THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

FORM TWO NATIONAL ASSESSMENT

070 **TECHNICAL DRAWING**

Time: 2:30 Hours **ANSWERS** **Year: 2019**

Instructions

1. This paper consists of sections **A** and **B** with a total of **seven (7)** questions**.**
2. Answer **all** questions in section A and any **two(2)** questions from section **B**
3. Section **A** carries **forty (40)** marks and section **B** carries **sixty (60)** marks.
4. Cellular phones and any unathorized materials are **not** allowed in the assessmenmt room.
5. Write your **Assessment Number** at the top right hand corner of every page.

FOR ASSESSOR'S USE ONLY		
QUESTION NUMBER	**SCORE**	**ASSESSOR'S INITIALS**
1		
2		
3		
4		
5		
6		
7		
TOTAL		
CHECKER'S INITIALS		

SECTION A (40 MARKS)

Answer **all** questions in this section

1. Choose the correct answer from the given alternatives and write its letter in the box provided.

i) What is the name given to a section if the cutting plane passes through base and one slant side of a cone is also parallel to the axis of the cone?

A. Parabola
B. Hyperbola
C. Ellipse
D. Conical.

The correct answer is B. alternatives C and D are formed when the section is not parallel to the axis but they make a greater angle with the axis of the cone than does the generator of the elements.

ii) The points of locus which is lying inside the generating circle but also rolling the base of circle is called

A. Inferior trochoid
B. Superior trochoid
C. Inferior epitrochoid
D. Superior epitrochoid.

The correct answer is C. cycloidal and spiral curves that the locus of the point is formed when circumference of a circle rolls without slipping along a straight line.

iii) How are the smaller letters used in drawing?

A. To give details
B. To show hidden portions
C. To show the parts to be removed

D. To indicate notification to remember.

The correct answer is A. t lettering in technical drawing is divided into two main categories which are Capital and small lettering and all these types are used to indicate the details of the one who make the drawing

iv) Which of the following is the type of triangle with all unequal sides and angles?

A. Scalene triangle
B. Equilateral triangle
C. Right angled triangle
D. Isosceles triangle.

The correct answer is A. a scalene triangle is the only type of triangle which all sides have unequal dimensions.

v) Which of the following is the suitable factor for selection of drawing scale?

A. Type of scale material
B. Space available in the drawing sheet
C. Availability of drawing equipment
D. Type of drawing table.

The correct answer is B. the importance of selecting appropriate scale of drawing sheet before starting drawing. Also, all drawings should be drawn to scale and scale used should be stated on the drawing.

vi) Which of the following line is used to join two or more circles by curves through their circumference?

A. Centre line
B. Tangential line
C. Blending line

D. Spiral line.

The correct answer is C. The aim of these types of line is to show the size of the part while the direction lines has arrowheads at only one side and they are used to indicate the component or part of the component.

vii) What is function of a leader line in engineering drawing?

A. Indicating the length of blind hole, radius and arc

B. Indicating the diameter of a hole and radius of an arc

C. Indicating radius of a hole, curves and an arc

D. Indicating the extension line of the hole, curve and arc.

The correct answer is B. The leader lines are used for descriptive remarks to some features such as dimension, object outline etc., of a drawing.

viii) What are the uses of mating dimensions in drawing processes?

A. To show the parts shaft that fit together

B. To locate the various features of a component relative to each other

C. To describe diameter, radii and the shape of component.

D. To show parts on the pictorial drawing only

The correct answer is A. The mating dimension lines are used to show the parts of the shaft that fit together. The aim of these types of line is to show the size of the part while the direction lines have arrowheads at only one side and used to indicate the component or part of the component.

ix) Which tools are used to draw a circle in free hand sketch?

A. Square and 45 degree center

B. Square and fingers

C. Wrist and 45 degree center

D. Square and shoulder.

The correct answer is A. In constructing of a circle, the first procedure required is to draw a square and bisect their sides in order to get the centre. Then followed by drawing diagonal of the circle in order to get the path point where the circle can path.

x) Which methods are used to obtain size and shape of an inclined surface of the block?

A. Orthographic projection or auxiliary view

B. Auxiliary view or revolution

C. Isometric or orthographic projection

D. Oblique or Isometric projection.

The correct answer is B. different types of orthographic projection includes Auxiliary projection, first angle projection and third angle projection.

2. For each of the following statementrs, Write **TRUE** for correct statement and **FALSE** for an incorrect statement.

i) The shape of the section cut by an inclined plane parallel to one side of the cone is called a parabola..... **TRUE**

ii) The SI unit of dimension used to describe linear measurement in drawing is meter……. **FALSE**

iii) The chain thin double dashed line is the type of line used to show the limits of partial or interrupted view and sections…… **FALSE**

iv) Two or more figures are similar if the ratio of their corresponding sides is not proportional…….. **FALSE**

v) Irregular polygon can be the source to construct a triangle equal in area ..... **TRUE**

vi) Two methods of representing orthographic views are first angle projection and third angle projection. **TRUE**

vii) Pictorial drawing is the technical process which converts the views from three dimensions to two dimensions……. **FALSE**

viii) Tangent is a straight line which touches the chord of circle at once ..... **FALSE**

ix) The dimensions of the objects produced when making Freehand sketching should be accurate. **TRUE**

x) In oblique projection the inclined edges may be drawn at angle of 30^0 ,45^0 or 60^0 to the horizontal..... **TRUE**

3. (a) Figure 1 shows uncompleted view draw in orthographic projection, complete the view by adding the missing lines.

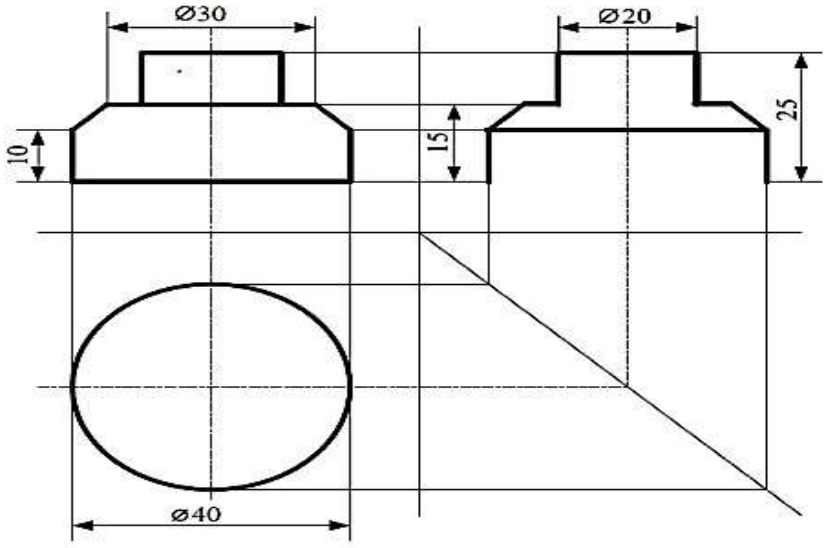
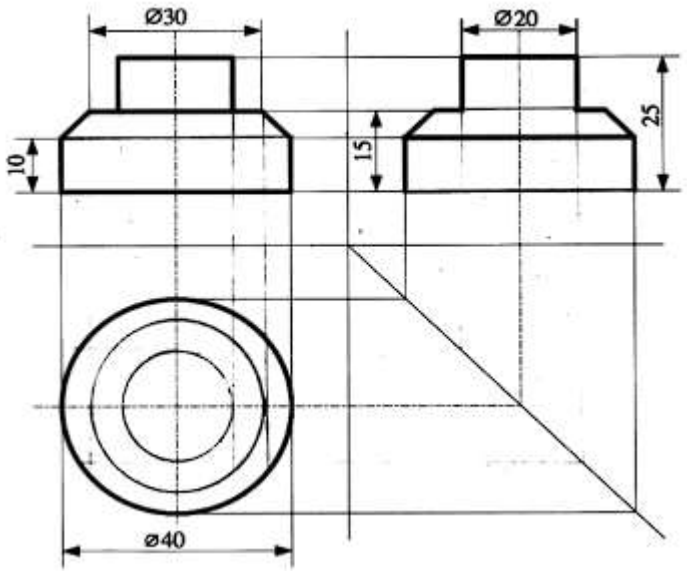


Figure 1



(b) Write one application of each of the following lines

i) Chain thin double-dashed line

.....**Used as a centre line.**.....

.....

ii) Chain thick line

.....**used as a Cutting plane**.....

.....

iii) Continous thin with zigzag line

.....**Used for cutting of boundaries**.....

.....

iv) Continous thick line .....**Used for outlines**.....

v) Dashed thin line

.....**Used to show hidden details**.....

4. (a) Figure 2 shows square ABCD, redraw the given square and construct an involute for that square.

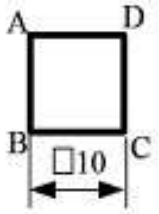
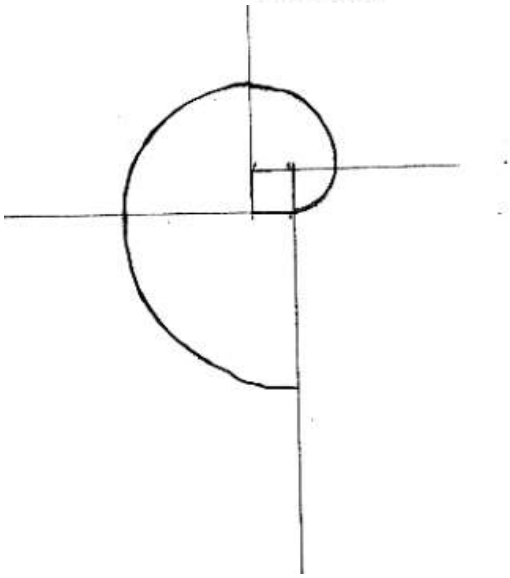


Figure 2



(b) Figure 3 shows an irregular pentagon ABCDE; reduce it to the ration 4:3

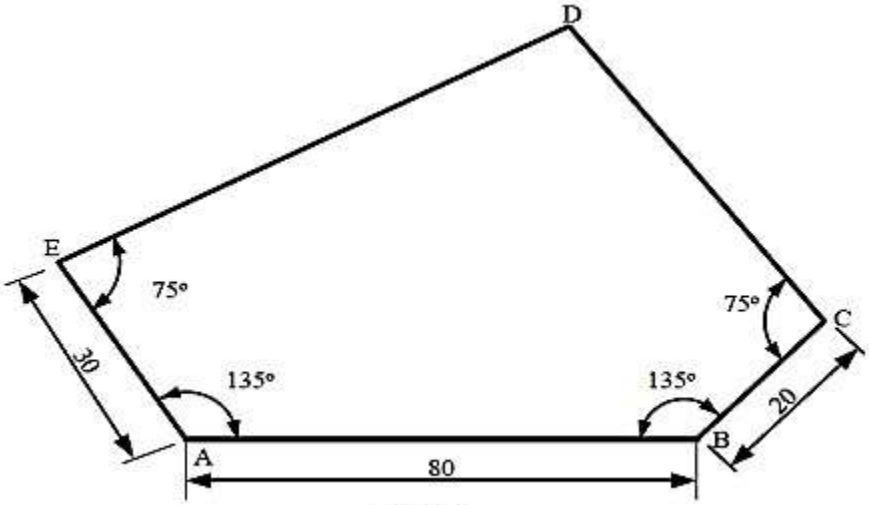


Figure 3

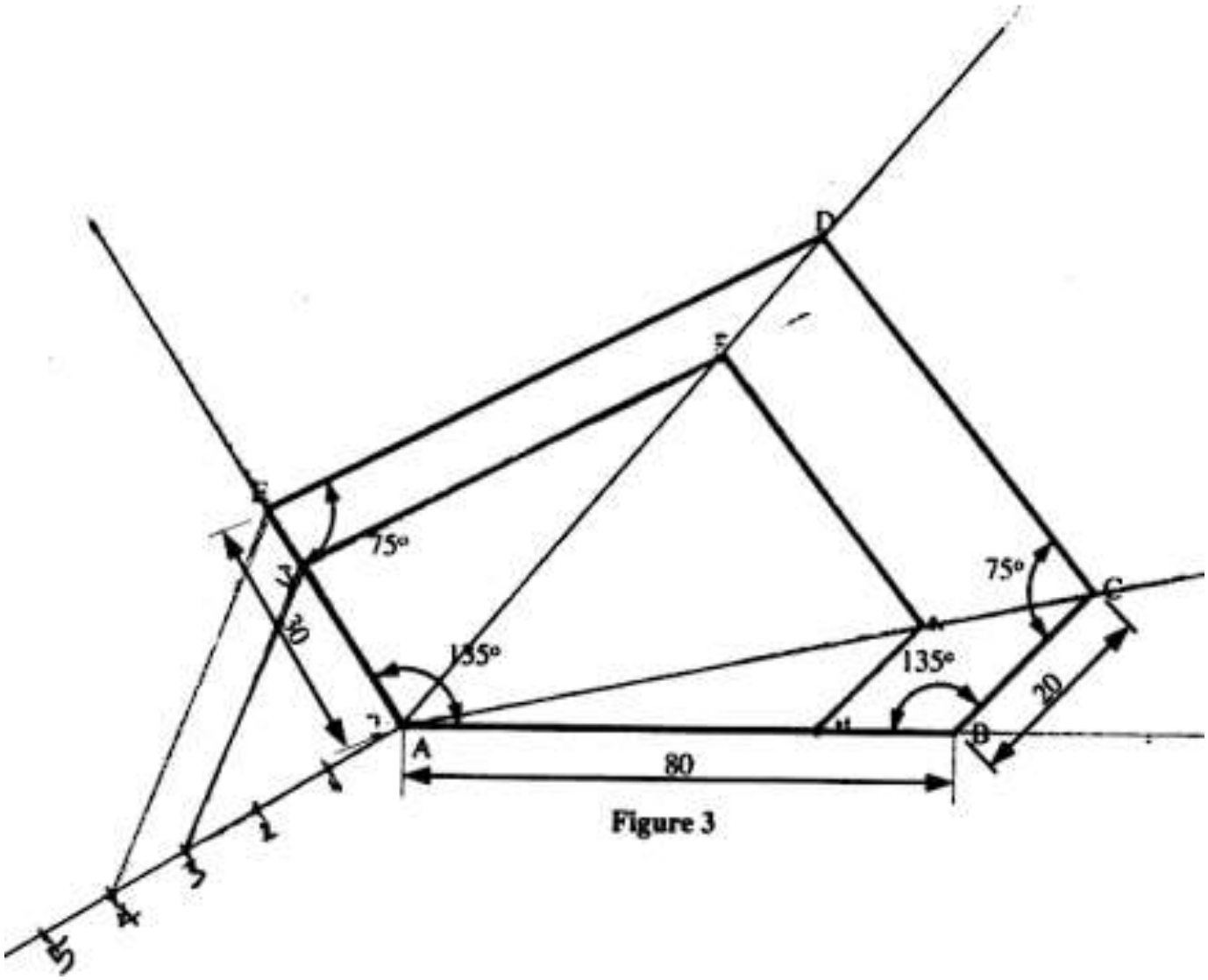


Figure 3

SECTION B (60 MARKS)

Answer **two(2)** questions from this section

5. Figure 4 shows three views of machine block drawn in first angle projection. Use full scale to draw it in isometric projection.

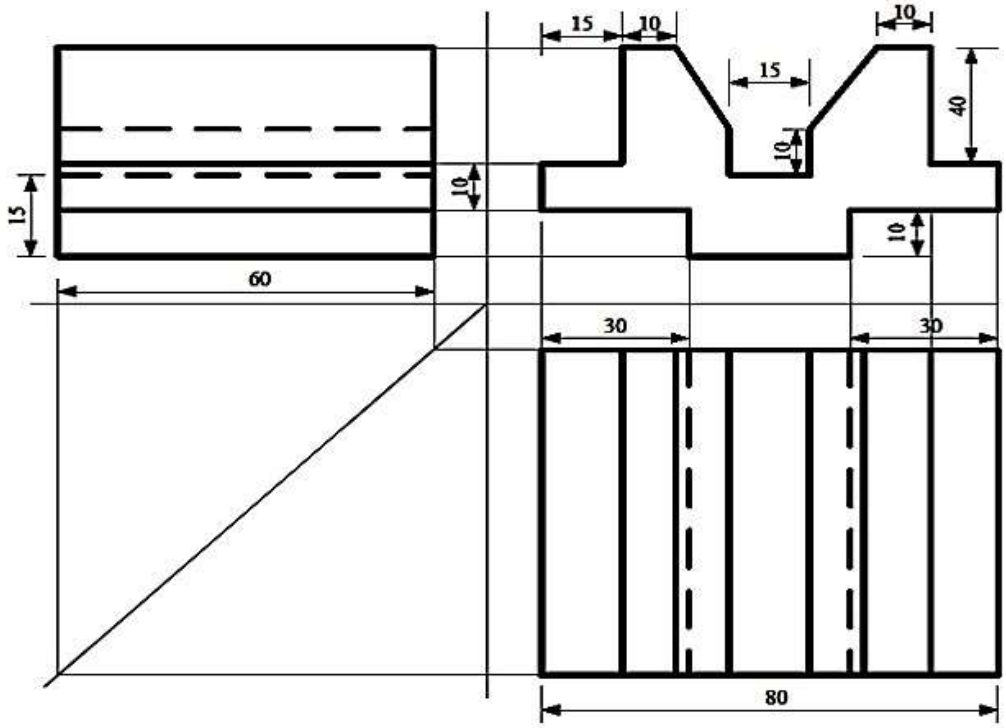
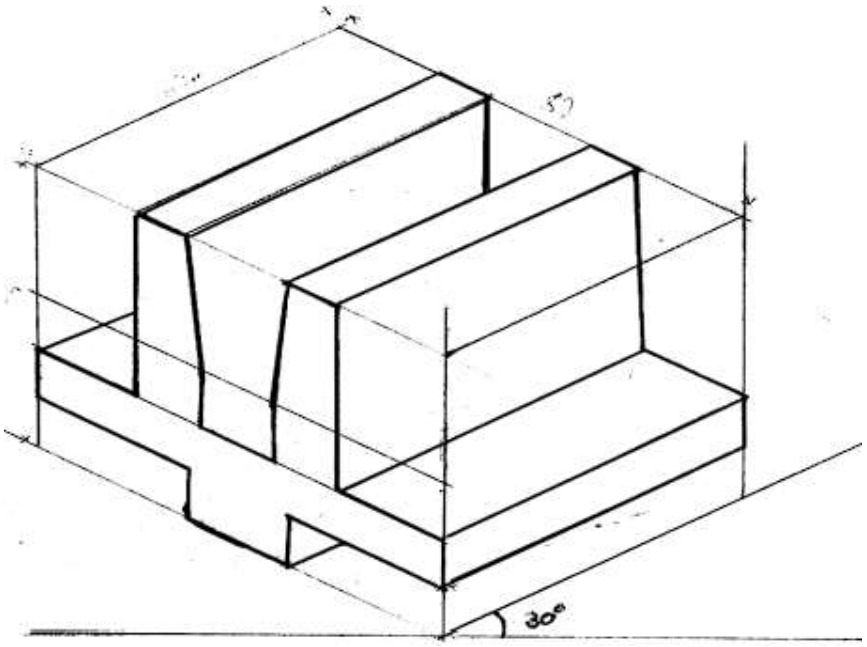


Figure 4



6. Figure 5 shows machine block in isometric projection. Using third angle projection and full size scale draw the following views:

   a) Front elevation from the direction of M

   b) Side view looking direction T

   c) Plan

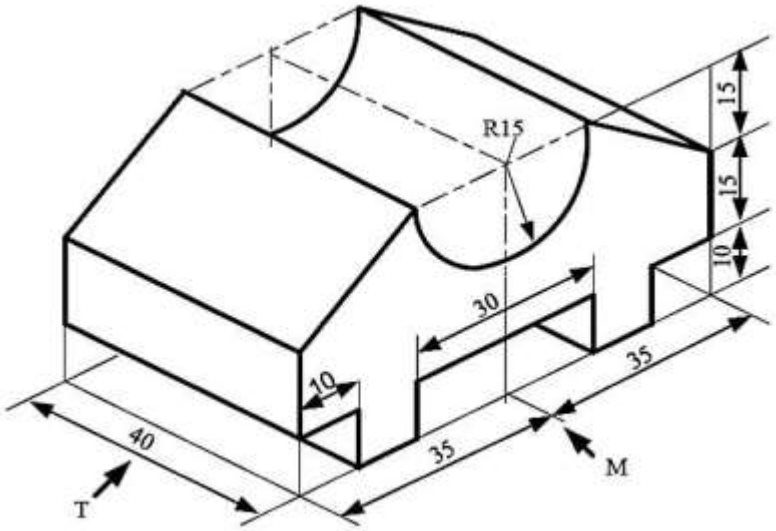
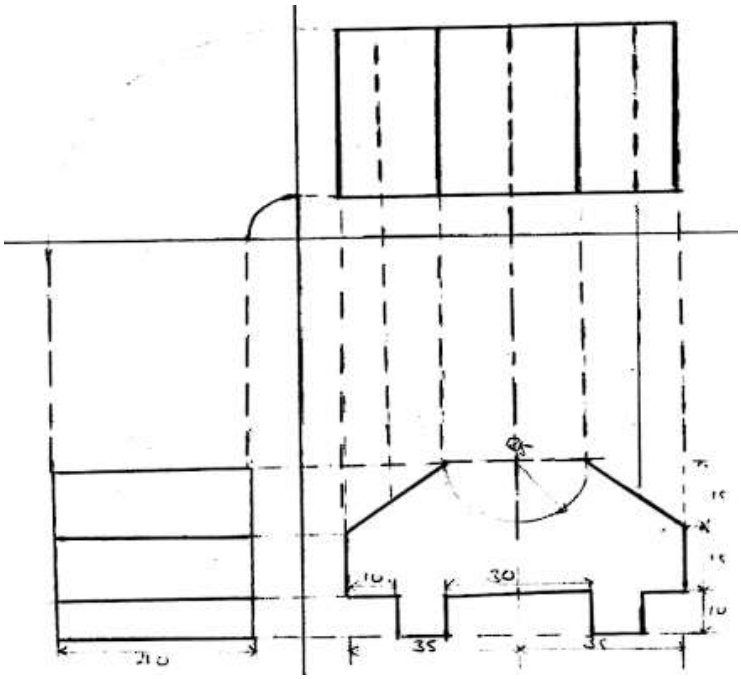


Figure 5



7. (a) The link mechanism of machine is given in Figure 6. Construct a locus of point C when point B of crank BD is hinged at point D making one complete revolution while point A is oscillating on the guide. Given that:

AB = 192, BC= 100, BD=75, AD=80

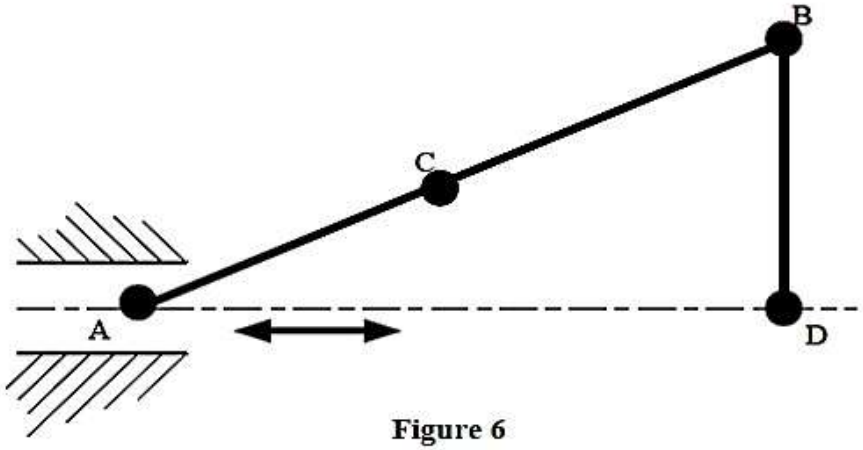
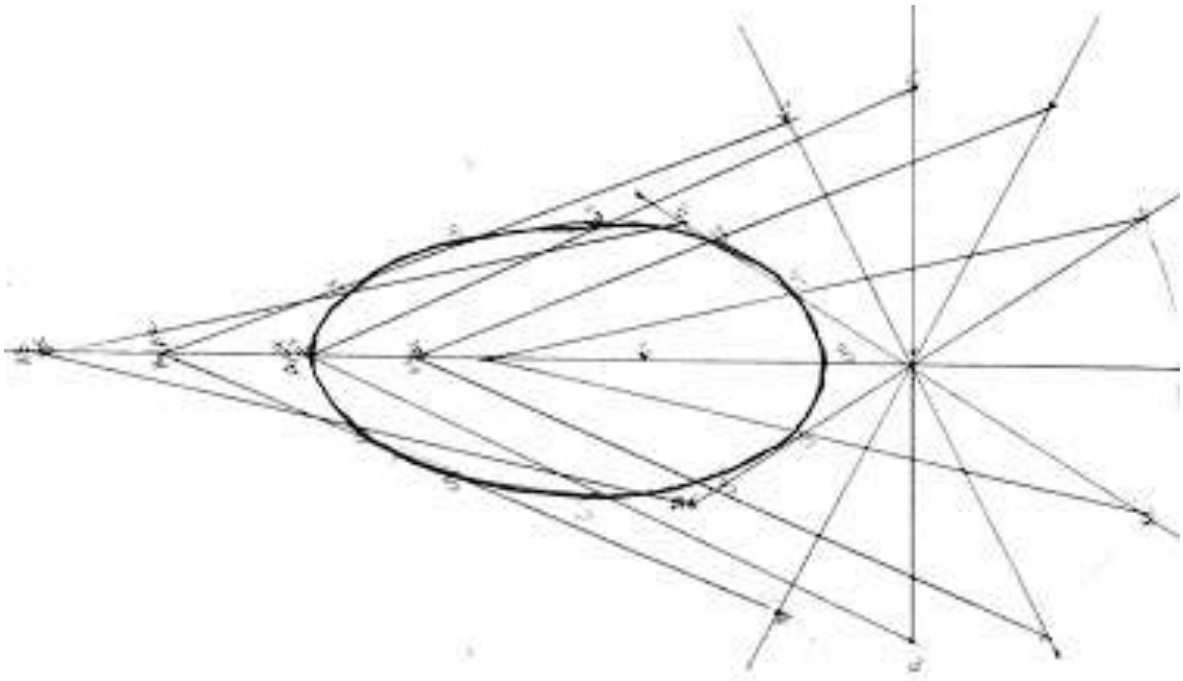


Figure 6



(b) Figure 7 shows two views of Machine parts in first angle projection. Using full size scale and third angle projection, draw an auxiliary view of the plan to the angle of 45°.

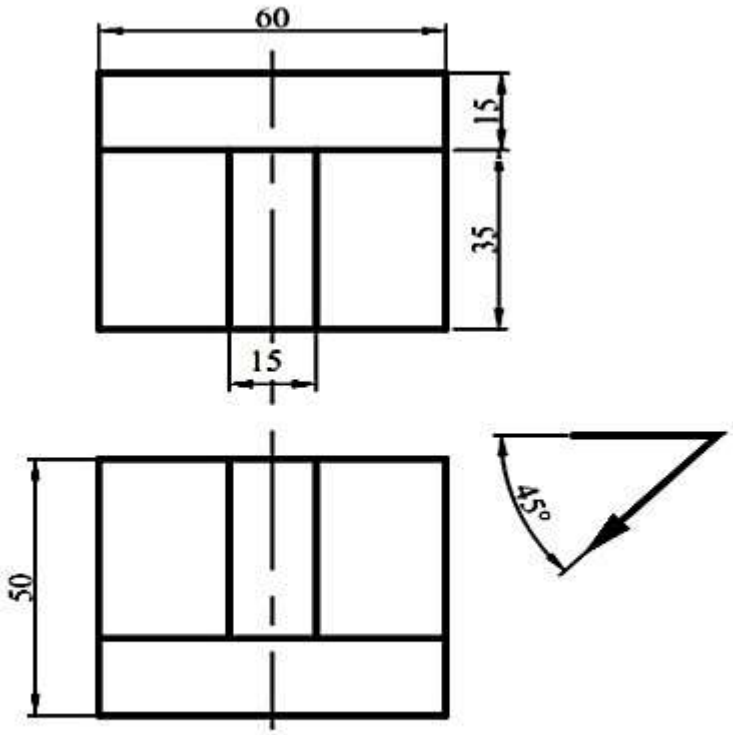


Figure 7