shift, and click a node from each subpath.

3 Click the Extend curve to close button [icon] on the property bar.

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TASK 2: **Adding and selecting text (Fig 1)**

1   Insert a paragraph text frame inside a graphic object.

2   Use objects as containers for text.

3   Use different shapes for text frames. You can also separate text from an object.

4   When you do, the text retains its shape, and you can move or modify the text and the object independently.

To add artistic text

-   Click anywhere in the drawing window using the Text tool and type.

-   Artistic text appears in a bounding box in the document window.

Note: When adding paragraph text, you must first create a text frame. By default, paragraph text frames remain the same size regardless of how much text they contain.

Any text that continues past the bottom-right border of the text frame is hidden until you either enlarge the text frame or link it to another text frame.

Fig 1

To add paragraph text

To	Do the following
Add paragraph text	Click the Text tool. Drag in the drawing window to size the paragraph text frame, and type.
Add paragraph text inside an object	Click the Text tool. Move the pointer over the object's outline, and click the object when the pointer changes to an Insert in object pointer. Type inside the frame.
Separate a paragraph text frame from an object	Select the object using the Pick tool, and click Arrange ` Break paragraph text inside a path apart.
Have paragraph text frames automatically adjust to fit text	Click Tools ⇦ Options. In the list of categories, double-click Text, and click Paragraph. Enable the Expand and shrink paragraph text frames to fit text check box.

Enabling the Expand and shrink paragraph text frames to fit text check box on the Paragraph page of the Options dialog box affects only new text frames. Existing paragraph text frames remain fixed in size (Fig 2).

Fig 2
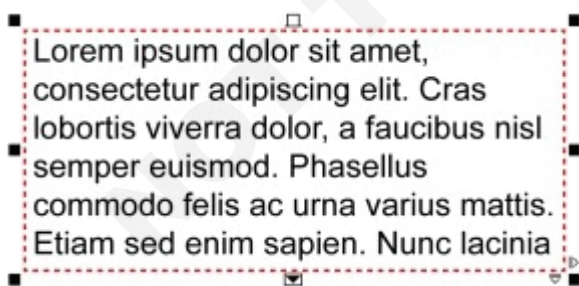
-   Adjust the size of a paragraph text frame by clicking the text frame using the Pick tool, and dragging any selection handle (Fig 3).

To set options for importing and pasting text

-   Use the point size of the text in the frame (left) was automatically adjusted so that it fits neatly inside the frame (right).

Fig 3

-   Import or paste the text.

-   In the Importing/pasting text dialog box, enable one of the following options:

    •   Maintain fonts and formatting

    •   Maintain formatting only

    •   Discard fonts and formatting

If you want to apply CMYK black to the imported black text, enable the Force CMYK black check box. This check box is available when you choose an option that maintains text formatting.

To select text

To	Do the following
Select an entire text object	Click the text object while using the Pick tool ⊾.
Select specific characters	Drag across the text while using the Text tool 🅰.

- Select multiple text objects by holding down Shift and clicking each text object while using the Pick tool.

To change the default text style

1 Click a blank space in the drawing window using the Pick tool ⊾ .

2 In the Character formatting docker, specify the properties you want.

3 If the Character formatting docker isn't open, click Text ⇦ Character formatting.

> **Note: Following each property change you make, by default you must specify whether the changes are applied to artistic text, paragraph text, or both.**

To change character properties

1 Select the text.

2 In the Character formatting docker, specify the character attributes you want.

If the Character formatting docker isn't open, click Text ⇦ Character formatting.

You can also make selected text bold, italic, or underlined by clicking the Bold button 🅑 , Italic button 🅘 , or Underline button 🅤 on the property bar.

To change the color of text

1 Select the text using the Text tool 🅰 .

2 Click a color on the color palette.

To resize text

To	Do the following
Increase the size of text	Select the text using the Text tool 🅰, hold down Ctrl, and press 8 on the number pad.
Decrease the size of text	Select the text using the Text tool, hold down Ctrl, and press 2 on the number pad.
Specify the amount by which to resize text	Click Tools ⇦ Options. In the list of categories, click Text, and type a value in the Keyboard text increment box.
Change the default unit of measure	Click Tools ⇦ Options. In the Workspace list of categories, click Text, and choose a unit from the Default text units list box.

- Change the case of text to lowercase or uppercase without deleting or replacing letters. You can increase or decrease font size by a specified increment amount. By default, the unit of measure is points.

- Change this setting for the active drawing and all subsequent drawings you create. When you change the unit of measure, all font settings are displayed in the new unit of measure.

To find text

1 Click Edit ⇦ Find and replace ⇦ Find text.

2 Type the text you want to find in the Find box.

3 If you want to find the exact case of the text you specified, enable the Match case check box.

4 Click Find next.

5 Find special characters by clicking the arrow to the right of the Find box, choosing a special character, and clicking Find next.

To find and replace text

1 Click Edit ⇦ Find and replace ⇦ Replace text.

2 Type the text you want to find in the Find box.

3 If you want to find the exact case of the text you specified, enable the Match case check box.

4 Type the replacement text in the Replace with box.

5 Click one of the following buttons:

- Find next - finds the next occurrence of the text specified in the Find what box

- Replace - replaces the selected occurrence of the text specified in the Find what box. If no occurrence is selected, Replace finds the next occurrence.

6 Replace all - replaces every occurrence of the text specified in the Find what box.

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TASK 3: **Aligning and spacing text**

1 Align both paragraph and artistic text horizontally.

2 Aligning paragraph text lines up text relative to the paragraph text frame.

3 Horizontally align all paragraphs or only selected paragraphs in a paragraph text frame.

4 Vertically align all paragraphs in a paragraph text frame.

5 Align text to another object.

6 Align a text object to other objects by using the first line baseline, the last line baseline, or the edge of the text bounding box (Fig 1).

Fig 1
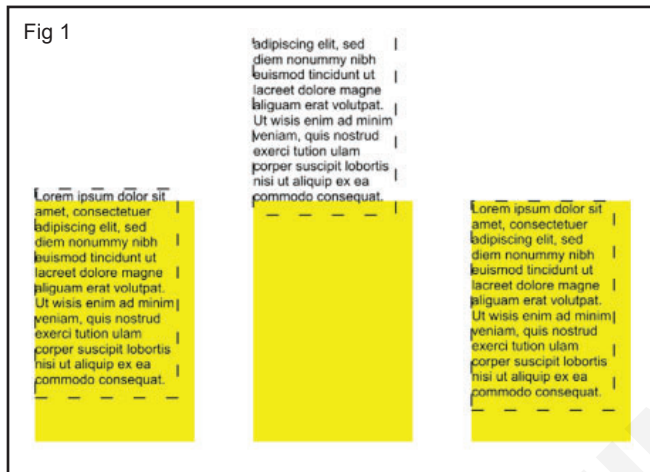
To align text horizontally

1 Select the text object using the Pick tool.

2 In the Alignment area of the Paragraph formatting docker, choose an alignment option from the Horizontal list box.

3 If the Paragraph formatting docker isn't open, click Text ⇦ Paragraph formatting.

4 Align text horizontally by clicking the Horizontal alignment button on the property bar and choosing an alignment style from the list box.

5 The property bar displays the alignment icon corresponding with the current alignment style.

To align paragraph text vertically

1 Using the Pick tool, click a text frame.

   If the Object properties docker is not open, click Window ▸Dockers ▸ Object properties.

2 In the Object properties docker, click the Frame button to display the frame-related options.

3 In the Frame area of the Object properties docker, choose an alignment option from the Vertical alignment list box.

To align text with an object

1 Using the Pick tool, hold down Shift, click the text object, and then click the object.

2 Click Object ▸Align and distribute ▸Align and distribute.

3 In the Text area, click one of the following buttons:

   • First line baseline - uses the baseline of the first line of text to align the objects

   • Last line baseline - uses the baseline of the last line of text to align the objects

   • Bounding box - aligns text with its bounding box

4 In the Align objects to area, click the Active objects button.

5 In the Align area, click one of the following buttons to use an object edge or center for aligning.

   • Align left - to align the left edges of objects

   • Align center horizontally - to align object centers along a vertical axis

   • Align right - to align the right edges of objects

   • Align top - to align the top edges of objects

   • Align center vertically - to align object centers along a horizontal axis

   • Align bottom - to align the bottom edges of objects

6 Artistic text is aligned within the bounding box, which is indicated by eight selection handles (black squares). The text at the top is left-aligned, the text at the bottom is right-aligned (Fig 2).

Fig 2
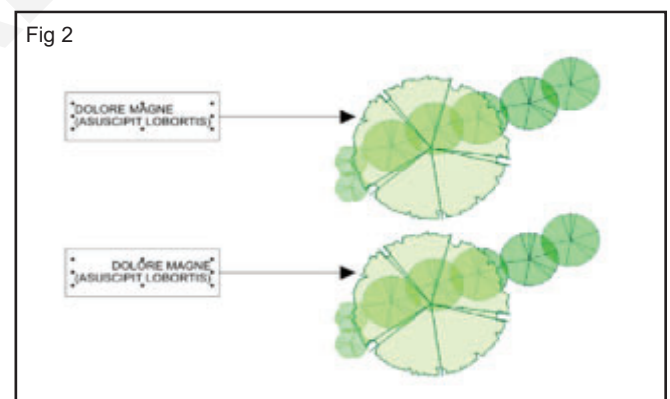
7 Adjust line spacing of a text object by using the Shape tool.

8 Adjusting line spacing proportionally by using the Shape tool (Fig 3).

Fig 3
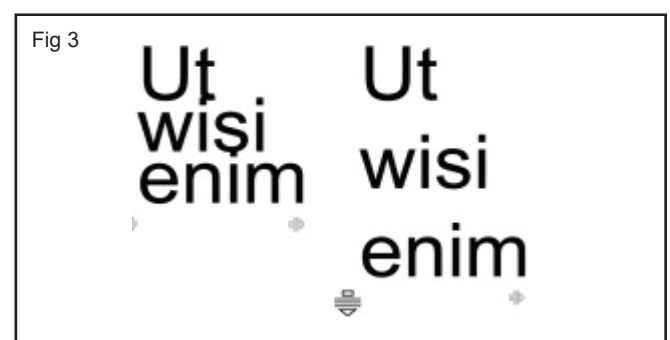
To adjust character Spacing

1 Do anyone of the following:

- Using the Text tool [A], position the cursor in a block of text.

- Using the Pick tool [⇖], click an artistic text object or a text frame.

  If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2 In the Object properties docker, click the Paragraph button [≣] to display the paragraph-related options.

3 In the Paragraph area of the Object properties docker, type a value in the Character spacing box.

4 🖐 Values for adjusting spacing represent a percentage of the space character. The Character values range from -100 to 2000 percent. All other values range from 0 to 2000 percent.

5 Change the character spacing proportionally by clicking the Shape tool [⇖].

6 Selecting the text object, and dragging the Interactive horizontal spacing arrow ▯⃒▷ in the lower-right corner of the text object.

7 Increased character spacing (left) makes it difficult to read the text. Decreased character spacing (right) improves readability.

Fig 4

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus scelerisque enim et est ullamcorper a fringilla lectus dictum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus scelerisque enim et est ullamcorper a fringilla lectus dictum.

To adjust word spacing (Fig 4)

1 Do one of the following:

- Using the Text tool [A], position the cursor in a block of text.

- Using the Pick tool [⇖], click an artistic text object or a text frame.

- If the Object properties docker is not open, click Window ▸ Dockers ▸ Object properties.

2 In the Object properties docker, click the Paragraph button [≣] to display the paragraph-related options.

3 In the Paragraph area of the Object properties docker, type a value in the Word spacing box.

4 Change the word spacing proportionally by clicking the Shape tool [⇖].

5 Holding down Shift, selecting the text object, and dragging the Interactive horizontal spacing arrow ▯⃒▷ in the lower-right corner of the text object.

To adjust interline spacing

1 Using the Text tool [A], select the paragraph text.

  If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2 In the Object properties docker, click the Paragraph button [≣] to display the paragraph-related options.

3 In the Paragraph area of the Object properties docker, choose one of the following units of measurement from the Vertical spacing units list box:

- % of Char height - lets you use a percentage value that is relative to the character height

- Points - lets you use points

- % of Pt.size - lets you use a percentage value that is relative to the character point size 4 Type a value in the Line spacing box.

4 Change the spacing between lines proportionally by clicking the Shape tool [⇖], selecting the text object, and dragging the Interactive vertical spacing arrow ≣ in the lower-left corner of the text object.

5 Do spacing in between the lines in the bulleted list (left) was increased by adjusting the before and after paragraph spacing (right) (Fig 5).

Fig 5

★ Lorem ipsum dolor sit amet
★ Quisque quis metus velit, quis suscipit erat
★ Integer non ipsum euismod massa viverra sollicitudin

★ Lorem ipsum dolor sit amet
★ Quisque quis metus velit, quis suscipit erat
★ Integer non ipsum euismod massa viverra sollicitudin

To adjust the spacing between paragraphs

1 Using the Text tool [A], select the paragraph text.

  If the Object properties docker is not open, click Window ▸Dockers ▸ Object properties.

2 In the Object properties docker, click the Paragraph button [≣] to display the paragraph-related options.

3 In the Paragraph area of the Object properties docker, choose a unit of measurement for line spacing from the Vertical spacing units list box.

4 Type a value in one of the following boxes:

- Before paragraph spacing - lets you specify the amount of space to insert above the paragraph text

- After paragraph spacing - lets you specify the amount of space to insert below the paragraph text

Adding bullets to text

1 Use bulleted lists to format information.

2 Wrap text around bullets, or offset a bullet from text to create a hanging indent.

3 Customize bullets by changing their size, position, and distance from text.

4 Change the spacing between items in a bulleted list.

5 Three paragraphs (left) were converted into a bulleted list (right) (Fig 6).

Fig 6

Lorem ipsum dolor Aenean tristique massa Proin tincidunt lacinia purus	• Lorem ipsum dolor • Aenean tristique massa • Proin tincidunt lacinia purus

— — — — — — — —
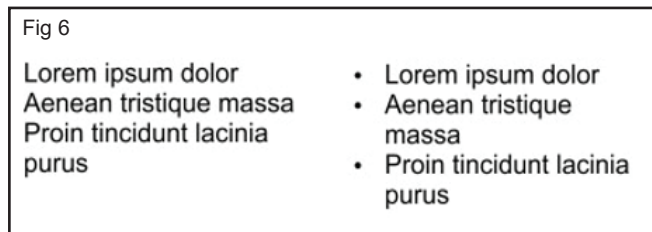
TASK 4: **Rotating and Hypernating text**

1 Shifting artistic and paragraph text vertically and horizontally can create an interesting effect.

2 Rotate characters straightening text pulls the text into its original position.

3 Return vertically shifted characters to the baseline without affecting their rotation angle.

4 Mirror artistic and paragraph text (Fig 1).

Fig 1

To shift or rotate a character

1 Select the character or characters using the Text tool.

2 In the Character shift area of the Character formatting docker, type a value in one of the following boxes:

   • Angle - A positive number rotates characters counterclockwise, and a negative number rotates characters clockwise.

   • Horizontal shift - A positive number moves characters to the right, and a negative number moves characters to the left.

   • Vertical shift - A positive number moves characters up, and a negative number moves characters down.

6 Remove a bullet without deleting the text.

To add bullets

1 Using the Text tool, select the paragraph text.

   If the Object properties docker is not open, click Window ▶ Dockers ▶ Object properties.

2 In the Object properties docker, click the Paragraph button to display the paragraph-related options.

3 In the Paragraph area of the Object properties docker, click the arrow button located at the bottom of Paragraph area to display additional options.

4 Enable the Bullets check box.

3 If the Character formatting docker isn't open, click Text ⇦ Character formatting.

4 Shift or rotate characters whose nodes you select using the Shape tool by typing values in the Horizontal shift box, Vertical shift box, or Angle of rotation box on the property bar.

To straighten a shifted or rotated character

1 Select the text.

2 Click Text ⇦ Straighten text.

3 Different examples of rotating text (Fig 2).

Fig 2
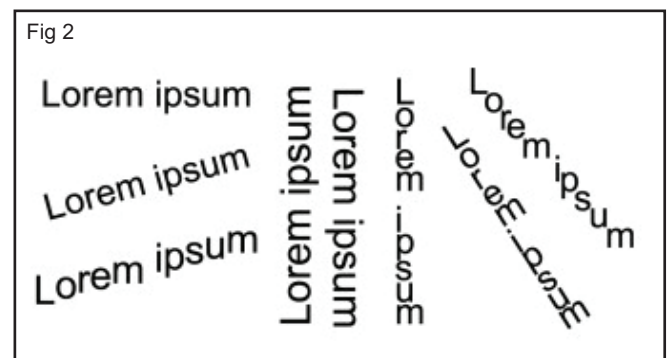
To return a vertically shifted character to the baseline

1 Open the Shape edit flyout, and click the Shape tool.

2 Select the text object, and select the node to the left of the character.

3 Click Text ⇦ Align to baseline.

To mirror text

1 Using the Text tool, select the artistic text or the paragraph text frame.

2 On the property bar, click one of the following buttons:

- Mirror horizontally - flips the text characters from left to right

- Mirror vertically - flips the text characters upside down

Hyphenating text

To hyphenate paragraph text automatically

1 Select the paragraph text frame or a paragraph.

2 Click Text ⇐ Use hyphenation.

✎ Hyphenation can be used for any of the writing tool languages you have installed.

To insert an optional hyphen

1 Using the Text tool 🅰 , click in a word where you want to place an optional hyphen.

2 Click Text ⇐ Insert formatting code ⇐ Optional hyphen.

3 Insert an optional hyphen by pressing Ctrl + -.

To create a custom definition for optional hyphenation

1 Click Text ⇐ Insert formatting codes ⇐ Custom optional hyphens.

2 Type the word for which you want to create the hyphenation definition in the Word box.

As you type in the Word box, the same text is entered in the Hyphenated word box.

3 In the Hyphenated word box, click where you want the optional hyphen inserted, and press the hyphen key (-).

4 Click Add definition.

> **Hyphenation breaks words between lines when the whole word does not fit on one line. You can have CorelDRAW hyphenate automatically. When you use automatic hyphenation.**
>
> **CorelDRAW uses a preset hyphenation definition, in combination with your hyphenation settings. Optional hyphens let you specify where a word will break when it is at the end of a line.**

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TASK 5: Fitting text to a Path

1 Add artistic text along the path of an open object (for example, a line) or a closed object (for example, a square).

2 Fit existing text to a path. Paragraph text in a text frame can be fitted to open paths only.

3 Adjust the text position relative to that path. For example, you can mirror the text horizontally, vertically, or both.

4 Use tick spacing, you can specify an exact distance between the text and the path.

5 Separate the text from the object if you no longer want it to be part of the path.

6 When you separate text from a curved or closed path, the text retains the shape of the object to which it was fitted.

7 Modify the text and path properties independently.

8 Use the text reverts to its original appearance when you straighten it.

To add text along a path

1 Using the Pick tool 🔲 , select a path.

2 Click Text ▸Fit text to path.

> **The text cursor is inserted on the path. If the path is open, the text cursor is inserted at the beginning of the path. If the path is closed, the text cursor is inserted at the center of the path.**

3 Type along the path.

✎ Text cannot be added to the path of another text object.

4 Fit text to a path by clicking the Text tool 🅰 and pointing to a path. When the pointer changes to the Fit text to path pointer ➡🅰 , click where you want the text to begin, and type.

5 Text and curve as separate objects (upper left), choosing a path with the Fit Text to Path pointer (upper middle), aligning text while fitting it to path (upper right), text fitted to path (lower left), interactive feedback about offset distance (lower middle), and text and curve stretched horizontally by 200% (lower right) (Fig 1).

Fig 1
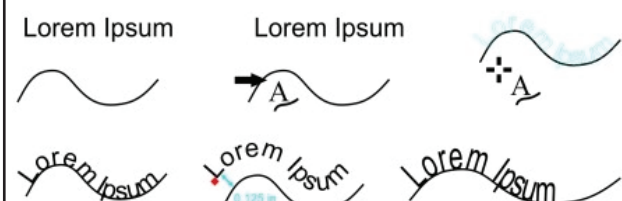
To fit text to a path

1 Using the Pick tool 🔲 , select a text object.

2 Click Text ▸Fit text to path.

3 The pointer changes to the Fit text to path pointer ➜₄.
By moving the pointer over the path, you can preview
where the text will be fitted.

4 Click a path.

5 If the text is fitted to a closed path, the text is centered
along the path. If the text is fitted to an open path, the
text flows from the point of insertion.

🐾 Artistic text can be fitted to open or closed paths.
Paragraph text can be fitted to open paths only.

6 Text cannot be fitted to the path of another text object.

To adjust the position of text that is fitted to a path

1 Using the Pick tool, select the text that is fitted to a
path.

2 Choose a setting from any of the following list boxes
on the property bar:

• Text orientation - specifies how the text bends to
follow the path

• Distance from path - distance between the text and
the path

• Offset - horizontal position of the text along the
path

To mirror text that is fitted to a path

1 Using the Pick tool 🔲 , click the text that is fitted to a
path.

2 On the property bar, click one of the following buttons:

• Mirror text horizontally 🔲 - flips the text
characters from left to right

• Mirror text vertically 🔲 - flips the text
characters upside down

🔎 You can apply a 180-degree rotation to text that is
fitted to a path by clicking both the Mirror text horizontally
and the Mirror text vertically buttons.

To separate text from a path

1 Using the Pick tool 🔲 , select the path and the fitted
text.

2 Click Object ▸Break text apart.

To straighten text

1 Using the Pick tool 🔲 , select the path and the fitted
text.

2 Click Object ▸Break text apart.

3 Using the Pick tool, select the text.

4 Click Text ▸Straighten text.

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Practice on draw dimensionally object and creating special effects for back grounds of an object

Objectives: At the end of this exercise you shall be able to
• **converting graphics into bitmaps**
• **learning and apply various special effects in bitmaps**
• **tracing and colouring of bitmaps**
• **draw the dimensional object on the system**
• **create the special effects for background of the objects.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.

Equipments/Machineries

• Computer system	- 1 No.
• Computer table	- 1 No.
• UPS	- 1 No.
• Printer	- 1 No.

Materials

• Paper	- as reqd.
• Baniyan cloth	- as reqd.
• Cleaning liquid	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Converting graphics into bitmaps**

To convert a vector graphic to a bitmap

1 Select an object.

2 Click Bitmaps ⇦ Convert to bitmap.

3 Choose a resolution from the Resolution list box.

4 Choose a color mode from the Color mode list box.

5 Enable any of the following check boxes:

• Dithered - simulates a greater number of colors than those available. This option is available for images that use 256 or fewer colors.

• Always overprint black - avoids gaps between black objects and underlying objects when printing by overprinting black whenever it is the top color

• Apply ICC profile - applies the International Color Consortium profiles to standardize colors across devices and color spaces

• Anti-aliasing - smooths the edges of the bitmap

• Transparent background - makes the background of the bitmap transparent

You can change the black threshold for the Always overprint black option.

Adding bitmaps

1 Import a bitmap into a drawing either directly or by linking it to an external file. When you link to an external file, edits to the original file are automatically updated in the imported file.

To import a bitmap

1 Click File ⇦ Import.

2 Choose the folder where the bitmap is stored.

3 Select the file.

If you want to link the image to the drawing, enable the Link bitmap externally check box.

4 Click Import.

5 Click where you want to place the bitmap.

- If you want to center the image on the drawing page, press Enter.

- Ensure that All file formats is chosen from the Files of type list box when you import an image.

- Import a bitmap in its original size by pressing Spacebar when you click the Import button.

- Linking to a bitmap results in a smaller file size than importing the bitmap directly.

Cropping and editing bitmaps

1 Add a bitmap to a drawing, you can crop, resample, and resize the bitmap. Cropping removes unwanted areas of a bitmap.

2 To crop a bitmap into a rectangular shape, you can use the Crop tool.

3 Use the Shape tool and the Crop bitmap command.

4   Do resampling, either increase the resolution of an image by adding pixels (upsampling) or decrease the resolution by subtracting pixels (Fig 1).

Fig 1

To crop a bitmap

1   Open the Shape edit flyout ![icon], and click the Shape tool ![icon] .

2   Select a bitmap.

3   Drag the bitmap's corner nodes to the shape you want.

4   If you want to add a node, double-click the node boundary by using the Shape tool where you want the node to appear.

5   Click Bitmaps ⇦ Crop bitmap.

6   Quickly crop a bitmap into a rectangular shape by using the Crop tool

7   Crop a selected bitmap after you drag the bitmap's corner nodes by clicking the Crop bitmap button on the property bar.

To resample a bitmap

1   Select a bitmap.

2   Click Bitmaps ⇦ Resample.

3   In the Resolution area, type values in any of the following boxes:

   •   Horizontal

   •   Vertical

4   If you want to maintain the proportions of the bitmap, enable the Maintain aspect ratio check box.

5   If you want to maintain the file size, enable the Maintain original size check box.

6   Resample a selected bitmap by clicking the Resample button ![icon] on the property bar.

7   Enable the Anti-alias check box to minimize the jagged appearance of curves.

To resize a bitmap

1   Select a bitmap.

2   Click Bitmaps ` Resample.

3   Choose a unit of measure from the list box beside the Width and Height boxes.

4   Type values in any of the following boxes:

   •   Width

   •   Height

5   If you want to minimize the jagged appearance of curves, enable the Anti-alias check box.

6   Maintain the proportions of the bitmap by enabling the Maintain aspect ratio check box and typing a value in either the Width or Height box.

7   Resample the bitmap as a percentage of its original size by typing values in the % boxes.

8   Applying special effects to bitmaps

9   Apply a wide range of special effects to bitmaps, such as three-dimensional (3D) and artistic effects.

To apply a special effect

1   Select a bitmap.

2   Click Bitmaps, choose a special effect type, and click an effect.

3   Adjust any special effect settings.

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TASK 2 : **Learning Various special effects in bitmaps**

Some of the special effects used in CorelDraw

Special effect category	Description
3D Effects	Lets you create the illusion of depth. Effects include Emboss, Page Curl and Perspective.
Art Strokes	Lets you apply hand-painted techniques. Effects include Crayon, Impressionist, Pastels, Watercolor, and Pen & Ink.
Blur	Lets you blur an image to simulate movement, speckling, or gradual change. Effects include Gaussian Blur, Motion Blur, Smart Blur, and Zoom.
Camera	Lets you simulate effects produced by various camera lenses. Effects include Colorize, Photo Filter, Sepia Toning, and Time Machine, which lets you walk your image back through history to recreate some popular photographic styles from the past.

Special effect category	Description
Color Transform	Lets you create photographic illusions by using color reduction and replacements. Effects include Halftone, Psychedelic, and Solarize.
Contour	Lets you highlight and enhance the edges of an image. Effects include Edge Detect and Trace Contour.
Creative	Lets you apply various textures and shapes to an image. Effects include Fabric, Glass Block, Crystalize, Vortex, and Stained Glass.
Custom	Lets you apply a wide range of effects to your image. For example, you can transform your image into an artistic media painting by applying brushstrokes (Alchemy effect) or add texture and patterns to an image (Bump-map effect).
Distort	Lets you distort image surfaces. Effects include Ripple, Blocks, Swirl and Tile.
Noise	Lets you modify the graininess of an image. Effects include Add Noise,Remove Moiré, and Remove Noise.
Sharpen	Lets you add a sharpening effect to focus and enhance edges. Effects include Adaptive Unsharp, High Pass, and Unsharp Mask.
Texture	Lets you add texture to an image by simulating a variety of surfaces, such as cobblestone, elephant skin, plastic, and relief sculpture.
Plug-ins	Lets you use a third-party filter to apply effects to bitmaps in CorelDRAW. An installed plug-in appears at the bottom of the Bitmaps menu.

1 Left to right: Add noise effect, Zoom blur effect, Solarize color transform effect, Edge detect contour effect, Sharpen effect (Fig 1).

2 Left to right: Original image, Emboss effect, Cubist artistic effect, Mosaic creative effect, Distort pixelate effect and Smart blur (Fig 2).

Fig 1

Fig 2

3   The Smart blur effect smooths the surfaces while keeping the edges sharp (Fig 3).

4   Camera effects (Fig 4)

5   Custom effects (Fig 5)

6   Original (top), Alchemy effect (middle), and Bump-map effect (bottom)

Fig 3

Fig 4

| Original | Colorize | Photo filter |
| Sepia toning | Time machine | Time machine |
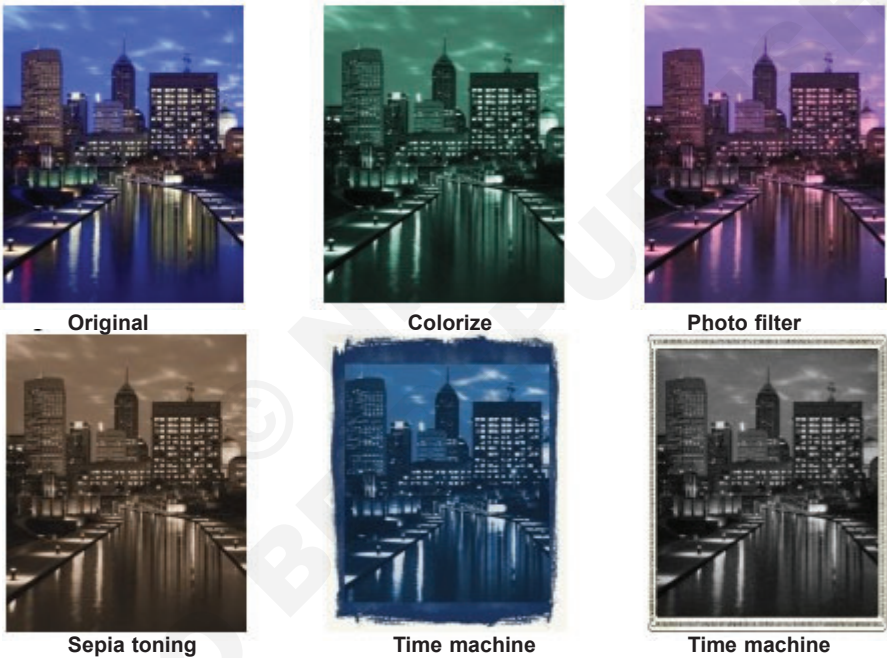
Fig 5

— — — — — — — —

TASK 3: **Tracing and coloring of bitmaps**

To trace a bitmap in one step

1   Select a bitmap.

2   Click Bitmaps ` Trace bitmap ` Quick Trace.

3   Trace a bitmap in one step by clicking the Trace bitmap flyout button on the property bar and clicking Quick Trace.

To trace a bitmap in Power TRACE

1   Select a bitmap.

2   Click Bitmaps ⇦ Trace bitmap, and click one of the following:

   • **Line art -** to trace black-and-white sketches and illustrations

   • **Logo -** to trace simple logos with little detail and few colors

   • **Detailed logo -** to trace logos containing fine detail and many colors

   • **Clipart -** to trace ready-to-use graphics containing a varying amount of detail and number of colors

   • **Low quality image -** to trace photos that lack fine detail or in which the fine detail is not important

   • **High quality image -** to trace high-quality detailed photos in which detail is important

3   Move either of the following sliders:

   • Smooth curved lines and control the number of nodes in the traced result.

   • Higher values result in fewer nodes and produce curves that follow lines in the source bitmap less closely.

   • Lower values result in more nodes and produce more accurate trace results.

   • Control how much of the original detail is preserved in the traced result.

   • Higher values maintain more detail and result in a greater number of objects and colors.

   • Lower values discard some detail and result in fewer objects.

You can also

Change the preset style	Choose a preset style from the Type of image list box.
Keep the source bitmap after a trace	In the Options area, disable the Delete original image check box.
Discard or preserve the background in the traced result	Enable or disable the Remove background check box.
Specify the background color you want to remove	Enable the Specify color option, click the Eyedropper tool 🔑 , and click a color in the preview window.
Remove a background color from the entire image	Enable the Remove color from entire image check box.
Undo or redo an action	Click the Undo 🔄 or Redo button.
Revert to the first traced result	Click Reset.

4   Access Power TRACE from the Trace bitmap flyout button on the property bar.

5   Tracing with a low detail value (left); tracing with a high detail value (right) (Fig 1).

Fig 1
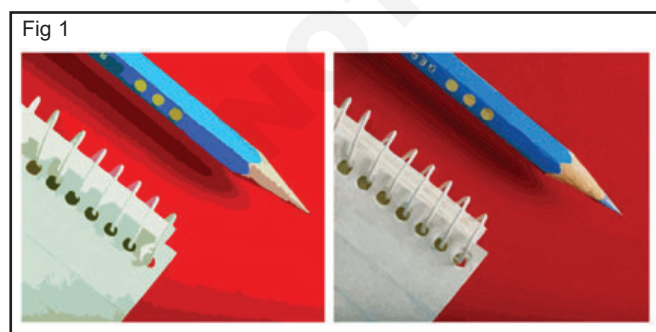
Controlling the colors of traced results

1   Generate a color palette for the traced result. The color palette uses the color mode of the source bitmap (for example, RGB or CMYK).

2   Use the number of colors in the color palette is determined by the number of colors in the source bitmap and the selected preset style.

3   Change the color mode of the traced result, and you can reduce the number of colors in the traced result.

4   Modify the color palette of the traced result by editing and merging colors.

5   When editing a color, you can choose a color from a color model different from that of other colors on the palette.

For example, if you are editing a color in an RGB traced result, you can change the color to a spot color, creating a mixed color palette.

6   This feature is useful when preparing the traced result for commercial printing.

7   Use two or more colors to merged, their color values are averaged to produce a new color.

8 Use the merged colors are replaced by the new color.

To control the colors of a traced result

1 Select a bitmap.

2 Click Bitmaps ⇦ Trace bitmap, and click a command other than Quick Trace.

3 Click the Colors tab, and perform a task from the following table.

4 A traced graphic containing 152 colors (left). A traced graphic containing 5 colors (right) (Fig 2).

Fig 2

To	Do the following
Change the color mode	Choose a color mode from the Color mode list box.
Reduce the number of colors in a traced result	Type a value in the Number of colors box, and click outside the box.
Edit a color	Click the color you want to edit, click Edit, and modify settings in the Select color dialog box.
Merge colors	Holding down Ctrl, click the colors that you want to merge, and click Merge.
Use a custom color palette	Click the Open color palette button 📝, find the folder where the palette is stored, and click a filename. Color palettes have a .cpl filename extension. Each color of the traced graphic is mapped to a similar color in the custom palette.
Create a custom color palette from the edited color palette of a traced result	Click the Save color palette button 📀 . In the Save palette as dialog box, type a name in the File name box.

Tips for tracing bitmaps

• Use high-quality source bitmaps. If dithering or JPEG compression was used in the source bitmap, it may contain additional noise. For best traced results, remove the noise before tracing the bitmap.

• You can adjust the traced results at any time, including during a trace, by changing the settings in Power TRACE.

• To trace a specific area in a bitmap, you can use the Shape tool to define the area before clicking Bitmaps `Trace bitmap.

• If important detail has been removed from the traced results, disable the Remove background check box on the Options page of Power TRACE. Also, you can try enabling the Specify color option on the Options page and sample the color you want to specify as a background color.

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TASK 4: **Adding 3D effects to objects**

> **Create the illusion of three-dimensional depth in objects by adding contour, perspective, extrusion, bevel, or drop shadow effects.**

Contouring objects

1 Contour an object to create a series of concentric lines that progress to the inside or outside of the object.

2 Set the number and distance of the contour lines.

3 After contouring an object, copy or clone its contour settings to another object.

4 Change the colors of the fill between the contour lines and the contour outlines themselves. You can set a

color progression in the contour effect, where one color blends into another.

5 The color progression can follow a straight, clockwise, or counterclockwise path through the color range of your choice (Fig 1).

Fig 1
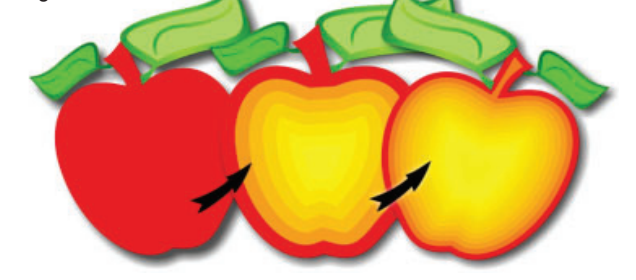
6 Center a contour has been applied to the above object. The number of contour lines, as well as the distance between lines, can be changed (Fig 2).

Fig 2
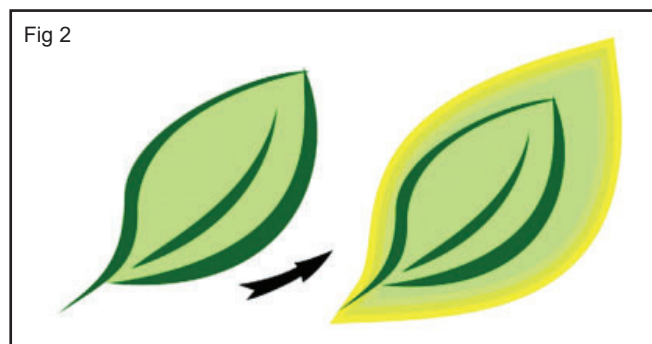
7 An outside contour has been applied to the above object. Note that an outside contour projects from the outside edge of the object

To contour an object

1 Open the Interactive tools flyout , and click the Interactive contour tool .

2 Click an object or a set of grouped objects, and drag the start handle toward the center to create an inside contour.

3 Move the object slider to change the number of contour steps.

4 Create an outside contour by dragging the start handle away from the center.

You can also

Specify the number of contour lines	Click the Inside button on the property bar, and type a value in the Contour steps box on the property bar.
Specify the distance between contour lines	Type a value in the Contour offset box on the property bar.
Accelerate contour line progression	Click the Object and color acceleration button on the property bar, and move the object slider.

To set the fill color for a contour object

1 Open the Interactive tools flyout and click the Interactive contour tool .

2 Select a contour object.

3 Open the Fill color picker on the property bar, and click a color.

- If the original object has a fountain fill, a second color picker appears.

4 Accelerate the fill color progression by clicking the Object and color acceleration button on the property bar.

5 Change the contour center's color by dragging a color from the color palette to the end fill handle.

To specify an outline color for the contour object

1 Open the Interactive tools flyout , and click the Interactive contour tool .

2 Select a contour object.

3 Open the Outline color picker on the property bar, and click a color.

Applying perspective to objects

1 Create a perspective effect by shortening one or two sides of an object.

2 This effect gives an object the appearance of receding in one or two directions, thereby creating a one-point perspective or a two-point perspective.

3 Perspective effects can be added to objects or grouped objects.

4 Add a perspective effect to linked groups, such as contours, blends, extrusions, and objects created with the Artistic media tool. You can't add perspective effects to paragraph text, bitmaps or symbols.

The original graphic (left) with one-point (middle) and two-point (right) perspectives applied to it. After you apply a perspective effect, you can copy it to other objects in a drawing, adjust it, or remove it from the object (Fig 3).

Fig 3

To apply a perspective

To	
Apply a one-point perspective	Click Effects ` Add perspective. Press Ctrl, and drag a node.
Apply a two-point perspective	Click Effects ` Add perspective. Drag the nodes on the outside of the grid to apply the effect you want.

5 Pressing Ctrl constrains the node's movement to the horizontal or vertical axis to create a one-point perspective effect.

6 Move opposing nodes the same distance in opposite directions by pressing Ctrl + Shift as you drag.

To adjust the perspective

1 Open the Shape edit flyout ![icon] , and click the Shape tool ![icon] .

2 Select an object that has a perspective effect.

3 Drag a node to a new position.

4 Adjust the perspective by dragging one or both of the vanishing points.

To remove an object's perspective effect

1 Select an object that has a perspective effect.

2 Click Effects ⇦ Clear perspective.

Creating bevel effects

1 A bevel effect adds three-dimensional depth to a graphic or text object by making its edges appear sloped (cut at an angle).

2 Bevel effects can contain both spot and process (CMYK) colors, so they are ideal for printing.

Bevel styles

- You can choose from the following bevel styles:

• **Soft edge -** creates beveled surfaces that appear shaded in some areas

• **Emboss -** makes an object appear as a relief

- Left to right: a logo, the logo with a Soft Edge bevel effect & the logo with an Emboss bevel effect (Fig 4).

To create a Soft Edge bevel effect

1 Select an object that is closed and has a fill applied to it.

2 Click Effects ⇦ Bevel.

3 In the Bevel docker, choose Soft edge from the Style list box.

4 Enable one of the following Bevel offset options:

• To center - lets you create beveled surfaces that meet in the middle of the object

• Distance - lets you specify the width of the beveled surfaces. Type a value in the Distance box.

To create an Emboss effect

1 Select an object that is closed and has a fill applied to it.

2 Click Effects ⇦ Bevel.

3 In the Bevel docker, choose Emboss from the Style list box.

4 In the Distance box, type a low value.

5 To change the intensity of the spotlight, move the Intensity slider.

6 To specify the direction of the spotlight, move the Direction slider.

7 Click Apply.

You can also

Choose a shadow color	Choose a color from the Shadow color picker.

To remove a bevel effect

1 Select an object with a bevel effect applied.

2 Click Effects ⇦ Clear effect.

Fig 4

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Practice on adding graphical effects to text

Objectives: At the end of this exercise you shall be able to
• **adding basic graphical effects to text**
• **kerning and changing text case**
• **inserting drop caps**
• **wrapping and mirroring text**
• **creating 3D effects on text.**

Requirements

Tools/Instruments		Materials	
• Trainee's tool kit	- 1 No.	• Paper	- as reqd.
Equipments/Machineries		• Baniyan cloth	- as reqd.
		• Cleaning liquid	- as reqd.
• Computer system	- 1 No.		
• Computer table	- 1 No.		
• UPS	- 1 No.		
• Printer	- 1 No.		

PROCEDURE

TASK 1: **Adding basic effects to texts**

1 Choose the typeface that is best suited to your project.

2 Specify the font size and style.

3 "Font" and "typeface" are two typography terms that are often used interchangeably, but they do not have the same meaning.

4 A font is a collection of characters that includes letters, numbers, and symbols of one variation of a typeface, such as bold or italic.

5 A type face, which is also known as a font family.

6 The following table lists a few examples of typefaces and fonts.

Typeface (Font family)	Font
• Helvetic	Helvetica Bold-Italic
• Times New Roman	Normal
• Verdana	Verdana Bold-Italic

To insert superscript or subscript text

1 Use the Text tool ![A], select a character or a block of text.

If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2 Click the Character button ![A] to display the character-related options.

3 Click the Position button, and choose one of the following options.

• None - turns off all the features in the list

• Superscript (auto) - applies the OpenType feature if the font supports it, or applies a synthesized version if the font does not support superscript

• Subscript (auto) - applies the OpenType feature if the font supports it, or applies a synthesized version if the font does not support subscript

• Superscript (synthesized) - applies a synthesized version of the superscript feature, which looks the same as in previous versions of CorelDRAW

• Subscript (synthesized) - applies a synthesized version of the subscript feature, which looks the same as in previous versions of CorelDRAW

To underline, overline, or strikethrough text

1 Using the Text tool ![A], select a character or a block of text.

If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2 In the Object propertiesdocker, click the Character button ![A] to display the character-related options.

3 In the Character area of the Object propertiesdocker, click the arrow button ![▼] located at the bottom of Character area to display the additional character options.

4 Perform one or more tasks from the following table.

5 Click Tools ▸Options.

6 In the list of categories, click Text.

7 In the Text cursor area, enable any of the following check boxes:

- Highlight formatting changes

- Enhanced text cursor (Fig 1)

Fig 1
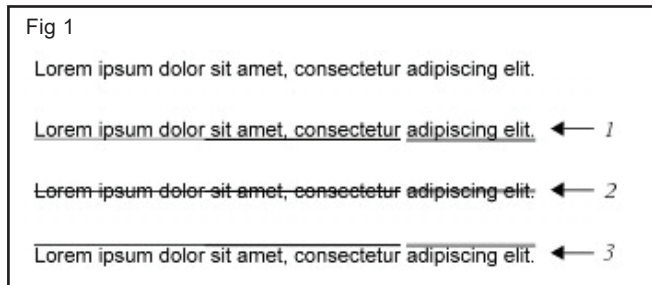
Changing text color

1 Change both the fill and outline color of text.

2 Change the fill, outline, and background color of text.

3 Change the color of individual characters, a block of text, or all characters in a text object.

4 Left to right: Background color is applied to artistic text, paragraph text and selected characters (Fig 2).

To quickly change the color of a text object

1 Using the Pick tool [⬚], click a text object to select it.

2 Perform a task from the following table.

Fig 2

To	Do the following
Underline text	Click the Underline button [U] and choose a style from the list box.
Apply a line through the selected text	Choose a style from the Character strikethrough list box.
Apply a line above the selected text.	Choose a style from the Character overline list box.
To modify the text cursor behavior	

To	Do the following
To fill characters in a text object with one color	Click any color swatch on the default color palette or drag a color swatch to the text object.
To apply an outline color to all characters in a text object	Right-click any color swatch on the default color palette or drag a color swatch to the edge of a character in the text object.

To change the color of a text selection

1 Using the Text tool [A], select a character or a block of text.

If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2 In the Object propertiesdocker, click the Character button [A] to display the character-related options.

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TASK 2: **Kerning and changing text case**

To kern text

1 Using the Text tool [A] , select the characters that you want to kern.

If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2 In the Object propertiesdocker, click the Character button [A] to display the character-related options.

3 In the Character area of the Object properties docker, type a value in the Range kerning box.

- Negative values decrease the spacing between characters; positive values increase the spacing between characters.

- Decreasing the kerning between two characters (Fig 1).

Changing text case

1 Change the text case of artistic and paragraph text. For example, you can apply small caps to acronyms so they visually blend with the text.

Fig 1

Default uppercase	Small caps
The class begins at 9:00 A.M. in room 132.	The class begins at 9:00 a.m. in room 132.

2   If you apply default capitalization, the text stands out too much and impacts the readability. In the following example, the acronym "A.M." is shown with both the default uppercase and small caps applied.

3   With uppercase text, you can adjust the spacing between capital characters to improve readability provided the font supports capital spacing.

To change the text case

1   Using the Text tool , select a character or a block of text.

    If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2   In the Object propertiesdocker, click the Character button to display the character-related options.

3   In the Character area of the Object propertiesdocker, click the Caps button, and click one of the following options:

    •   None - turns off all of the features in the list

•   All caps - substitutes lowercase characters with upper case equivalents

•   Titling caps - applies the OpenType version of the feature if the font supports it

•   Small caps (auto) - applies the OpenType version of the feature if the font supports it

•   All small caps - substitutes characters with a scaled-down version of the upper case characters

•   Small caps from caps - applies the OpenType version of the feature if the font supports it

•   Small caps (synthesized) - applies a synthesized version of Small caps, which appears the same as in previous versions of CorelDRAW

— — — — — — —

TASK 3: **Inserting Drop Caps**

> **Applying drop caps also known as initial caps, to paragraphs enlarges the initial letter and insets it into the body of text.**

1   Customize a drop cap by changing different settings. For example, you can change the distance between the drop cap and the body of text, or specify the number of lines of text that you want to appear next to the drop cap.

2   Remove the drop cap at any point without deleting the letter.

3   You can add a drop cap (left) or a hanging indent drop cap (right) (Fig 1).

Fig 1

To add a drop cap

1   Using the Text tool , select the paragraph text.

    If the Object properties docker is not open, click Window ▸Dockers ▸Object properties.

2   In the Object properties docker, click the Paragraph button to display the paragraph-related options.

3   In the Paragraph area of the Object properties docker, click the arrow button located at the bottom of Paragraph area to display additional options.

4   Enable the Drop caps check box.

5   Click the Drop caps settings button .

6   In the Drop cap dialog box, perform a task from the following table.

To	Do
Specify the number of lines next to a drop cap	In the Appearance area, type a value in the Number of lines dropped box.
To	Do
Set the distance between the drop cap and the body of text	In the Appearance area, type a value in the Space after drop cap box. This sets the space to the right of the drop cap.
Preview a drop cap	Enable the Preview check box.
Offset the drop cap from the body of text	Enable the Use hanging indent style for drop cap check box.
Remove drop caps	In the Paragraph area of the Object properties docker, disable the Drop caps check box.

— — — — — — — —

TASK 4: **Wrapping and mirroring text**

Wrapping text

1 Change the shape of text by wrapping paragraph text around an object, artistic text, or a text frame.

2 Wrap text by using contour or square wrapping styles. The contour wrapping styles follow the curve of the object.

3 The square wrapping styles follow the bounding box of the object.

4 Adjust the amount of space between paragraph text and the object or text, and you can remove any previously applied wrapping style.

To wrap paragraph text around an object, artistic text, or a text frame

1 Select the object or text around which you want to wrap text.

2 Click Window ▶Dockers ▶Object properties.

3 In the Object properties docker, click the Summary button [⁉] to display the wrap options.

4 Choose a wrapping style from the Wrap paragraph text list box.

- If you want to change the amount of space between wrapped text and the object or text, change the value in the Text wrap offset box.

5 Click the Text tool [A] , and drag over the object or text to create a paragraph text frame.

6 Type text in the text frame.

Wrap existing paragraph text around a selected object by applying a wrapping style to the object and dragging the text frame over the object.

To remove a wrapping style

1 Select the wrapped text or the object it wraps.

2 Click Window ▶ Dockers ▶Object properties.

3 In the Object properties docker, click the Summary button [⁉] to display the wrap options.

4 Choose None from the Wrap text list box.

5 Text wrapped around an object by using the contour wrapping style (left) and the square wrapping style (right) (Fig 1).

To mirror text

1 Using the Pick tool, select a text object.

2 On the property bar, click one of the following buttons.

- Mirror horizontally [⊞] - flips the text characters from left to right

- Mirror vertically [⊞] - flips the text characters from top to bottom

3 Mirror text by holding down Ctrl and dragging a selection handle to the opposite side of the object.

4 Left to right - Text in original form, mirrored vertically, and mirrored horizontally (Fig 2).

Fig 1

Lorem ipsum dolor sit met, onsectetuer iscing elit. Sed blandit scelerisque dolor. Duis vestibulum nulla. Vestibulum aliquam. Pellentese eu nisl. Entsque et

Lorem ipsum dolor sit met, onsectetuer iscing elit. Sed blandit scelerisque dolor. Duis vestibulum nulla. Vestibulum aliquam. Pellentese eu nisl.

Fig 2

Fig 2

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TASK 5: **Creating 3d Effect on text**

1   Make objects appear three-dimensional by creating extrusions.

2   Create extrusions by projecting points from an object and joining them to create an illusion of three dimensions

To create an extrusion

1   Select an object using the Pick tool [icon].

2   In the toolbox, click the Extrude tool [icon].

3   Choose a preset from the Presets list box on the property bar.

4   Choose an extrusion type from the Extrusion type list box on the property bar.

-   If you want to reset the extrusion, press Esc before releasing the mouse button.

-   Create an extrusion by using the Extrude docker (Effects ▶Extrude).

To copy or clone an extrusion

1   Select the object you want to extrude.

2   Click Effects and click one of the following:

   •   Copy effect ▶Extrude from

   •   Clone effect ▶Extrude from

3   Click an object whose extrusion properties you want to copy.

4   Extrusions with different vanishing points

To remove a vector extrusion

1   Select an extruded object (Fig 1).

2   Click Effects ▶Clear extrusion.

To change the form of a vector extrusion

To	Do the following
Rotate an extrusion	Select an extruded object. Click the Extrude rotation button [icon] on the property bar. Drag the extrusion in the direction you want.
Change the direction of an extrusion	Using the Extrude tool [icon], click an extrusion. Click the vanishing point, and drag in the direction you want.
Change the depth of an extrusion	Using the Extrude tool [icon], click an extrusion. Drag the slider between the interactive vector handles.
Round the corners of an extruded rectangle or square	In the toolbox, click the Shape tool [icon]. Drag a corner node along the outline of the rectangle or square.

Fig 1

— — — — — — —

Practice on creating symbols logo and special effects on the logo

Objectives: At the end of this exercise you shall be able to
• **create the new document**
• **create and draw the symbols or logo**
• **give special effects on logo**
• **print out the logo.**

Requirements		
Tools/Instruments		**Materials**

Tools/Instruments

• Trainee's tool kit - 1 No.

Equipments/Machineries

• Computer system - 1 No.
• Computer table - 1 No.
• UPS - 1 No.
• Printer - 1 No.

Materials

• Printing paper - as reqd.
• System cleaning liquid - as reqd.
• Cotton cloth - as reqd.

PROCEDURE

TASK 1: **Creating, Editing and deleting symbols**

1 Convert an object to a symbol, the new symbol is added to the Symbol manager docker, and the selected object becomes an instance.

2 Create a symbol from multiple objects.

To create a symbol

1 Select an object or multiple objects.

2 Click Object ▶Symbol ▶New symbol.

3 Type a name for the symbol in the Create new symbol dialog box.

4 Convert objects on different layers to a symbol, the objects are combined on the topmost object's layer.

5 Convert an existing object or objects to a symbol by dragging the object or objects to the Symbol manager docker.

6 To open the docker by click Object ▶ Symbol ▶ Symbol manager.

7 Use symbols for objects that appear many times helps to reduce file size (Fig 1).

Fig 1

To edit a symbol

1 In the Symbol manager docker, choose a symbol from the list.

To open the Symbol manager docker, click Object ▶Symbol ▶Symbol manager.

2 Click the Edit symbol button.

3 Modify the objects on the drawing page.

4 Click the Finish editing object tab in the bottom-left corner of the drawing window.

5 Changes made to a symbol are automatically made to all instances in the active drawing.

6 While working in symbol edit mode, you cannot add layers or save a drawing.

To delete a symbol

1 In the Symbol manager docker, choose a symbol from the list.

2 Click the Delete symbol button.

3 Delete a symbol, all instances of the symbol are removed from the drawing.

To delete unused symbols

1 In the Symbol manager docker, click the name of the active document.

2 Click the Purge unused definitions button.

TASK 2: **Use symbols in drawings**

To insert a symbol instance

1. Open the Symbol manager docker by clicking Object ▸Symbol ▸Symbol manager.

   If you want the symbol scaled automatically to match the current drawing scale, ensure that the Scale to world units button 🔲 is enabled.

2. Choose a symbol from the list.

3. Click the Insert symbol button 🔲 .

To convert a symbol instance to an object or objects

1. Select a symbol instance.

2. Click Object ▸Symbol ▸ Revert to objects.

3. The symbol remains in the Symbol manager docker.

4. Revert a symbol instance to an object by right-clicking the symbol instance and clicking Revert to objects.

To delete a symbol instance

1. Select a symbol instance

2. Press delete

To share symbols between drawings

To	Do the following
Copy symbols to the Clipboard	Open the source document. In the Symbol manager docker, choose the symbol or symbols from the list, right-click, and click Copy.
To	Do the following
Paste symbols from the Clipboard	Open the target document. In the Symbol manager docker, rightclick, and click Paste.

— — — — — — — —

TASK 3: **Adding various effects**

1. Create an even more dramatic effect by applying a new distortion to an already distorted object.

2. Don't lose the effect of the original distortion if, for example, you apply a zipper distortion on top of a twister distortion.

3. The CorelDRAW application also lets you remove and copy distortion effects.

To distort an object

1. Open the Interactive tool flyout 🔲 , and click the Interactive distortion tool 🔲 .

2. On the property bar, click one of the following buttons, and specify the settings you want:

   • Push and pull distortion

   • Zipper distortion

   • Twister distortion

3. Point to where you want to place the center of distortion, and drag until the object is the shape you want.

🖐 You can reapply the effects to distorted objects.

🔦 You can center a distortion by clicking the Center distortion button 🔲 on the property bar.

You can use the interactive vector controls to edit a distortion effect. Upper left: a circle with a zipper effect applied. Upper right: zipper effects with higher frequency (more spikes). Bottom: examples of zipper effects.

To remove a distortion

1. Select a distorted object.

2. Click Effects ⇐ Clear distortion (Fig 1)

Distortion effect

Distortion effect	Description
Push and pull	Lets you push the edges of an object in or pull the edges of an object out
Zipper	Lets you apply a saw tooth effect to the edges of the object. You can adjust the amplitude and frequency of the effect.
Twister	Lets you rotate an object to create a swirl effect. You can choose the direction of the swirl, as well as the origin, degree and amount of rotation.

Fig 1
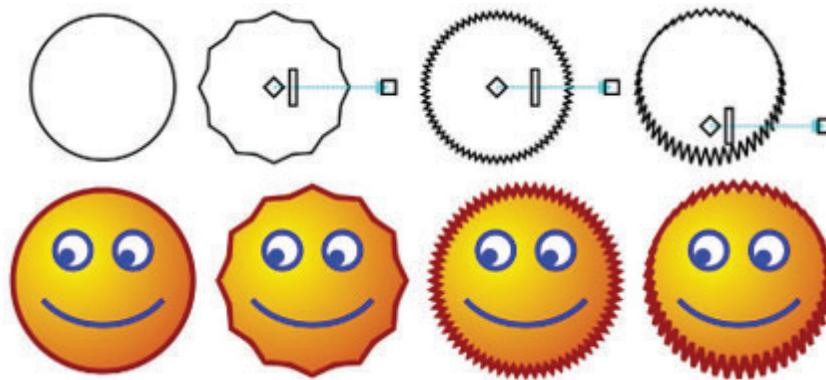
Filleting, scalloping, and chamfering corners

1 Shape an object by filleting, scalloping, or chamfering corners.

2 Filleting produces a rounded corner, scalloping rounds and inverts the corner to create a notch, and chamfering bevels a corner so that it appears flat.

3 From left to right, you can see standard corners with no changes, filleted corners, scalloped corners and chamfered corners (Fig 2).

4 In this example, the circles represent fillet radius settings. The top row shows the proposed fillets on the left and the filleted results on the right.

5 The bottom row shows the proposed fillets on the left, but in the results on the right, not all corners are filleted. After the first fillet is applied.

6 The next corner cannot be filleted because the line segment is not long enough.

7 This corner is skipped, and the final corner is filleted (Fig 3).

To round object corners by filleting

1 Using the Pick tool 🔂 , select the object.

2 Click Window ⇦ Dockers ⇦ Fillet/Scallop/Chamfer.

Fig 2
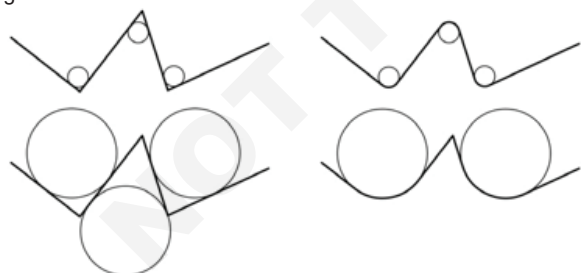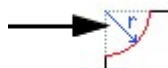
3 In the Fillet/Scallop/Chamfer docker, choose Fillet from the Operation list box.

4 Type a value in the Radius box.

- The radius is used to create a circular arc, with the center equidistant from either side of a corner. Higher values produce more rounded corners.

- Radius ➡️

5 Click Apply.

6 Apply button is disabled if no valid objects or nodes are selected.

7 To select individual nodes to use the Shape tool 🔂.

8 Round all the corners of a selected rectangle or square by clicking the Shape tool 🔂 and dragging a corner node toward the center of the object.

9 The shape is not converted to curves if you use this method.

To scallop object corners

1 Using the Pick tool 🔂 , select the object.

2 Click Window ⇦ Dockers ⇦ Fillet/Scallop/Chamfer.

3 In the Fillet/Scallop/Chamfer docker, choose Scallop from the Operation list box.

4 Type a value in the Radius box.

- The radius value is measured from the original corner point to create a scalloping arc.

- Radius ➡️

5 Click Apply.

6 Select individual nodes to use the Shape tool 🔂.

Fig 3

To bevel object corners by chamfering

1 Using the Pick tool ![pick icon], select the object.

2 Click Window ⇦ Dockers ⇦ Fillet/Scallop/Chamfer.

3 In the Fillet/Scallop/Chamfer docker, choose Chamfer from the Operation list box.

4 Type a value in the Distance box to set where the chamfer will begin in relation to the original corner.

- Distance ——————➤

5 Click Apply.
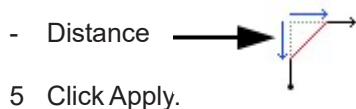
Creating drop shadows

1 Drop shadows simulate light falling on an object from one of five particular perspectives: flat, right, left, bottom, and top.

2 Add drop shadows to most objects or groups of objects, including artistic text, paragraph text, and bitmaps.

3 When you add a drop shadow, you can change its perspective, and you can adjust attributes such as color, opacity, fade level, angle, and feathering.

To add a drop shadow

1 Open the Interactive tools flyout ![flyout icon], and click the Interactive drop shadow tool ![tool icon].

2 Click an object.

TASK 4: **Printing out**

To set printer properties

1 Click File ⇦ Print.

2 Click the General tab.

3 Click Properties.

4 Set any properties in the dialog box.

To print your work

1 Click File ⇦ Print.

2 Click the General tab.

3 Choose a printer from the Name list box.

CorelDRAW: Printing

4 Type a value in the Number of copies box.

If you want the copies collated, enable the Collate check box.

5 Enable one of the following options:

   • **Current document -** prints the active drawing

   • **Current page -** prints the active page

   • **Pages -** prints the pages that you specify

   • **Documents -** prints the documents that you specify

3 Drag from the center or side of the object until the drop shadow is the size you want.

4 Specify any attributes on the property bar.

5 Drop shadows cannot be added to linked groups, such as blended objects, contoured objects, beveled objects, extruded objects, objects created with the Artistic media tool ![tool icon], or other drop shadows.

6 A drop shadow applied to an object (Fig 4).

Fig 4
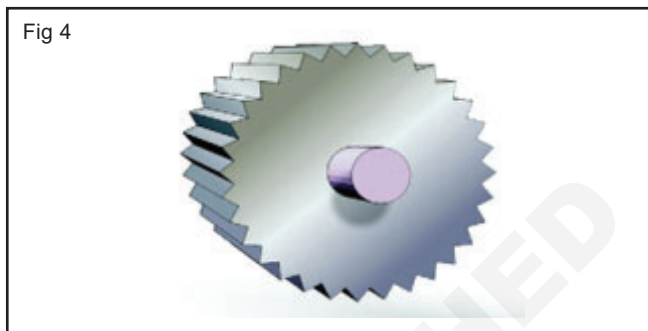
To separate a drop shadow from an object

1 Select an object's drop shadow.

2 Click Arrange ⇦ Break drop shadow group apart.

3 Drag the shadow.

To remove a drop shadow

1 Select an object's drop shadow.

2 Click Effects ⇦ Clear drop shadow.

— — — — — — —

   • **Selection -** prints the objects that you have selected

6 To select objects before printing a selection.

To specify the size and position of a print job

1 Click File ⇦ Print.

2 Click the Layout tab.

3 Enable one of the following options:

   • **As in document -** maintains the image size, as it is in the document

   • **Fit to page -** sizes and positions the print job to fit to a printed page

   • **Reposition images to -** lets you reposition the print job by choosing a position from the list box

4 To Enabling the Reposition images to option lets you specify size, position, and scale in the corresponding boxes.

To tile a print job

1 Click File ⇦ Print.

2 Click the Layout tab.

3 Enable the Print tiled pages check box.

4 Type values in the following boxes:

- **Tile overlap -** lets you specify the number of inches by which to overlap tiles

- **% of page width -** lets you specify the percentage of the page width the tiles will occupy

5 To Enable the Tiling marks check box to include tiling alignment marks.

To change the page orientation prompt

1 Click Tools ⇔ Options.

2 In the list of categories, double-click Global, and click Printing.

3 Choose Page orientation prompt from the Option list.

4 Choose one of the following from the Setting list box:

- **Off -** always match orientation

- **On -** ask if orientations differ

- **Off -** don't change orientation

To preview a print job

- Click File ⇔ Print preview.

Corel DRAW - Printing

1 To quickly preview a print job in the Print dialog box by clicking File ⇔ Print, and clicking the Mini preview button 🖶.

To magnify the preview page

1 Click File ⇔ Print preview.

2 Click View ⇔ Zoom.

3 Enable the Percent option, and type a value in the box.

To preview color separations

1 Click File ⇔ Print preview.

2 On the property bar, click the Enable color separations button 🖶.

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Practice on make a flex design for marketing offers

Objectives: At the end of this exercise you shall be able to
• **creating a new file and draw a flex design**
• **give special effects on flex design**
• **convert the design in PDF file and save it**
• **write the flex design on CD/DVD**
• **set basic printing in the printer properties in the document**
• **preview a print job and colour separation with registration marks.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.	• Printer	- 1 No.

Equipments/Machineries

Materials

• Computer system	- 1 No.	• Paper	- as reqd.
• Computer table	- 1 No.	• Baniyan cloth	- as reqd.
• UPS	- 1 No.	• System cleaning liquid	- as reqd.

PROCEDURE

TASK 1: **Creating a new file and draw a flex desgin**

Setting up the new document

1 Open the Corel Draw on your computer, go to the Menu Bar and select File > New (Fig 1).

2 A blank document will appear. You will also notice the Property Bar above (Fig 2).

3 Adjust the Paper/Size Type to Required size and the Orientation to Portrait or Landscape (Fig 3).

Fig 1
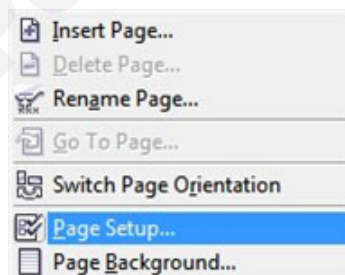
Fig 2
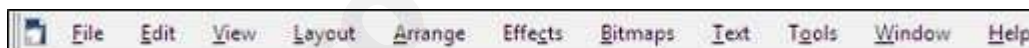
Fig 3
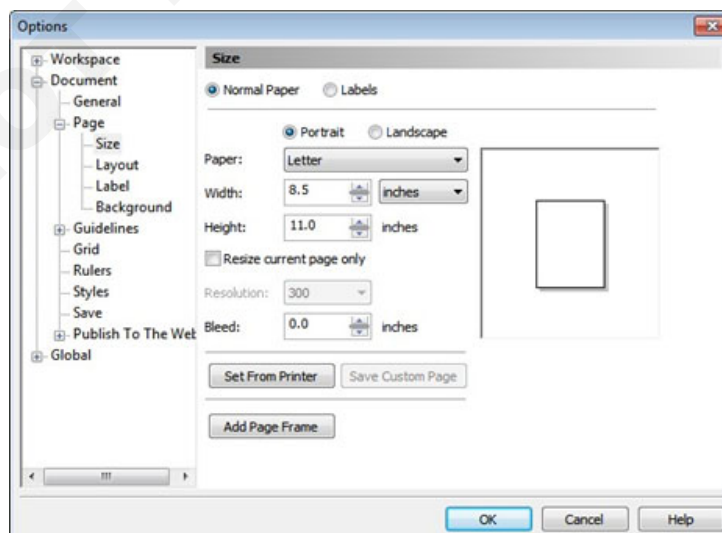
Checking margins

1   To Set the margins, Go to the layout menu > Page setup

2   This will open the Options window and click the guidelines

3   Select Margins (Fig 4).

4   Set Top and Left to "0.3" inches, then check the Mirror Margins Box.

5   Click Ok.

Fig 4

Under **Guidelines**, select **Presets**.
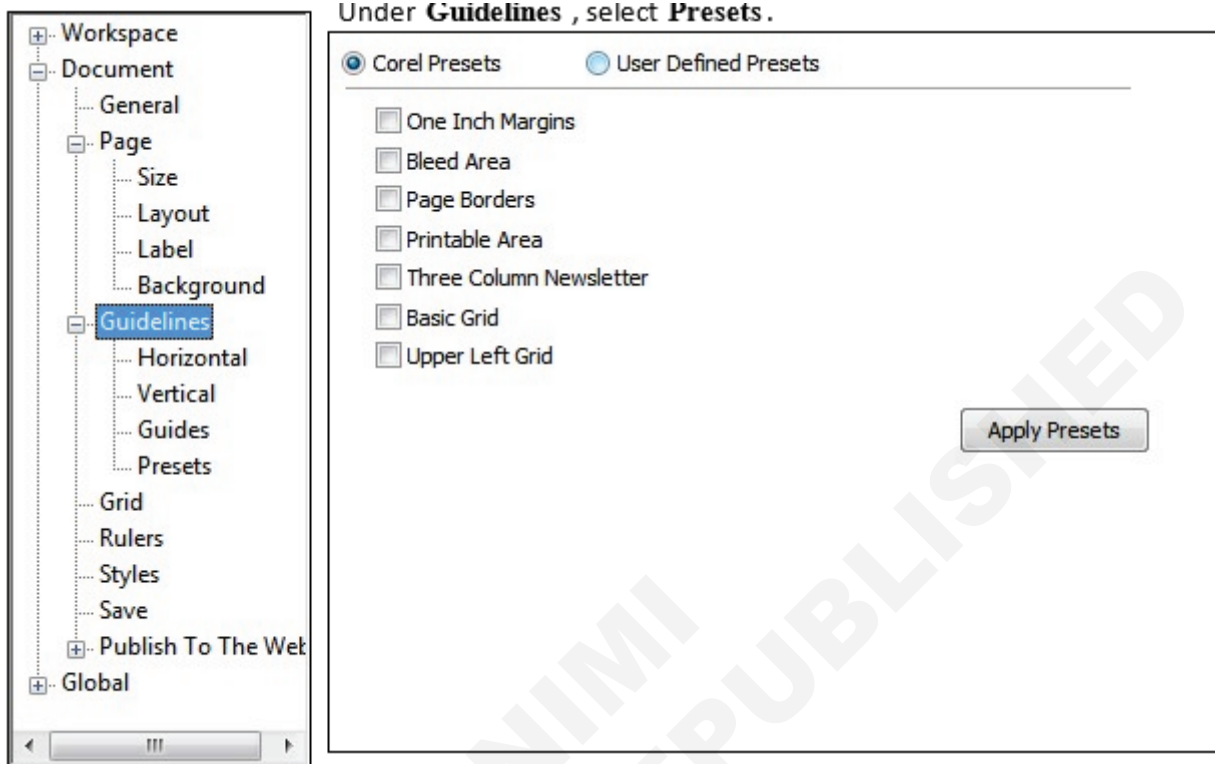
Select **User Defined Presets**.

— — — — — — —
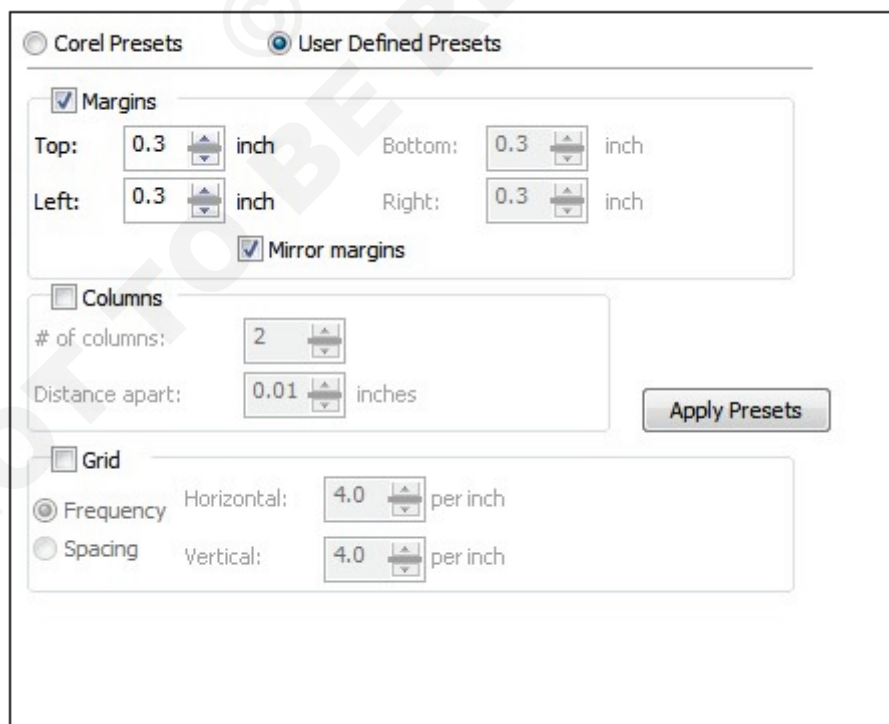
TASK 2: **Creating the background**

1 Construct the Colored Background with 4 Rectangles. Select the Rectangle

2 Use the [▢] Tool from the Tool Box located to the Left of the screen (Fig 1). (Once you have drawn Rectangle 1, it will have 8 Squares around it.)

Fig 1

They should look like this:

Fig 2

Fig 3
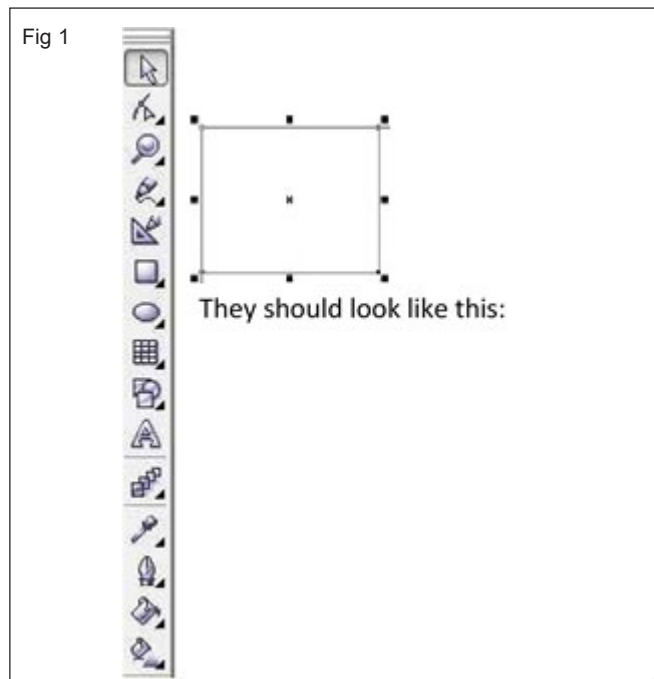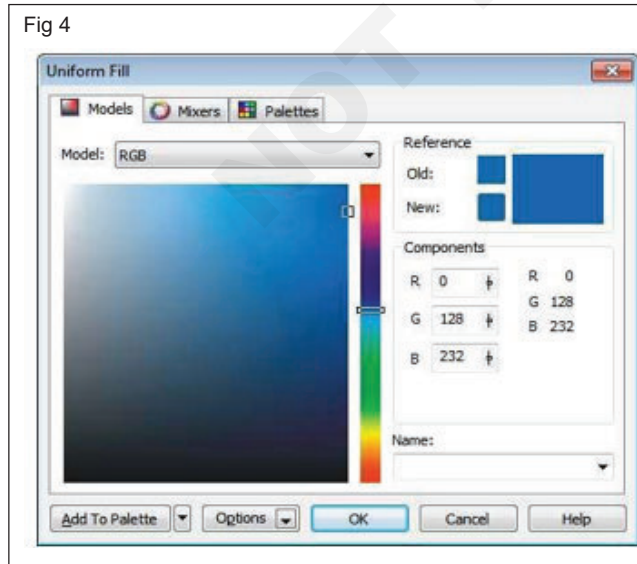
3 Move the mouse over any one of these to Resize the shape if needed.

4 Continue drawing the remaining Rectangles.

5 Select the Pick Tool [▷] from the Tool Box, then select Rectangle 1.

6 Go to the Right of the screen where you will see the Object Properties Docker (Fig 2).

7 On the Fill Tab, which is the 1st visible Tab, select Advanced which will open the Uniform Fill Window (Fig 3).
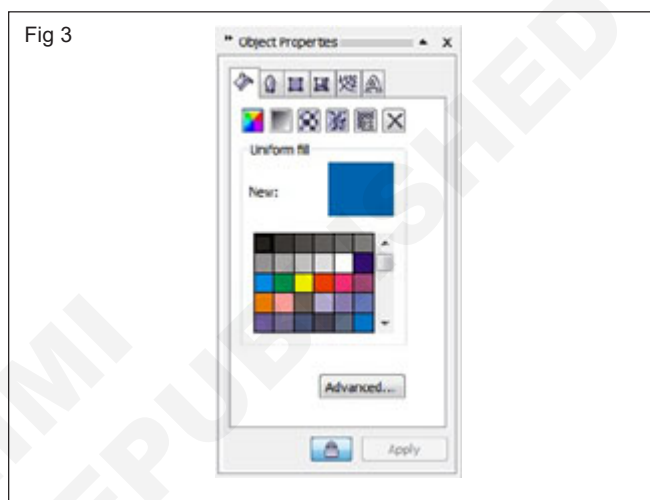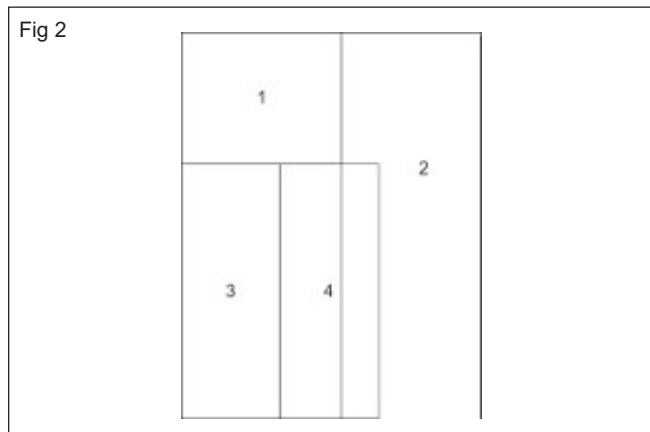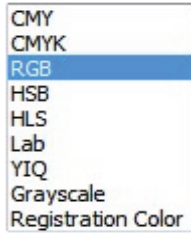
8 Select Rectangle 2. Repeat steps to get back to the Uniform Fill Window. Set R to "218", G to "236", and B to "143". Click OK (Fig 4).

9 Select Rectangle 3. Repeat steps to get back to the Uniform Fill Window. Set R to "239", G to "255", and B to "177". Click OK.

10 Select Rectangle 4. Repeat steps to get back to the Uniform Fill Window. Set R to "209", G to "236", and B to "99". Click OK.

Fig 4

On the Models Tab, select teh Down Arrow to the Right of Model and select RGB from the list that appears

This will allow you to enter RGB Values for you Custom Color in the Components Section

Set R to "170", G to "212", and B to "0", Click OK.

11 Hold down the Left mouse button and drag the cursor over the entire page to select all 4 Rectangles.

12 Go back to the Object Properties Docker and select the Outline Tab which is the 2nd Tab.

13 Set Width to "None", by clicking on the Down Arrow to select None from the list.

14 The new background should look like this (Fig 5).

Fig 5
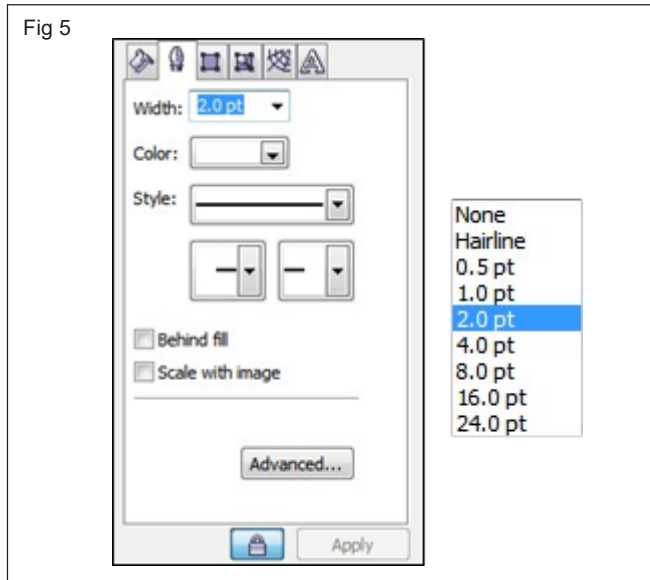
15 Select the Rectangle Tool from the Tool Box. Go up to the Property Bar: Rectangle.

16 Where you see these Rectangle Corners , allows you to set Rectangle Corner

17 Roundness. Make sure that Round Corners Together is selected. Select the Down Arrow and set any one of these 4 Boxes to "75". Notice the number will change for all the boxes.

18 Go back to the Object Properties Docker and set the Fill to "White". Then click on the Outline Tab and select the Down Arrow next to Color and pick "Green".

19 The completed background will look like this (Figs 6 &7)

Fig 6

Fig 7

— — — — — — — —
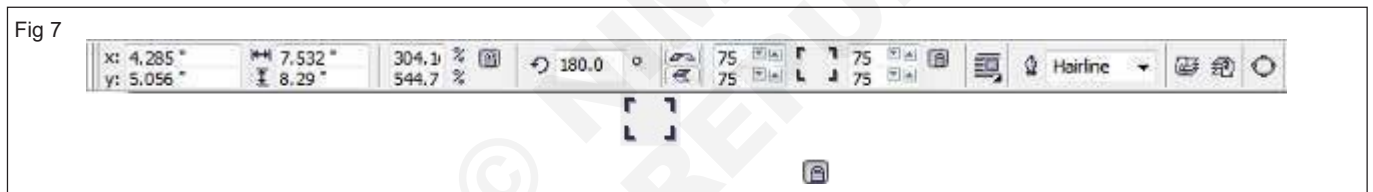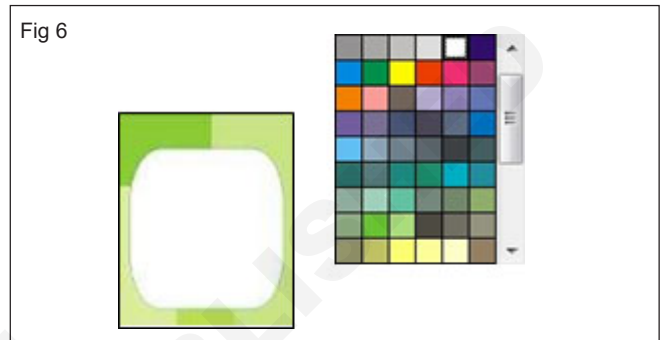
TASK 3: **Text formatting**

1 Select the Text Tool from the Tool Box located to the Left of the screen.

2 Click anywhere on the canvas and start typing. In this case it will be the Company's Title: "Amaya's Flower Garden" (Fig 1).

3 Select the Text then go up to the Property Bar - Text.

4 Click on the 2nd Down Arrow to the Right of the Font List and choose a Font. Here it is set to "Harlow Solid Italic". Immediately to the Right of the Font List is the Font Size. Set it to "48".

5 Then Select the Down Arrow on the Horizontal Alignment Icon and choose Center from the list that appears.

6 Use the Pick Tool, move the Text into place on the Flyer (Fig 2).

7 Next add the company address (Fig 3).

- "89 Adrienne Lane, Alyssatown, Fl 34332, Tel. 555.111.2323, Fax 555.111.4434".

8 Create a new Text Box for each block of Text.

9 Format Text Window Next reselect the Text & click on the Format Text Icon on the Property Bar (Fig 4).

Fig 2

None	Ctrl+N
Left	Ctrl+L
Center	Ctrl+E
Right	Ctrl+R
Full	Ctrl+J
Force Full	Ctrl+H

Fig 1
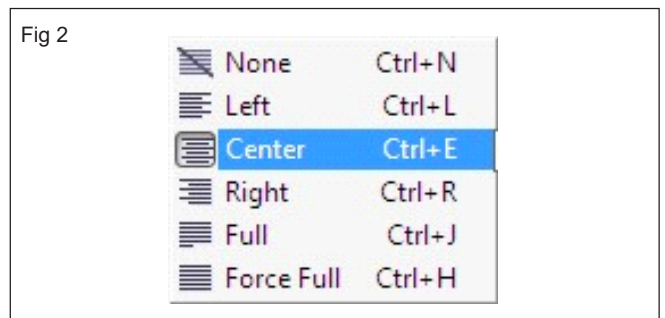
Fig 3

12 Then in the spacing section set Line to "65%" of chart height.

14 Modified Text will look like (Fig 6).

Fig 6

15 All the Text on the Flyer should look like (Fig 7)

16 Take some images for extra design like mentioned below (Fig 8).

10 Open the Format Text Window (Fig 5).

11 Go to thre paragraph tab

Fig 4
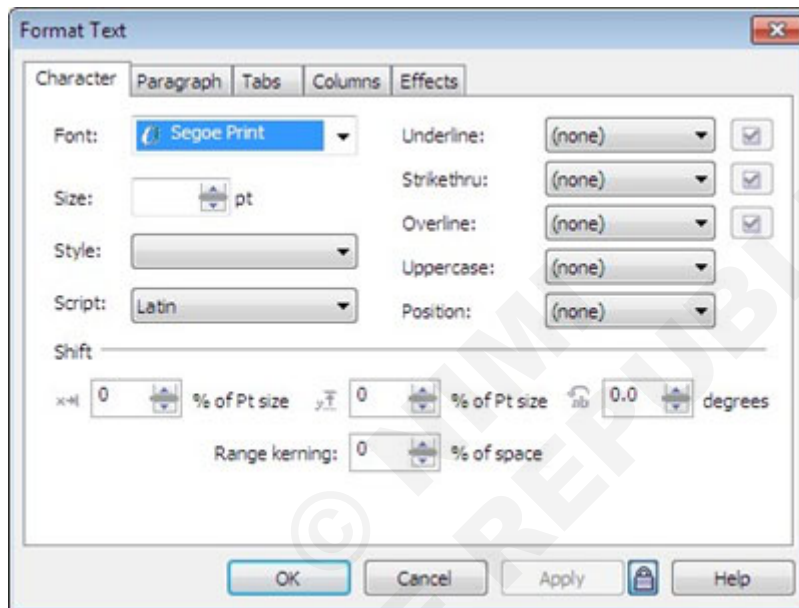
Fig 5
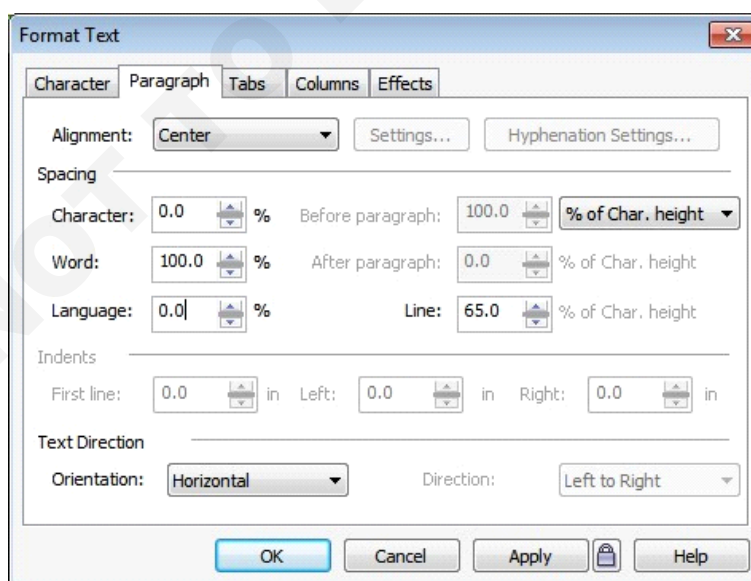
Fig 7

Fig 8

— — — — — — — —

TASK 4: Image placing

1 Place an Image inside of the Flyer, go to File > Import.

2 To bring up the Import Window which allows you to choose where the desired files are, then click Import (Fig 1).

Fig 1

yellowflower.png
w: 6.026 in, h: 5.913 in
Click and drag to resize.
Press Enter to center on page.

Repeat for the other Images.

3 To place the Image, click on the desired location on the Flyer.

4 To Resize the Image, select it and then go up to the Property Bar; Bitmap or OLE Object (Fig 2).

5 Notice that the Scale Factor is set to "100%". Change both options to 55%, then hit the "Enter" Key. Move the Image into the desired location on the Flyer.

6 Select the Image, then move the mouse over one of the 8 Black Squares that appear around it.

7 Cursor turns into a 2 Sided Arrow, hold down the Left mouse button and drag. While dragging you can see the numbers in the Property Bar are changing. So you drag until you get to "55%" and release the mouse.

8 Scale the Red Flower to "25%" and the Pink Flower to "30%".

9 To make a Copy of the Pink Flower, select it, then go to the Edit (Fig 3).

Fig 3

Fig 2

10 Menu > Duplicate or you can hold down the "Ctrl" and "D" Keys.

11 Go to the Tool Box, click on the Interactive Blend Tool Icon [icon] and hold the mouse over it for 2 seconds to reveal the Interactive Tool Menu.

12 Select the 4th Icon which is the Interactive Drop Shadow Tool. [icon]

13 Holding down the "Shift" Key select the Red Flower and the 2 Pink Flowers.

14 Once the Interactive Drop Shadow Tool is selected, notice that the Property Bar has changed (Fig 4).

15 Change the settings for Drop Shadow Offset (Fig 5).

Fig 5
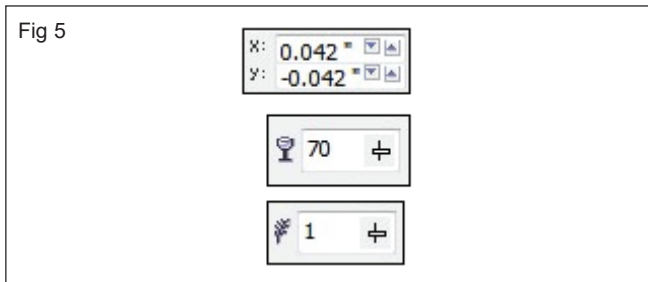
16 Set X to "0.042" and Y to "-0.042".

17 Set the Drop Shadow Opacity to "70".

18 To order to put the Red Flower in front of the other 2 Pink Flowers, select the Red Flower and go to the Arrange Menu > Order > In Front Of (Fig 6).

19 Black Arrow will appear. Click on 1 of the Pink Flowers to moe the Red Flower in front of it (Fig 7).

20 Notice the Red Flower will only be moved in front of one of the Pink Flowers. Repeat the step and select then 2nd Pink Flower (Fig 8).

21 Use Arrange > Order > To Front. With this option there would be no Black Arrow and you would only have to select the Red

22 Set the Drop Shadow Feathering to "1".

23 Select the Drop Shadow Feathering Directon Icon to reveal a menu select Average (Fig 9).

Fig 6

Fig 7

Fig 8

Fig 4

Flat Bottom Left
Flat Bottom Right
Flat Top Left
Flat Top Right
Large Glow
Medium Glow
Pers Bottom Left
Pers Bottom Right
Pers Top Left
Pers Top Right
Small Glow
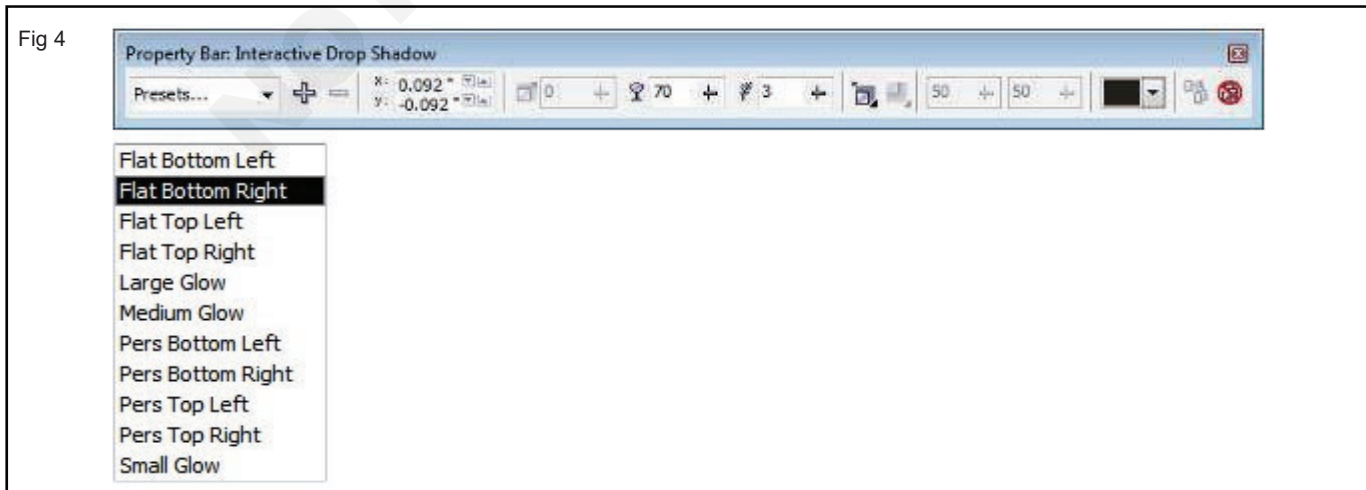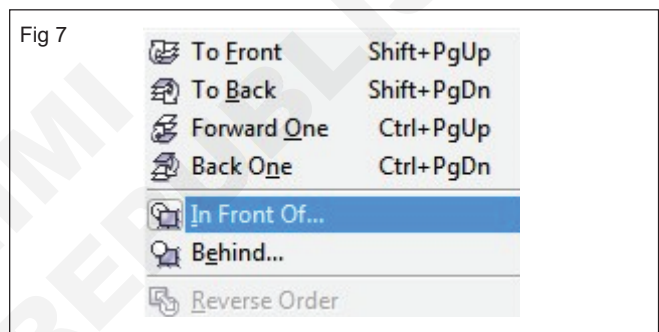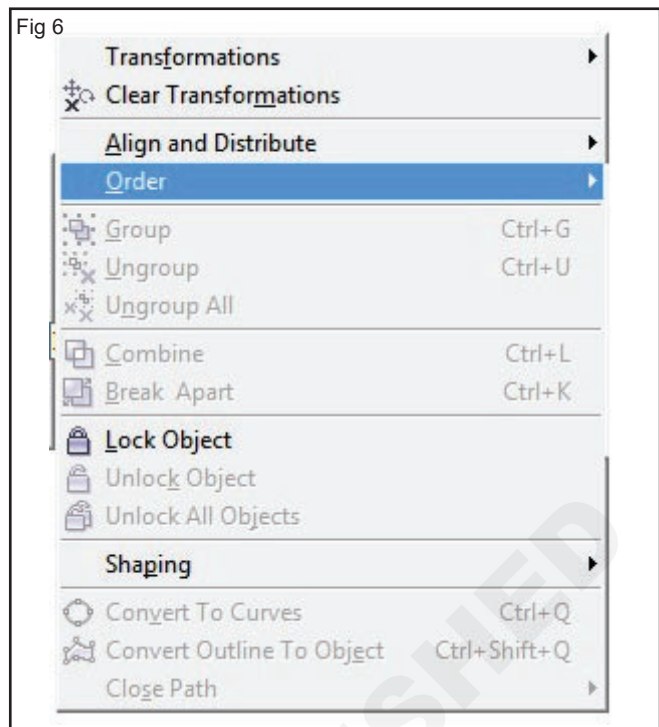
Fig 9	

24 Then select the Down Arrow next to the Drop Shadow Colour and select "Black" (Fig 10).

25 Drop Shadow applied to the images will look like.

26 The completed flyer should look like this (Fig 11)

27 To Save, go to File > Save (Fig 12).

Fig 10

Fig 11

Fig 12

TASK 5: **Exporting a File as PDF**

Saving documents as PDF files

1 Save a document as a PDF file. A PDF file can be viewed, shared, and printed on any platform provided that users have Adobe Acrobat, Adobe ® Reader ®, or a PDFcompatible reader installed on their computers.

2 A PDF file can also be uploaded to an intranet or the Web. You can also export an individual selection or an entire document to a PDF file.

To save a document as a PDF file

1 Click File ⇦ Publish to PDF.

2 From the PDF style list box, choose one of the following;

• Creates a PDF file that can be printed on a laser or desktop printer and is suitable for general document delivery.

• Style enables JPEG bitmap image compression and can include bookmarks and hyperlinks.

• Creates a high-quality PDF file intended to be sent to a printer or digital copier.

• Style enables LZW compression, embeds fonts, and includes hyperlinks, bookmarks, and thumbnails.

• It displays the PDF file with all the fonts, with all of the images at full resolution and with hyperlinks, so that you can edit the file at a later date.

• To create PDF for prepress ZIP bitmap image compression, embeds fonts, and preserves spot color options best designed for high-end quality printing.

• Consult the service bureau for their preferred settings.

• Creates a PDF file intended for online viewing, such as a PDF file to be distributed by e-mail or published on the Web.

• Style enables JPEG bitmap image compression, compresses text, and includes hyperlinks.

• To create PDF/X-1a ZIP bitmap image compression, converts all objects to CMYK, and preserves spot color options.

• Use the basic settings for prepress and is the standard format for ad distribution.

• To create PDF/X-3 style is a superset of PDF/X-1a. It allows both CMYK and non-CMYK data (such as Lab or Grayscale) in the PDF file.

3 Locate the folder in which you want to save the file.

4 Type a filename in the File name box.

To save multiple documents as a single PDF file

1 Click File ⇦ Publish to PDF.

2 Click Settings.

3 Click the General tab.

4 Enable the Documents option.

5 Enable the check box for each document you want to save.

To create a PDF style

1 Click File ⇦ Publish to PDF.

2 Click Settings.

3 In the Publish to PDF settings dialog box, specify any settings.

4 Click the General tab.

To edit a PDF style

1 Click File ⇦ Publish to PDF.

2 Click Settings.

3 In the Publish to PDF settings dialog box, specify any settings.

4 Click the General tab.

5 Click the Add PDF style button beside the PDF style list box.

6 Choose a style from the Save PDF style as list box.

To set a user password for a PDF file

1 Click File ⇦ Publish to PDF.

2 Click Settings.

3 Click the Security tab.

4 Enable the Open password check box.

5 Type a password in the Password box.

6 Retype the password in the Confirm Open password box.

— — — — — — — —

TASK 6: **Set basic printing in the printer properties of the document**

1 Create a New Document and draw a given drawing or open the existing document in your computer

2 Click Print from the File menu. The Print dialog box will appear as shown in Fig 1.

3 Click General Tab in the Print dialog box

4 Choose a printer from the print list box in the Destination area

5 Click Preference button right of the destination area. The Preference dialog box will appear as shown in Fig 2.

6 Select Layout Tab in the Preference dialog box

7 Select Portrait in the Orientation area and select Pages for sheet 1 in the Page format

8 Click Paper/Quality Tab in the printer preference dialog box

Fig 1
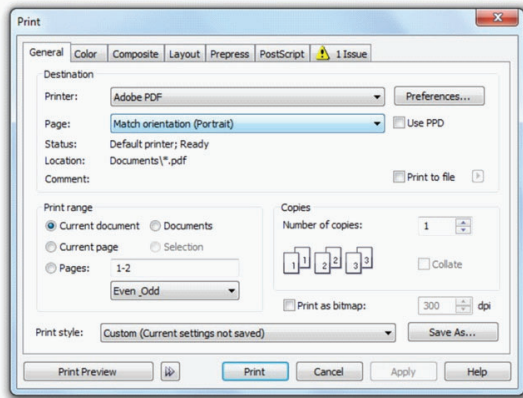
Fig 2

9 Choose Automatically Select in the Paper source list box

10 Choose Color in the Color area

11 Click OK Button

12 Enable current page in the print range area

13 Select number of copies 1 from the copies area
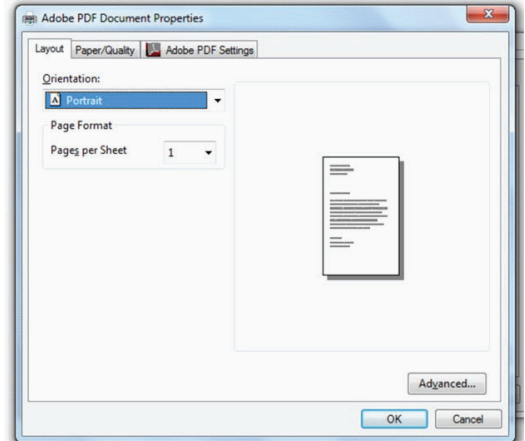
14 Click Layout tab in the print dialog box

15 Enable as in document in the image position and size

16 Click general tab in the print dialog box

17 Click print button

18 The document will pint on your printer.

— — — — — — — —

TASK 7 : **Preview a print job**

Before printing your work, you can view a summary of issues for a pint job to find potential problems in your document so, you can check the Printing areas, position, Selecting Paper size, Page Layout etc.

1 Click File → Print Preview. The Print Preview will appear as shown in Fig 1. Process to Magnify the Preview Page

2 Click View menu from the Pint Preview window and choose Zoom Menu. The Zoom dialog box will appear as shown Fig 2.

3 Enable 100% from the Zoom dialog box and Click OK

button. The Job will appear Original size see the Fig 3. Process to preview Color separation.

4 Click Settings → Separation. The Print Option Dialog box will appear

5 Click Color Tab and Enable Print Separation

6 Click Separation Tab enable all color (Cyan, Magenta, Yellow and Black) and click Ok Button. The Color Separation Preview will appear as shown in Fig 4.

You can preview composite by click View → Preview Separation → Composite. The color separation preview will appear

Fig 1
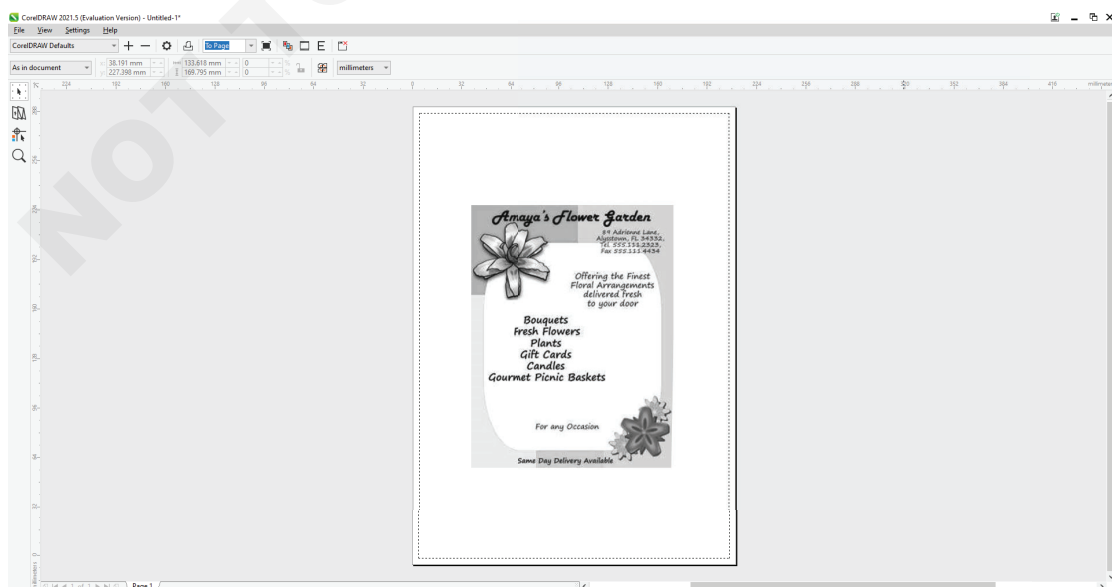
Fig 2
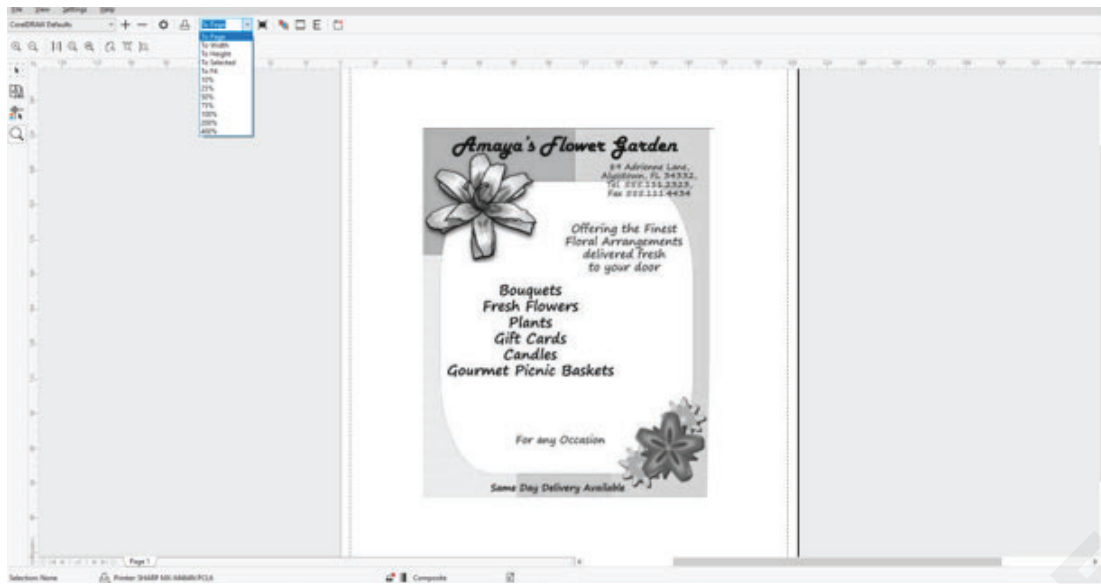
Fig 3
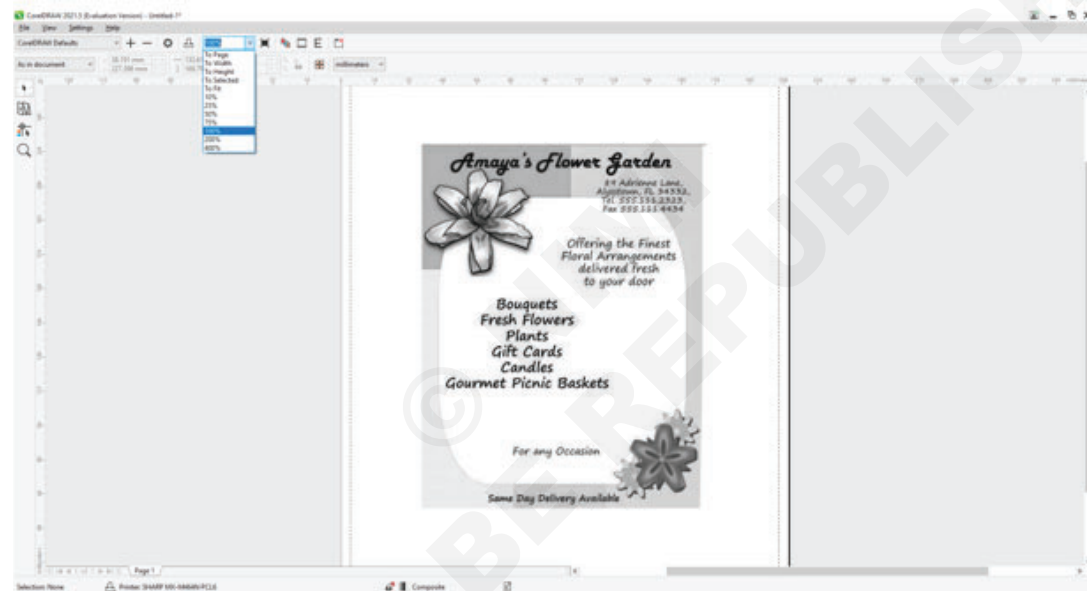
Fig 4
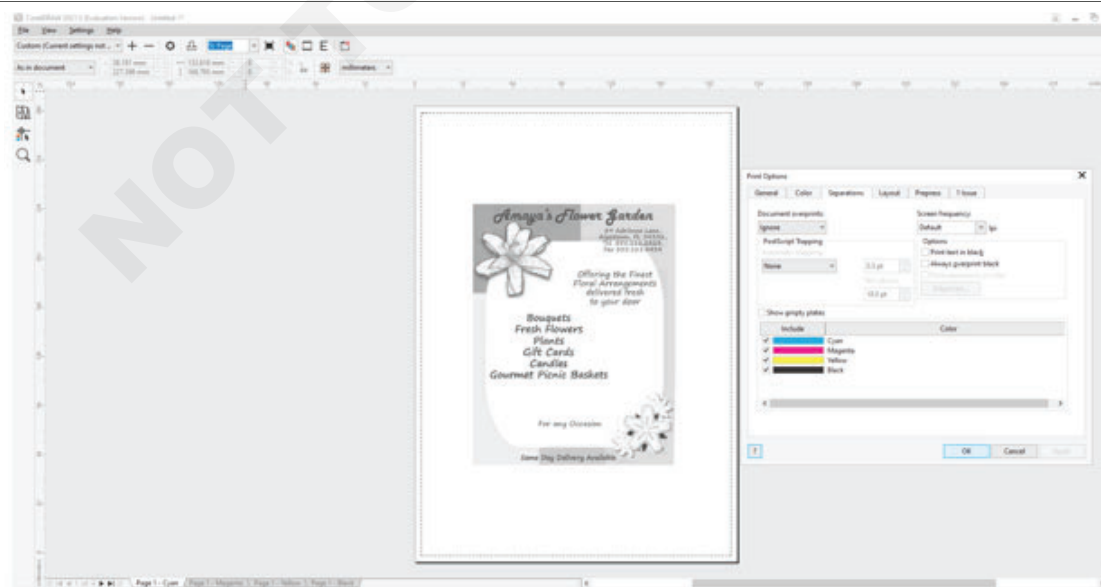
TASK 8 : **Print a job in color separation**

1 Click File → Print

2 Click Color Tab

3 Enable the print separation option

> **When you want to print Specific color separation, click the Separation Tab and enable the corresponding check box in the list of color separations**

4 Click Print

5 Finally will get CMYK Output from the printer

— — — — — — — —

TASK 9 : **Print a job with Registration Mark**

1 Click File → Print

2 Click Prepress Tab from the Print Dialog box. The Prepress Dialog box will appear as shown in Fig 1.

3 Enable Print Registration Marks from Registration Marks option, Enable Color calibration bar and Densitometer scales from the Calibration bar option, Enable Print file Information from the File Information option

4 Enable Crop/fold marks from the Crop /fold marks option

5 Select 300 dpi Color and Grayscale list box from the Bitmap down sampling

6 Click Layout Tab from the Print dialog box

7 Enable include marks and calibration bars

8 Click Apply and Click OK Button

9 The print preview will appear as shown in Fig 2.

10 Click File → Print

11 Finally will get CMYK Output with Marks and Calibration bars from the printer

Fig 1

Fig 2

— — — — — — — —
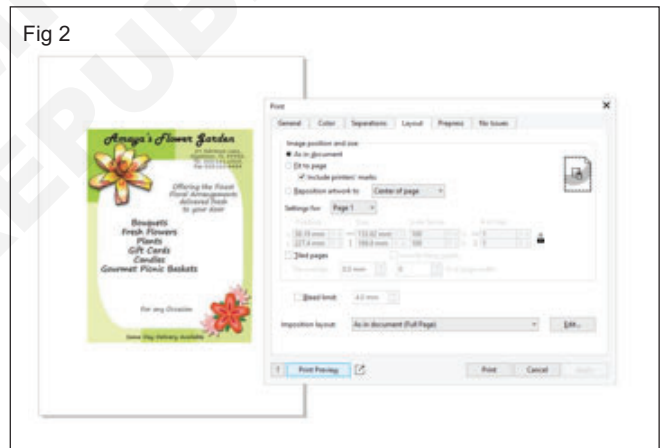
Practice on create ornamental designs for stencils, cut it and make a print

Objectives: At the end of this exercise you shall be able to
• **select the ornamental design for stencil cutting**
• **select the stencil cutting paper**
• **marking and cutting the ornamental design**
• **make a print on articles.**

Requirements

Tools/Instruments		**Materials**	
• Trainee's tool kit	- 1 No.	• Colour paint	- as reqd.
• White pencil	- 1 No.	• Buffers	- as reqd.
• Paper cutter	- 1 No.	• Putty knife	- as reqd.
• Art cutter pen	- 1 No.	• Baniyan cloth	- as reqd.
Equipments/Machineries		• Soap oil	- as reqd.
• Work bench	- 1 No.		

PROCEDURE

TASK 1: Select the ornamental design and stencil paper

1 Select any one ornamental design as you like.

2 Select the stencil paper and cut the paper as per measurement.

3 Sharpen the white pencil.

4 Draw the ornamental design on the stencil paper. (Figs 1 & 2)

Fig 2

Fig 1

— — — — — — — —
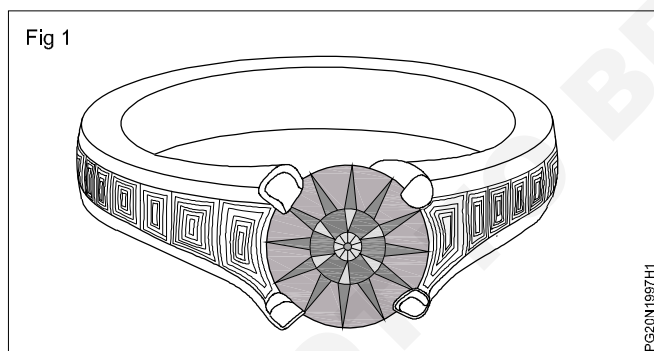
TASK 2: Ornamental design cutting on the stencil drawing

1 Darken the ornamental design lines by art cutter pen.

2 Use the knife to cut the stencil as per your instructors guide line.

3 Cut the white space of ornamental drawing.

4 Use sharp knife to cut small spaces of ornament drawing inside. (Fig 1)

5 Remove the buries on the stencil paper and compare the stencil cutting with original ornament.

6   Prepare the print materials colours.

7   Use the buffers sponge to apply colours on the stencil.

8   Place the stencil on printing article and use the tape to stick the stencil at correct position.

9   Ensure stencil is properly place on the printing material.

10 Apply the different colours on the stencil as original ornament colour by buffer spongs.

11 Remove the stencil and check the print on the article.

12 Ensure the print is as in Figs 2 & 3.

Fig 3

Fig 1
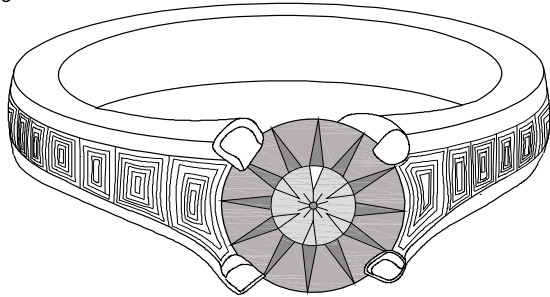
Fig 2

_ _ _ _ _ _ _ _

Practice on draw simple sentence in different lettering and stencil cutting and stencilling

Objectives: At the end of this exercise you shall be able to
• **draw simple sentence in different lettering**
• **stencil cutting the sentence letters**
• **stencilling the stencil sentence.**

Requirements			
Tools/Instruments		**Equipments/Machineries**	
• Trainee's tool kit	- 1 No.	• Work bench	- 1 No.
• Paper cutter	- 1 No.	**Materials**	
• Sharp paper cutting knife	- 1 No.	• Stencil paper	- as reqd.
• White marking pencil	- 1 No.		
• Art cutter pen	- 1 No.		

PROCEDURE

TASK 1: **Draw the simple sentence letters on white paper**

1   Select the white drawing paper.

2   Make a border line on the selected drawing sheet.

3   Select the different shape of lettering.

4   Draw the different shape letters on the drawing sheet as shown in Figs 1 & 2 as per given measurement.

Fig 2

Set of स्वर व्यंजन

Fig 1
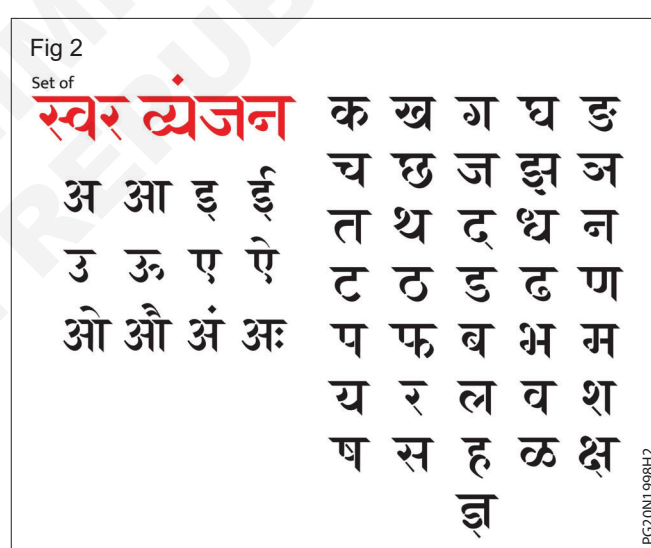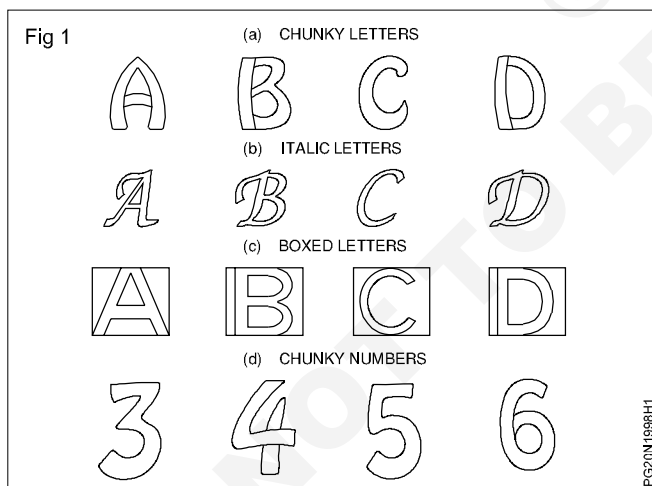
5   Ensure the letters height and width is as per given measurement for example height is 3" and width is 2".

6   Maintain the proper spacing between letters.

— — — — — — — —

TASK 2: **Stencil letters cutting practice**

1   Cutting the letters shaded area by sharp paper cutter. (Figs 1 & 2)

2   Use the art cutter pen for accurate cutting shape.

3   Carefully remove the cutting paper burris.

Fig 1

(a) CHUNKY LETTERS
(b) ITALIC LETTERS
(c) BOXED LETTERS
(d) CHUNKY NUMBERS

Fig 2
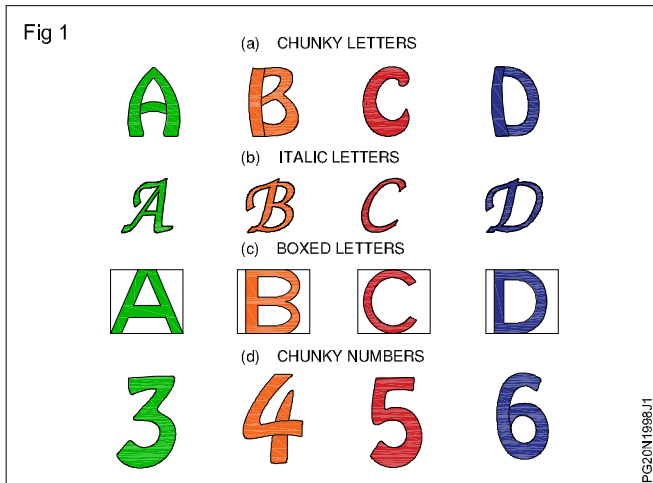
TASK 3: Simple sentence writing and cutting the stencil

1   Select the suitable stencil paper.

2   Select the different lettering sentence.

3   Write the sentence on stencil paper by using white marking pencil. (Fig 1)

4   Measure the letters and mark the measurement on the stencil paper by pencil marking.

5   Cutting the marked letters by sharp paper cutting knife.

6   Use the art cutting pen for deep and sharp shape cutting of dark marked area of the sentence letters of stencil.

7   Remove the corner paper cutting buries of each letter.

8   Ensure the sentence letters cutting is properly done as per instructor's guide line.

Fig 1

TASK 4: Stencilling the simple sentence and print it with different printers

1   Prepare the different colours for printing work.

2   Select the buffing sponge for each colour separately.

3   Stamping the stencil on the object and paste it by tapes.

4   Use the different colours for different style sentence for identify the different lettering sentence. (Fig 1)

Fig 1
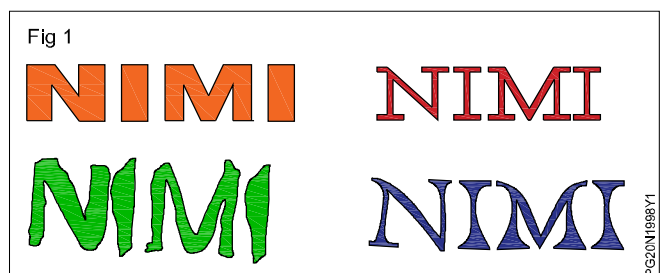
Practice on make sign board with back ground painting

Objectives: At the end of this exercise you shall be able to
• **select the sign board material**
• **prepare the sign board for painting and paint the sign board**
• **draw and write the sign board with back ground painting.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Painting brush set	- 1 No.
• Writing brush set	- 1 No.

Equipments/Machineries

• Compressor	- 1 No.
• Paint spray gun	- 1 No.

Materials

• Paint	- as reqd.
• Sign board	- as reqd.
• Thinner	- as reqd.
• Refinishing material	- as reqd.
• Sand paper	- as reqd.
• Cleaning solvent	- as reqd.
• Baniyan cloth	- as reqd.
• Soap oil	- as reqd.

PROCEDURE

TASK 1: **Select the sign board material**

1 Select the sign board material as per requirement (Tin/Wood/Plastic/Fiber/Glass).

2 Measure the sign board size and mark the measurement on the sign board.

3 Draw the marking line on the sign board.

4 Select the cutting tool according the sign board material.

5 Cut the sign board as per measurement marked on the board.

6 Use the cutting tool to cut the sign board.

7 Ensure the sign board size is as per specified standard size.

— — — — — — —

TASK 2: **Prepare the surface of sign board and back ground painting on the board.**

1 Sanding the sign board if board is a wood, plywood or any metal sheet.

2 Clean the sanding dust on the board.

3 Apply putty on the board and allow to dry it.

4 Use the fine sanding paper to sanding the board.

5 Clean the board with clean cloth.

6 Ensure the board surface is very smooth.

7 Select the paint colour.

8 Prepare the colour paint as per paint colour code.

9 Use the paint spray gun paint brush for painting the sign board. (Fig 1)

10 Use light back ground colours to dark and bold letters writing.

Fig 1

— — — — — — — —
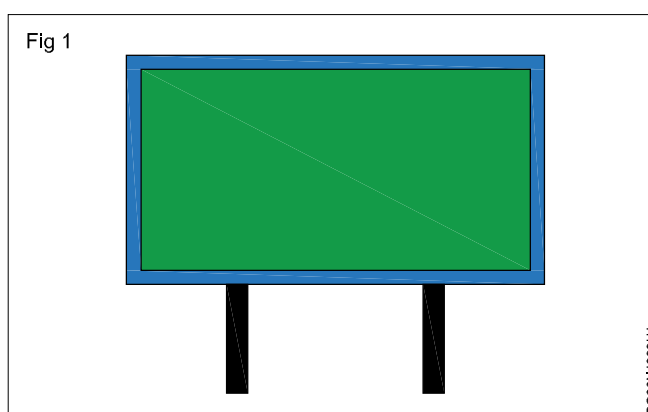
TASK 3: **Write a sign board with trade simple (Figs 1 & 2)**

1   Check the sign board colour and size of the board.

2   Check the information sign size and other sentence letter size.

3   Measure the information sign and letter size.

4   Mark the sign symbol and sentence letters on the sign board with line marking with white pencil.

5   Select the sign symbol colour and sentence letters colour.

6   Prepare the paint colour and writing brushes.

7   Colour the sign symbol let it allow to dry.

8   Wet the brush tip with water and clean it with clean cloth.

9   Touch the paint brush tip on the paint.

10 Write the letters with light touching the brush on the board.

11 Check the letters writing on the board.

12 Bold the letters without any mistake as draft given to you.

13 Touch up the letters for finishing work.

14 Ensure the sign board size, back ground colour and information symbol and sentence format is per draft size.

Fig 2

Fig 1

— — — — — — — —
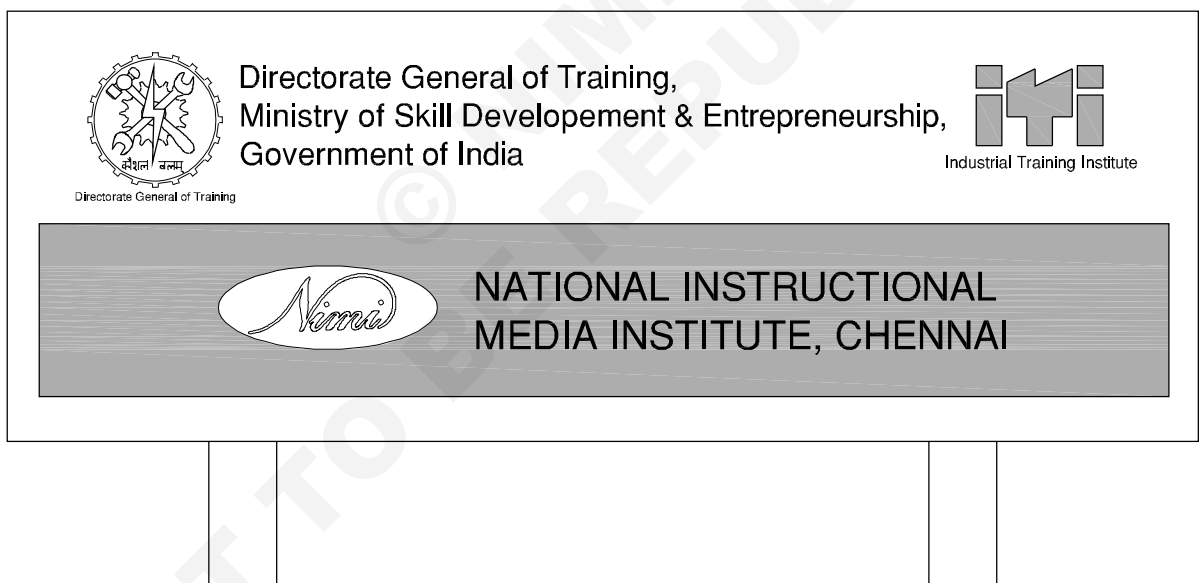
Practice on make a figure enlargement for sign board

Objectives: At the end of this exercise you shall be able to
• **make a figure enlargement.**

Requirements	
Tools/Instruments	**Equipments/Machineries**

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Painting brush kit	- 1 No.
• Pencil	- 1 No.
• Eraser	- 1 No.
• White marking pencil	- 1 No.
• Foot ruller	- 1 No.

Equipments/Machineries

• Sign board	- 1 No.

Materials

• Paint	- as reqd.
• Baniyan cloth	- as reqd.
• Thinner	- as reqd.
• Drawing sheet	- as reqd.

PROCEDURE

TASK 1: Draw the figure for sign board

1 Select the figure to draw for sign board.

2 Measure the figure and mark the points on the figure by pencil.

3 Select the white sheet and draw the border line on the sheet.

4 Mark the figure measurement on the white sheet by graph lines.

5 Draw the figure on the white sheet with in a measurement marked on the sheet. (Fig 1)

Fig 1

— — — — — — — —
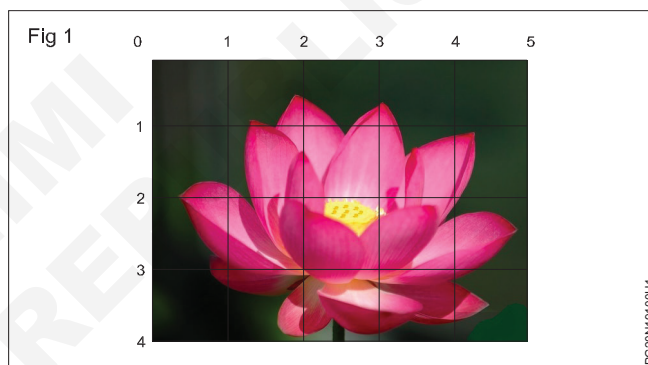
TASK 2: Enlargement for sign board (Figs 1 & 2)

1 Select advertise sign board.

2 Painting the suitable back ground painting on sign board.

3 Draw the thick border line on the sign board.

4 Mark the lines for sentence.
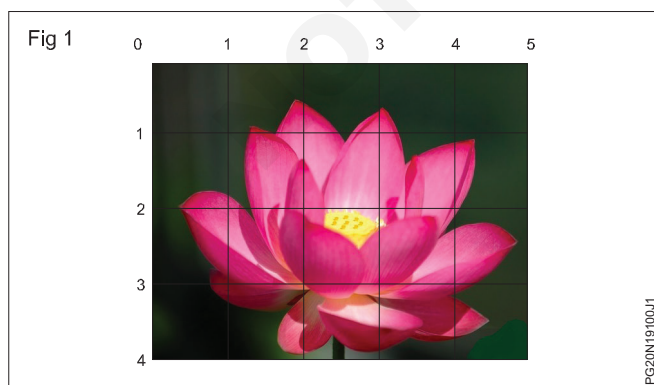
5 Mark the area for the figure enlargement on the sign board.

6 Transfer the enlargement measurement of figure on sign board.

7 Draw the enlargement figure on the sign board.

8 First draw the light line diagram the sign board.

9 Select the suitable colour for a figure and apply paint on it as per your instructor's guide line.

10 Ensure the drawn figure is as per measurement.

Fig 1

Fig 2

— — — — — — — —
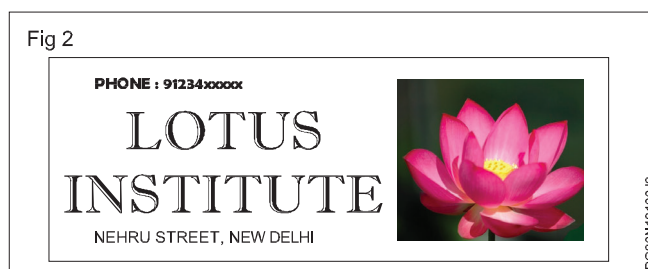
Practice on draw and painting letters of design or logo on sign board

Objectives: At the end of this exercise you shall be able to
• **select the ornamental design for stencil cutting**
• **draw the logo on sign board.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Painting brush	- 1 Set.
• Letter writing pen	- 1 No.
• Marking pencil white	- 1 No.
• Foot ruler	- 1 No.

Equipments/Machineries

• Paint spray gun	- 1 No.

Materials

• Paint	- as reqd.
• Baniyan cloth	- as reqd.
• Cleaning solvent	- as reqd.
• Soap oil	- as reqd.
• Sign board material	- as reqd.

PROCEDURE

TASK 1: Draw and painting the letters on sign board

1 Clean the painted sign board by clean baniyan cloth.

2 Select size and design of letters to write on sign board.

3 Draw the light straight line on the sign board to write a letters of sentence.

4 Mark the letters size on the sign board by using white pencil.

5 Use the writing brushes to design the letters.

6 Prepare the paint for writing letters in colourful.

7 Mark the letter size and design on the sign board.

8 Write the letters by using letter writing brush.

9 Wet the paint brush tip with water and clean it by clean baniyan cloth.

10 Touch brush tip on paint and start writing on the sign board as per your instructor's guide line.

11 When you change the letters colour use the separate brush or clean the brush tip with cleaning solvent otherwise destroy the new colour.

12 Check the sentence of sign board if any corrections is found carried out.

13 Finish the letter's touch up. (Fig 1)
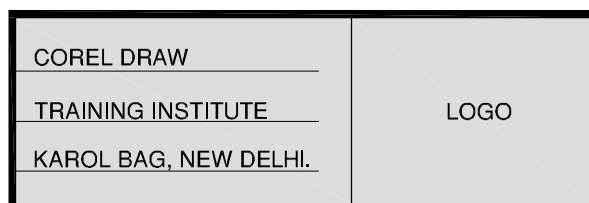
Fig 1

TASK 2: Draw and painting logo on sign board

1 Select the logo for sign board.

2 Measure the logo and mark the measurement on white sheet.

3 Practice to draw the logo on white sheet.

4 Check the drawn logo with original logo.

5 Mark the logo measurement on the sign board.

6 Draw the logo line diagram on the sign board.

7 Use the writing brush to draw the logo with specified colour. (Fig 1)

8 Ensure the sign board with logo is as specified by the customer choice.

9 You can use the following type of letter designs to write a sign board design.
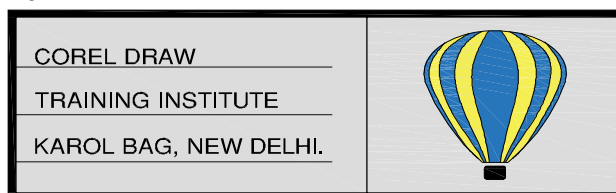
Fig 1

TASK 3: **Draw and painting letters**

1　Draw the letters as shown Fig 1.

2　Painting the letters as shown Figs 2 & 3.

Fig 1

Fig 2

Fig 3

— — — — — — — —

Paint a name plate on different material

Objectives: At the end of this exercise you shall be able to
• **paint a wood name plate**
• **paint a tin name plate**
• **paint a acrylic name plate.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Planner tool	- 1 No.
• Wood chisel	- 1 No.
• Scraper	- 1 No.
• Tin cutter	- 1 No.
• Cutting gauge	- 1 No.

Equipments/Machineries

• Work bench	- 1 No.
• Carpenter vice	- 1 No.

Materials

• Wood	- as reqd.
• Tin	- as reqd.
• Acrylic sheet	- as reqd.
• Varnish	- as reqd.
• Paint	- as reqd.
• Thinner	- as reqd.
• Putty	- as reqd.
• Primer	- as reqd.
• Sanding paper	- as reqd.

PROCEDURE

TASK 1: **Paint a wooden name plate**

1 Select the wooden material for make a name plate.

2 Cut the wooden piece as the size of name plate.

3 Shape the name plate with carpenter tools by using the smoothing plane.

4 Use the marking gauge to an accurate mark on the name plate.

5 Measure and make a name plate border frame design.

6 Fix the frame on the plate by nail or screw or glue or cut joints.

7 Make a fine surface by sanding with fine sand paper.

8 Apply putty on corner joints and wherever need on the name plate.

9 Let allow to dry and again sand the name plate surface and frame surface.

10 Ensure the name plate surface in fine condition.

11 Apply varnish on the name plate and let it allow to dry in atmosphere air.

12 Select the suitable paint and apply back ground paint on the name plate.

13 Apply first coat on the cleaned surface and dry first coat.

14 Apply second coat in circular motion.

15 Apply finishing coat of polish along the grain.

16 Ensure the name plate is properly painted (Fig 1).

Fig 1 — NAME PLATE

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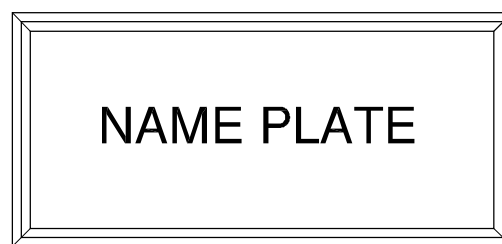
TASK 2: **Paint a tin name plate**

1 Select the suitable tin sheet material for the name plate.

2 Mark the required size of name plate by using scriber.

3 Cut the tin sheet as marked line.

4 Remove the tin sheet dent by using wooden mallet.

5 Remove the dust and rust on the tin sheet by manual sanding or power tool sanding method.

6 Prepare the name plate frame and fix the frame on the tin sheet by different type of joint (welding, screwing, soldering, brazing, seeming, grooving methods).

7 Sanding the tin sheet name plate for remove the rust and dust.

8 Apply the primer or anti corrosion material on the name plate and select the suitable paint grade and colour.

9 Prepare the paint colour and apply back ground paint on the name plate.

10 Apply paint first, second and clear coat by using spray gun or brush as you need.

11 Allow sufficient time to dry the paint and then polish it.

12 Draw the border line on the name plate and write the names (Fig 1).

13 Ensure the name plate is proper size and properly framed (Fig 1).

Fig 1

PRINCIPAL

— — — — — — — —
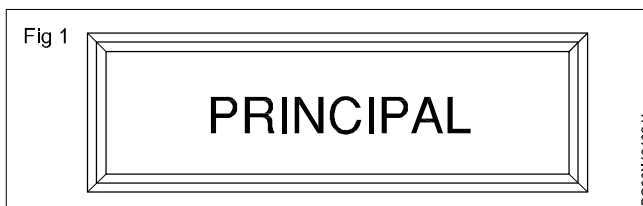
TASK 3: Acrylic name plate

1 Select the acrylic colour sheet for name plate.

2 Mark the measurement of name plate on the acrylic sheet.

3 Use the hacksaw to cut the sheet.

4 File the edges of name plate to remove the buries.

5 Ensure the name plate is as per specified measurement.

6 Make the frame for the name plate and fix the frame on the name plate.

7 Draw the border line on the name plate.

8 Change the name plate colour by colour painting method on it (Fig 1).

Fig 1

NIMI

— — — — — — — —
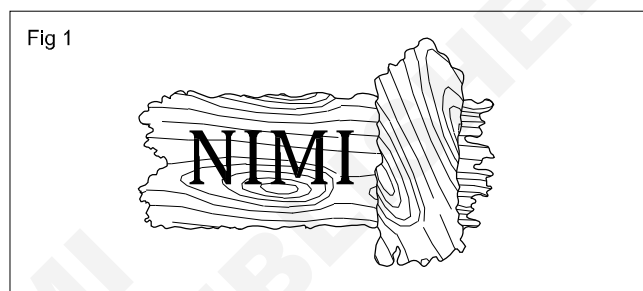
Practice on make a wooden frame with bolting cloth

Objectives: At the end of this exercise you shall be able to
• **make a wooden frame**
• **select the screen printing cloth**
• **bolting the cloth with frame.**

<table>
<tr><td colspan="4">Requirements</td></tr>
<tr><td colspan="2">Tools/Instruments</td><td colspan="2">Materials</td></tr>
<tr><td>• Trainee's tool kit</td><td>- 1 No.</td><td>• Screen mesh</td><td>- as reqd.</td></tr>
<tr><td>• Stencil cutter</td><td>- 1 No.</td><td>• Wooden clamp</td><td>- as reqd.</td></tr>
<tr><td colspan="2">Equipments/Machineries</td><td>• Male and female clamp</td><td>- as reqd.</td></tr>
<tr><td>• Work bench</td><td>- 1 No.</td><td></td><td></td></tr>
<tr><td>• Screen printing frame</td><td>- 1 No.</td><td></td><td></td></tr>
</table>

PROCEDURE

1 Select the wooden pieces for make a wooden frame.

2 Select the size of frame and calculate the length and width of the frame. [Rectangle type or square type].

3 Sawing the wooden pieces for the size of frame.

4 Measure the length and width of the frame wooden pieces.

5 Fix the frame pieces with carpenter vice.

6 Shape the frame flatness with smoothing plane unit for further smoothness.

7 Shape the edges of the frame pieces.

8 Check the jointing edges flatness or angle shape.

9 Joint the frame with help of nails or screws or glue pasting methods.

10 Warping of the frames under various metals (steel uses aluminium).

11 Pre-treatment of frames before construct the screen printing frames.

12 Stretching the equipment.

13 Use the pneumatic stretching clamps for correct stretching.

14 Apply optimum tensioning force for different fabrics.

15 Ensure the stability of the frame.

16 Ensure the control of tension in measuring fabric stretch.

17 Ensure the stretching at a fabric angle.

18 Use the standardised stretching methods.

19 Do the angled stretching with a proper profile.

20 Adhering screen printing fabrics on to the frame. (Figs 1 & 2)

Fig 1
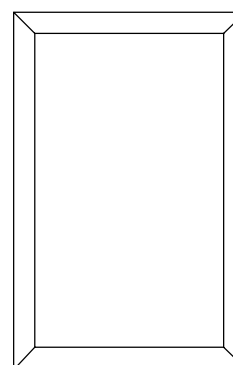
RECTANGLE SCREEN PRINTING FRAME

PG20N19103H1

Fig 2
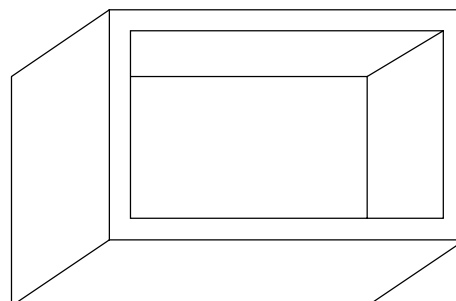
PG20N19103H2

Practice to create art work on tracing for screen exposing

Objectives: At the end of this exercise you shall be able to
- **create art work on computer software**
- **art prints it onto a transparent photo stencil system film**
- **prepare the screen mesh to suit the complexity of the design**
- **apply layer of light reactive emulsion and harden it by bright light**
- **art exposed to a very bright light on the screen mesh.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.	• Water with washbasen	- 1 No.
• Screen frame	- 1 No.		
• Bright light	- 1 No.	**Materials**	

Equipments/Machineries

• Stencil film			- as reqd.
• Screen printing exposer unit	- 1 No.	• Sreen mesh	- as reqd.
• Computer with printer	- 1 No.	• Reactive emulsion	- as reqd.
• Dark room	- 1 No.	• Colour material	- as reqd.
		• Swiping plate	- as reqd.

PROCEDURE

TASK 1: **Create art work on computer**

1 Open the computer system.

2 Draw the art or import the art from any source (file, internet and scanning) and save the art in folder and give print option of the art.

3 Print the art onto a transparent photo stencil system film by computer printer.

4 Check the printout of acetate film (Fig 1).
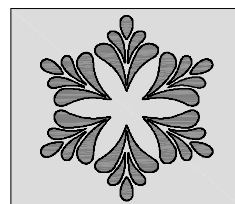
Fig 1

— — — — — — — —

TASK 2: **Prepare the screen mash on the suitable frame**

1 Choose a mesh screen to the suit the complexity of the design.

2 Coating with a layer of light reactive emulsion on the screen mesh.

3 Apply bright light on the screen emulsion for harden the emulsion by bright light.

— — — — — — — —

TASK 3: **Art exposed on emulsion-coated screen**

1 Place the screen mesh frame on the table.

2 Fix the bright light above the screen mesh.

3 Laid the art designed photo stencil system onto the emulsion coated screen and adjust the sheet on the screen mesh.

4 Apply very bright light on the photo stencil system to whole thing is exposed on the screen.

5 The bright light hardens the emulsion and parts of art also exposed on the emulsion coated screen.

6 Ensure the art exposed print is as same in acetate film (Fig 1).
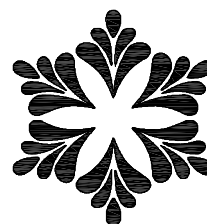
Fig 1

— — — — — — — —

Practice on coating solution and expose screen with ready art work

Objectives: At the end of this exercise you shall be able to
• **coating solution and expose screen with ready art work**
• **develop exposed screen with cold water**
• **touch up pin holes and non printing area**
• **taping around inside of screen mash.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Squeeze	- 1 No.
• Rubber blade	- 1 No.

Equipments/Machineries

• Printing table	- 1 No.
• Dark room	- 1 No.
• Bright light	- 1 No.
• Wash basen	- 1 No.
• Exposer unit	- 1 No.

Materials

• Acetate sheet	- as reqd.
• Screen frame	- as reqd.
• Screen mesh	- as reqd.
• Reactive emulsion	- as reqd.
• Baniyan cloth	- as reqd.
• Soap oil	- as reqd.
• Rinse material	- as reqd.
• Printing ink	- as reqd.

PROCEDURE

Coating solution and expose screen work

1 Pour a bead of transfer emulsion at one end of screen with light squeegee pressure.

2 Coat emulsion across screen with soft round edged squeegee.

3 Card off excess emulsion, the coated screen should have a shiny or wet look, if not refold and squeegee again.

4 After coating with transfer emulsion, allow time for the emulsion to sentence the film.

5 Don't use heat or fan.

Note: The thicker the stencil the longer the dwell stop should take.

6 After dwell step is complete dry screen a dark area at the temperature to higher the 110°F.

7 To expose, remove the clear backing and place the emulsion side of the positive against the print size of exposer frame.

8 Allow the exposed screen for a set time.

9 Ensure the areas of the screen not covered by the design is hard.

10 Carefully rinsed away the unhardened emulsion on the screen by using cold water spray and rinse the unwanted material.

11 Then allow the screen to dry.

12 Compare the exposed design with original design.

13 Make necessary touch-up pin holes and non printing area to make the print as accurate as possible to original design.

14 Taping around inside of screen mesh for uniform border distance.

15 The stencil is now ready to be used.

Fig 1

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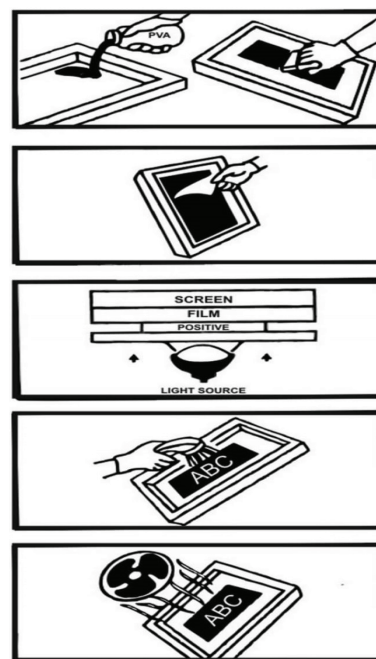
Practice on cromoline film and expose screen with ready art work

Objectives: At the end of this exercise you shall be able to
• **use the cromoline film**
• **expose the screen with ready art work**
• **develop exposed screen with cold water**
• **touch up pin holes and non-printing area**
• **taping around inside of the screen.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Stencil frame	- 1 No.

Equipments/Machineries

• Printing table	- 1 No.

Materials

• Chroma clean	- as reqd.
• Chroma strip	- as reqd.
• Photostencil system film	- as reqd.
• Transfer emulsion	- as reqd.

PROCEDURE

1 Use cromoline film and expose screen with ready art work

2 Work under yellow light.

3 Add water to sensitizer and mix solution into D2 emulsion. (Fig 1)

Fig 1
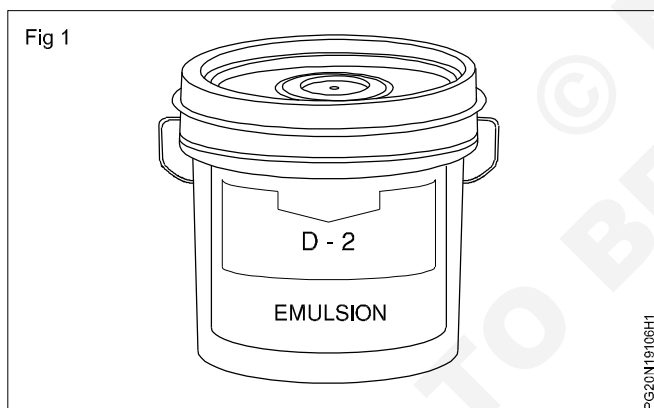
4 Transfer the emulsion and place the film, emulsion side up on clean.

5 Flatten the surface which is smaller than the inside dia mention of the screen frame.

6 Place the screen, squeegee side up, on film. (Fig 3)

7 Pour a bead of transfer emulsion at one end of the screen.

8 Give light squeegee pressure and coat the emulsion across the screen with soft round edged squeeze. (Fig 2)

9 Ensure coated screen should have shiny and wet look.

10 If not reflooded the emulsion and squeeze again. (Fig 4)

Fig 2

Fig 3

Fig 4
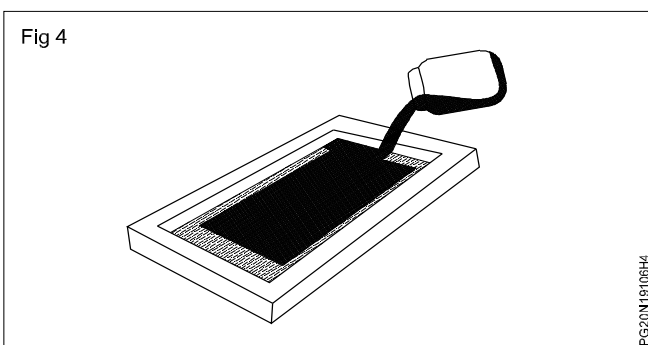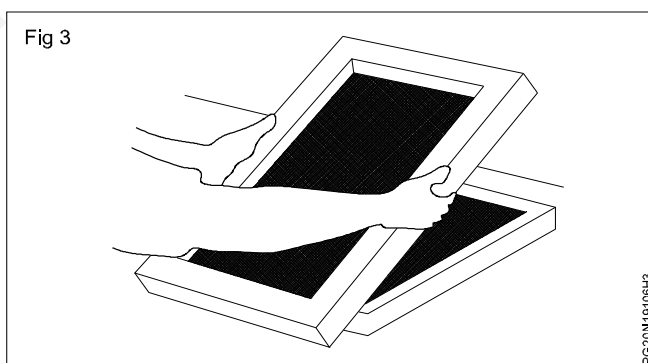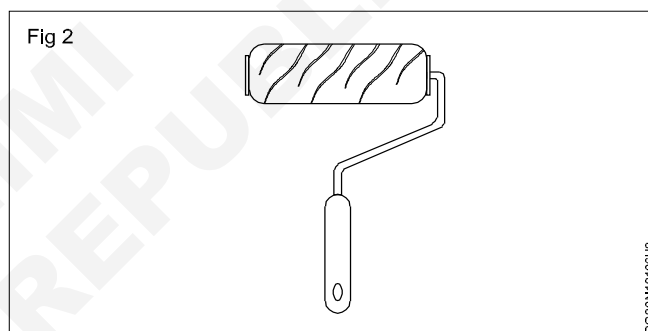
11 After coating with transfer emulsion allow time of for the chromo line recommudate on 15 minutes

12 For dwell step the emulsion to sensitize the film.

13 Don't use the heat or fan for transfer emulsion to sensitize the film.

14 The thicker stencil take longer dowel step.

15 After completion transfer the emulsion step dry screen in dark area at a temperature below 110°F.

16 If screen is not dry, the clear backing is difficult to remove.

17 Allow to dry the screen approximately 30 minutes.

18 Remove the clear backing and place the emulsion side of the positive against the print side of the screen in an expose frame refer the following UV exposure chart.

19 Gently spray both side of the screen with warm or cold water to develop the art.

20 Wait for approximately 30 seconds and then wash the print side of the screen until the image is fully open and foaming has stopped.

21 Rinse the squeegee side and dry completely.

22 Touch up pin holes and non-printing area on screen art.

23 Now screen is ready for print, taping the screen art before start the print.

> **Note: Exposer times may be vary depending upon equipment used bulb age and other shop conditions**.

FILM	1KW @ 18"	5KW @ 40"	mj/cm^2
D-50	3 min. 15 sec.	2 min. 00 sec.	739
D-75	3 min. 45 sec.	2 min. 30 sec.	921
A-100	3 min. 45 sec.	2 min. 30 sec.	739
B-100	4 min. 00 sec.	2 min. 45 sec.	1011
B-150	4 min. 30 sec.	3 min. 15 sec.	1180
B-200	5 min. 15 sec.	4 min. 00 sec.	1470

FILM ROLL SIZE	TRANSFER EMULSION
26" x 50'	ONE QUART
26" x 200'	ONE GALLON
52" x 50'	TWO QUARTS
52" x 200'	TWO GALLONS

— — — — — — —

Prepare and registration pining work on printing table

Objective: At the end of this exercise you shall be able to
• **prepare and registration of pining work on printing table.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Stencil frame	- 1 No.

Equipments/Machineries

• Printing table	- 1 No.

Materials

• Screen mesh	- as reqd.
• Squeegee blade	- as reqd.
• Ink	- as reqd.
• Glue	- as reqd.
• Transfer emulsion	- as reqd.
• Hand gloves	- as reqd.

PROCEDURE

TASK 1: **Flatbed screen printing preparation and registration of pining work**

1 Prepare the screen tensioned on the frame with stencil fitted on it. (Fig 1)

2 Screen substrate are on plane parallel to each other. (Fig 1)

3 Fix the screen frame is guided at a tangent over the object to be printed.

Fig 1

4 Ensure the screen frame and printing table are adjusted and proper position for printing work.

5 If need adjust the printing screen with adjusting screw and manually adjust the printing table.

6 Flatbed screen printing table is designed purely for manual operation. (Fig 2)

Fig 2

7 Ensure the accurate positioning of the screen in the printing situation.

8 Check the vacuum suction plate which is hold and fasten down the substrate during printing process.

9 Check and set the squeegee angle and pressure force.

10 Check the sheet feeding and delivery is easy manual operation.

11 Multicolour screen printing device is used for textile printing four colours. (Fig 3)

Fig 3

Rotary motion printing machine (Fig 4)

Fig 4
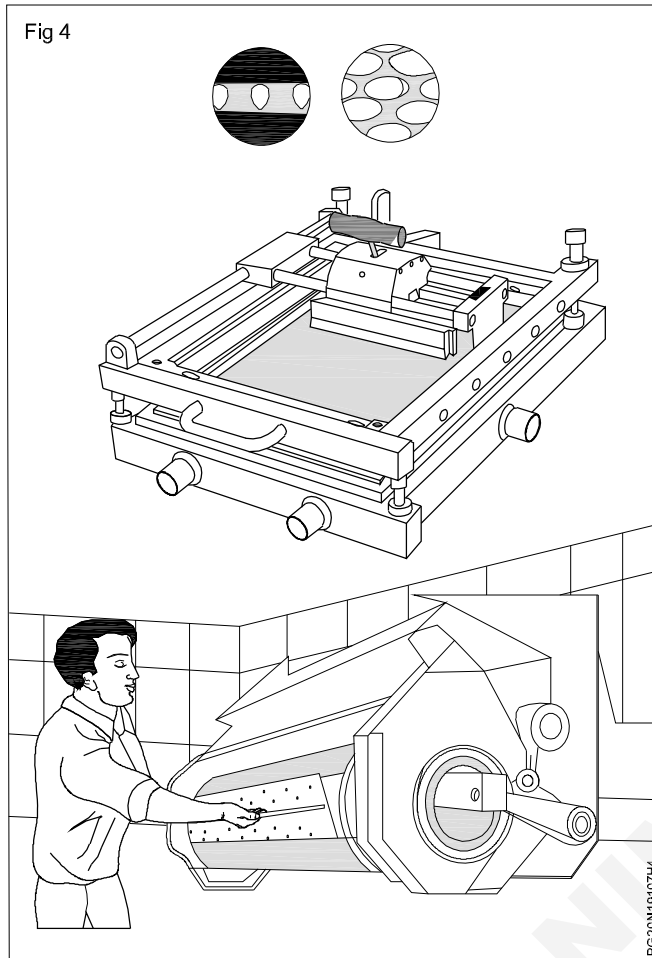
1 Fix the screen one the machine and ensure the rotational motion of the object to be printed.

2 Ensure the screen is synchronized by a gear wheel and rack.

3 Ensure the straight edge squeegee sits firmly in place (in this method conical objects also be printed).

4 Check conical and cylindrical objects holder.

Note: Preparation and registration of pining work on printing table work of screen printing system is same.

5 Semi-automatic screen printing machine is used for printing on flat substrates (Siri/Bochonow). (Fig 5)

Fig 5
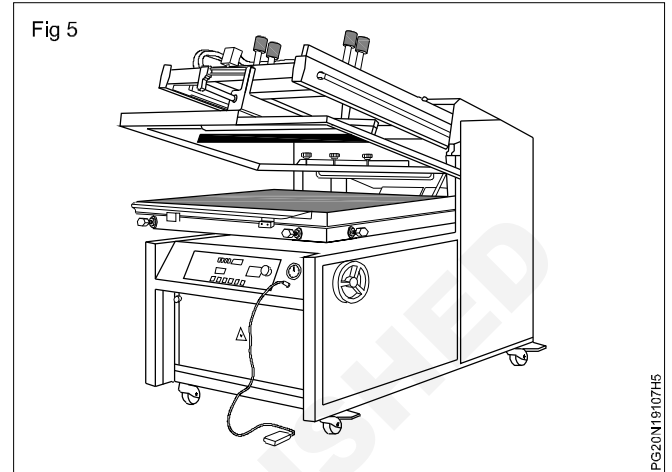
6 Screen printing device for printing on curved objects/bodies. (Rokuprint/Steinmann). (Fig 6)

Fig 6

— — — — — — — —
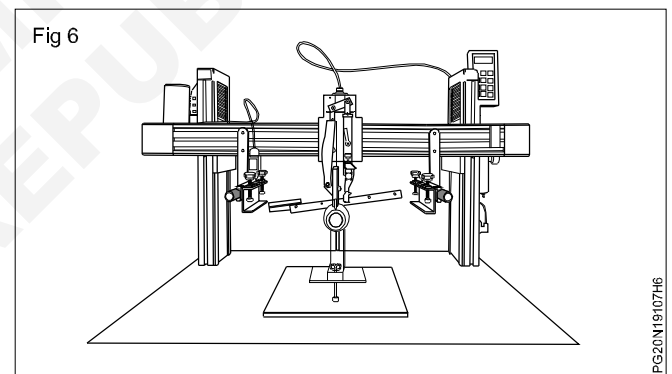
Practice on testing of registration with squeeging ink

Objectives: At the end of this exercise you shall be able to
• **fill the ink on the screen mesh**
• **apply squeegee blade for ink flooding for print.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Frame with screen mesh	- 1 No.
• Colour filler	- 1 No.
• Squeegee blade	- 1 No.

Equipments/Machineries

• Printing table	- 1 No.

Materials

• Ink	- as reqd.
• Screen cleaning solvent	- as reqd.
• Trans emulsion	- as reqd.
• Baniyan cloth	- as reqd.
• Hand gloves	- as reqd.

PROCEDURE

TASK 1: **Testing of registration with squeeging ink**

1 Clean the stencil with pressure water and dry it with atmosphere temperature.

2 Fix the tape inside of the frame.

3 Touch the pin holes.

4 Apply the transfer emulsion on the screen mesh.

5 Flooded the emulsion on the screen by using squeegee soft blade by light touch and ensure emulsion spread over the screen mesh.

6 Place the object to be print on printing table (Fig 1).

7 Align the object and stencil frame in proper position. (Fig 2)

8 Position the stencil frame on the object. (Fig 1)

9 Roll over the printing ink on the screen mesh by press swiping the ink on the screen up and down motion.

10 Lift the screen mesh frame and remove the printed object.

11 Check the registered art print on the object (Fig 2).

Fig 2

$$\text{OPEN SCREEN AREA}(\%) = \frac{w^2}{a^2} \times 100\%$$

d - THREAD THICKNESS (DIAMETER)
a - THREAD SPACING
w - MESH WIDTH

Fig 1

Practice on single colour printing on selected cards/sheets

Objective: At the end of this exercise you shall be able to
• **single colour printing on selected cards/sheets.**

Requirements

Tools/Instruments

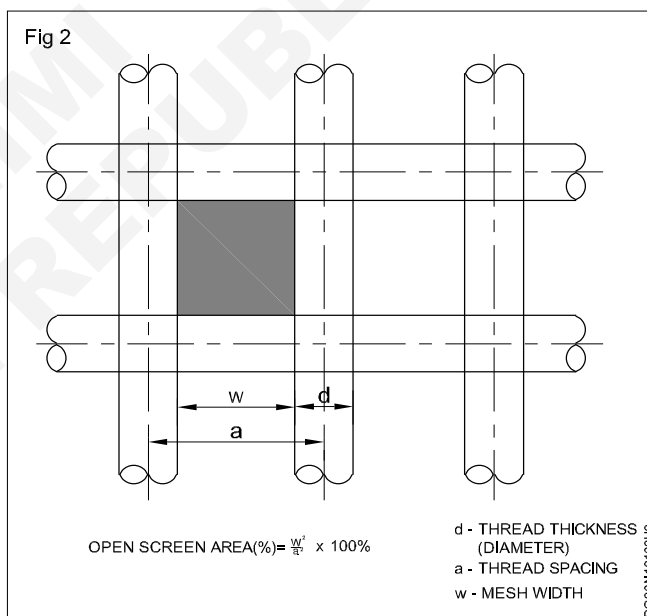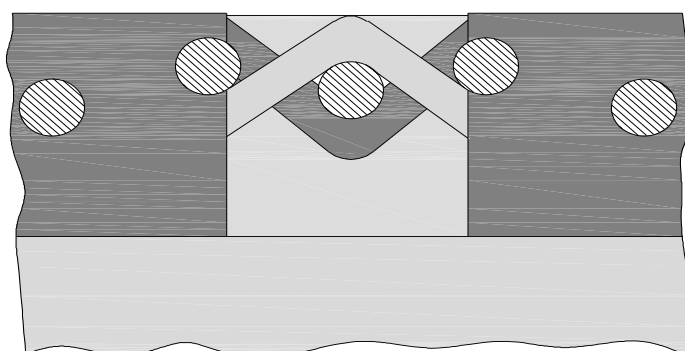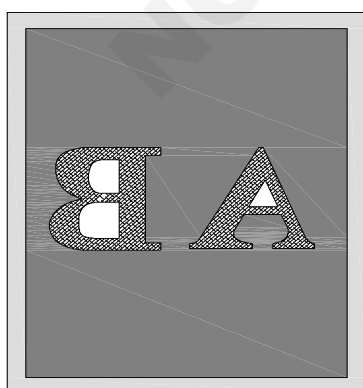|	
• Trainee's tool kit	- 1 No.
• Frame with screen mesh	- 1 No.
• Squeegee	- 1 No.

Equipments/Machineries

• Printing table	- 1 No.
• Water tub	- 1 No.
• Dark room	- 1 No.
• Exposing light	- 1 No.

Materials

• Transfer emulsion	- as reqd.
• Colour ink	- as reqd.
• Hand gloves	- as reqd.
• Screen cleaning solvent	- as reqd.
• Baniyan cloth	- as reqd.
• Soap oil	- as reqd.
• Scrubber	- as reqd.
• Soap water	- as reqd.

PROCEDURE

TASK 1: **Single colour printing on selected cards/sheets (Fig 1)**

1 Select the cards/sheets to be print.

2 Select the ink colour to be print on the cards.

3 Prepare the art by using computer.

4 Print the art on acrelte film.

5 Prepare the stencil mesh frame by cleaning with pressure water to remove dust particle on it.

6 Let allow the stencil mesh for dry.

7 Apply transfer emulsion on the screen mesh and spread over the emulsion on the screen both side.

8 Allow the emulsion to dry at specified time.

9 Ensure the transfer emulsion is fully dried.

10 Place the stencil film on the stencil mesh.

11 Place the stencil frame under the exposing light.

12 Switch on the light and on the timer.

13 Switch off the light after the recommended specified time limit.

14 Remove the film from the frame and check the stencil mesh for the art exposing on it.

15 Spray the pressure water on the stencil mesh and rinse the emulsion.

16 Wash the emulsion on the stencil mesh.

17 Check the exposing art on the stencil mesh if need touch up the art as need.

18 Ensure the stencil art is ready for printing work.

Fig 1

Film positive used to expose and harden

Light sensitive emulsion

Screen Frame stretched tightly with fabric

Squeege

Emulsion attached to fabric, expose and developed to wash away

Ink "sqeezed" through makes print
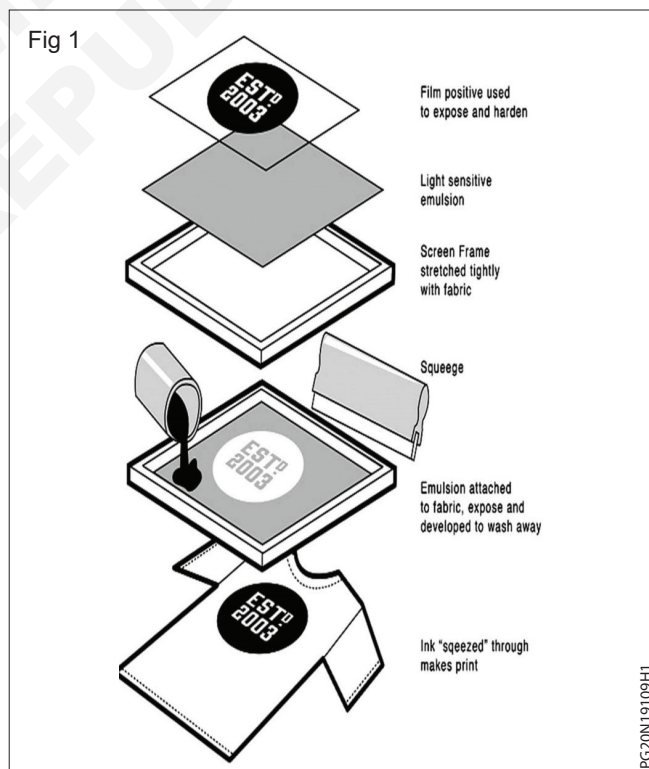
19 Stick the tape on the border of the stencil frame on both side for uniform printing the exposing art.

20 Place the frame on the printing table and adjust the stencil frame and printing table.

21 Apply glue on the printing table for griping the cards/sheets.

22 Place the cards/sheets on the printing table.

23 Align the stencil frame and printing cards.

24 Apply single colour ink on the stencil mesh and spread over the stencil mesh with the help of squeegee rubber plate or sponge by light pressure application.

25 Set the stencil frame on the printing table and place the sample printing card/sheet for printing.

26 Flood over the ink on the art exposed stencil by given pressure on the stencil with squeegee wiping plate up and down movement.

27 Lift up the stencil frame and carefully remove the card from the printing table.

28 Apply heat on the printing area of the card by heat gun.

29 Ensure printing art is well dry.

30 Check the printing card/sheet, if found any correction carried over the correction as per your instructor's guide line.

31 There after continue the printing the cards/sheets.

— — — — — — — —

Practice on multi-colour printing on selected cards/sheets

Objectives: At the end of this exercise you shall be able to
• **multi-colour printing on selected cards/sheets**
• **develop the art and print the multicolour cards/sheets.**

Requirements

Tools/Instruments

• Trainee's tool kit	- 1 No.
• Frame with screen mesh	- 1 No.
• Squeegee plate	- 1 No.
• Colour filler	- 1 No.

Equipments/Machineries

• Printing table	- 1 No.
• Tub	- 1 No.
• Dark room	- 1 No.
• Exposing light	- 1 No.

Materials

• Squeegee blade	- as reqd.
• Colour ink	- as reqd.
• Acrelte film	- as reqd.
• Tape	- as reqd.
• Cleaning solvent	- as reqd.
• Scrubber	- as reqd.
• Gloves	- as reqd.
• Soap water	- as reqd.

PROCEDURE

TASK 1: Multicolour printing on selected cards/sheets

1 Select the cards/sheets to be print.

2 Prepare the stencil frame with stencil mesh.

3 Clean the stencil mesh by clean pressure water with soap solution one by one.

4 Ensure the both stencil mesh is well cleaned and stop the cleaning process.

5 Let allow the both stencil mesh to dry by apply room temperature heat.

6 Ensure the stencil frame is well dry.

7 Apply transfer emulsion on the both stencil mesh.

> **Note: Each colour need separate stencil mesh with frame.**

8 Let allow the transfer emulsion to dry well on the stencil mesh.

— — — — — — — —

TASK 2: Develop the art and print the multicolour cards/sheets

1 Switch on the computer and open the file.

2 Develop the mater and art or download from the file to be print on the sheet and save it on the separate folder.

3 Select the number of colours to be print on the card.

4 Select the acrelte film according number of colours selected.

5 Place the film on the printer and place the command of print on the computer.

6 Bring the printed film and check the print on the film, if need touch up do it as per your instructor's guide line.

7 Place the printed film on stencil mesh and stick the tape on the border of stencil mesh on both side for each colour separate stencil mesh.

8 Place the stencil mesh under the exposing light for limited time as specified.

9 Switch off the light and remove the stencil mesh.

10 Remove the film and clean the transfer emulsion of stencil mesh by applying clean pressure water and scrubbing with soft scrubber.

11 Let allow to dry the exposed stencil mesh.

12 Select the sentence and art for each colour for printing the cards.

13 Tape the other colour printing sentence on the exposed stencil.

14 Fix the stencil frame on the printing table moveable clamp.

15 Place printing table plate for fix the printing cards.

16 Apply glue on the printing table to hold the cards/sheets.

17 Apply colour ink on the exposed stencil mesh and spread over the ink on the stencil mesh by using squeegee blade moving with up and down movement by light pressure.

18 Place the printing card or sheet on the printing table.

19 Place the stencil mesh on the printing card and align it. (Fig 1)

20 Now apply squeegee up and down movement with pressure on the exposed stencil to flow ink for printing card.

21 Lift up the stencil frame and remove the printed card.

22 Apply heat by heat gun to dry the printing mater on the card.

23 As above mention steps to be followed for further other colour printing.

Note: Use the separate exposed stencil for each colour print. Tape the art sentence already printed or to be print on other colour on the cards.

24 Ensure the printed cards are in multicolour as selected colours.

Fig 1

— — — — — — —

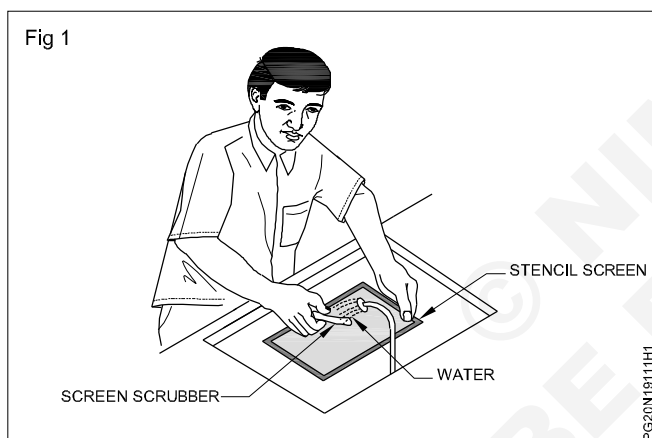## Practice on decorating used screen with bleach powder

Objectives: At the end of this exercise you shall be able to
• **decorating the used screen with bleaching powder**
• **wash and clean the exposed stencil wash.**

Requirements		
Tools/Instruments		**Materials**

Tools/Instruments

• Trainee's tool kit   - 1 No.

Equipments/Machineries

• Wash tub   - 1 No.

Materials

• Cleaning solution   - as reqd.
• Scrubber   - as reqd.
• Bleaching powder   - as reqd.
• Water   - as reqd.
• Soap oil   - as reqd.

PROCEDURE

TASK 1: **Decorating the used screen stencil mesh with wash and clean (Fig 1)**

Fig 1

3 Apply bleaching powder on the screen.

4 Scrub the screen with scrubber.

5 Scrub the screen until remove the old printing ink and exposed print on the screen by spray bleaching powder solution with water mix.

6 Clean the screen with pressure water,

7 Ones again apply the cleaning solution on the screen and scrub it on full screen melting with water.

8 Clean the screen by pressure water.

9 Ensure the screen is well cleaned and ready for further use.

1 Place used screen stencil mesh on the washing tub.

2 Wet the screen stencil with pressure water.

— — — — — — — —