SEM 2 – 6 (RC 16-17)

F.E. (Semester – II) (RC 2016-17) Examination, November/December 2018
ENGINEERING GRAPHICS

Duration : 4 Hours | Max. Marks : 100

Instructions : *1) Answer **five** questions. At least **two** from Part – **A**, **two** from Part – **B** and **one** from Part – **C**.*
*2) Missing data, **if any** may be suitably assumed.*
*3) Figures to **right** indicate **full** marks.*

PART – A

Answer **any two** questions :

1. A) An inelastic string 150 mm long, has its one end attached the circumference of a circular disc of 40 mm diameter. Draw the curve traced out by the other end of the string when it is completely wound around the disc keeping the string always tight. **10**

   B) The end projectors of a line PQ are 70 mm apart. The point P is 25 mm behind VP and 30 mm below the HP. The point Q is 40 mm above the HP and 15 mm in front of the VP. Determine the true length of line PQ and its inclination with HP and VP. Also find the third point S which is in the HP and in front of VP such that its distance from point P is 90 mm and that from point Q is 60 mm. **10**

2. A) The top view of a line AB measures 60 mm and the top view is inclined to reference line at 60 degrees. The end point A is 15 mm above the HP and 30 mm in front of the VP. Draw the projections of the line when it is inclined at 45 degrees to the HP and is situated in the first quadrant. Find the true length and true inclination of the line with the VP. **10**

   B) A triangle ABC rests on a corner C on HP. Point A is 12 mm from HP and 18 mm from VP and point B is 30 mm from both HP and VP. The distance between the projectors of A and B is 42 mm. The true lengths of the sides AC and BC are 36 mm and 50 mm respectively. Draw the top view and front view of triangle ABC. **10**

P.T.O.

3. A) A thin regular pentagonal plate of side 35 mm is resting on one of its sides in HP and the corner opposite to this side rests on VP. It is inclined such that its surface makes an angle of 60° to HP and 30° to VP. Draw the projections of the plate. **10**

   B) A right circular cone, base circle diameter 40 mm and axis 70 mm long is lying on one of its generators in the HP with top view of its axis making an angle of 30 degrees with VP. Draw the projections of the cone. **10**

PART – B

Answer **any two** questions :

4. A) A right regular tetrahedron of 50 mm side is resting on one of its triangular faces on HP and having an edge of that face perpendicular to the VP. It is cut by an auxiliary inclined plane perpendicular to VP so that the true shape of the section is an isosceles triangle of base 40 mm and altitude 28 mm. Set the required cutting plane, draw the front view, sectional top view and draw the true shape of the section. Also find the inclination of the cutting plane with the HP. **10**

   B) A cylinder of base 40 mm diameter and axis 70 mm long is resting on its base in HP. A section plane perpendicular to VP and inclined 45° to the HP cuts its axis 25 mm from top. Draw its projections and develop the lateral surface of the cylinder. **10**

5. A right regular equilateral triangular pyramid is having base 45 mm side and axis 80 mm long. It is resting on its base on the HP with one of its edges parallel to the VP. It is cut by a section plane, perpendicular to the VP and inclined at 45 deg. to the HP bisecting the axis above the base. Draw the FV, sectional TV and sectional side view, true shape of the section and development of the lateral portion of remaining part of the pyramid. **20**

6. A) Fig. 6A shows pictorial view. Draw the following views using first angle projection method. **10**
   i) Front view looking in direction of arrow
   ii) Top view.

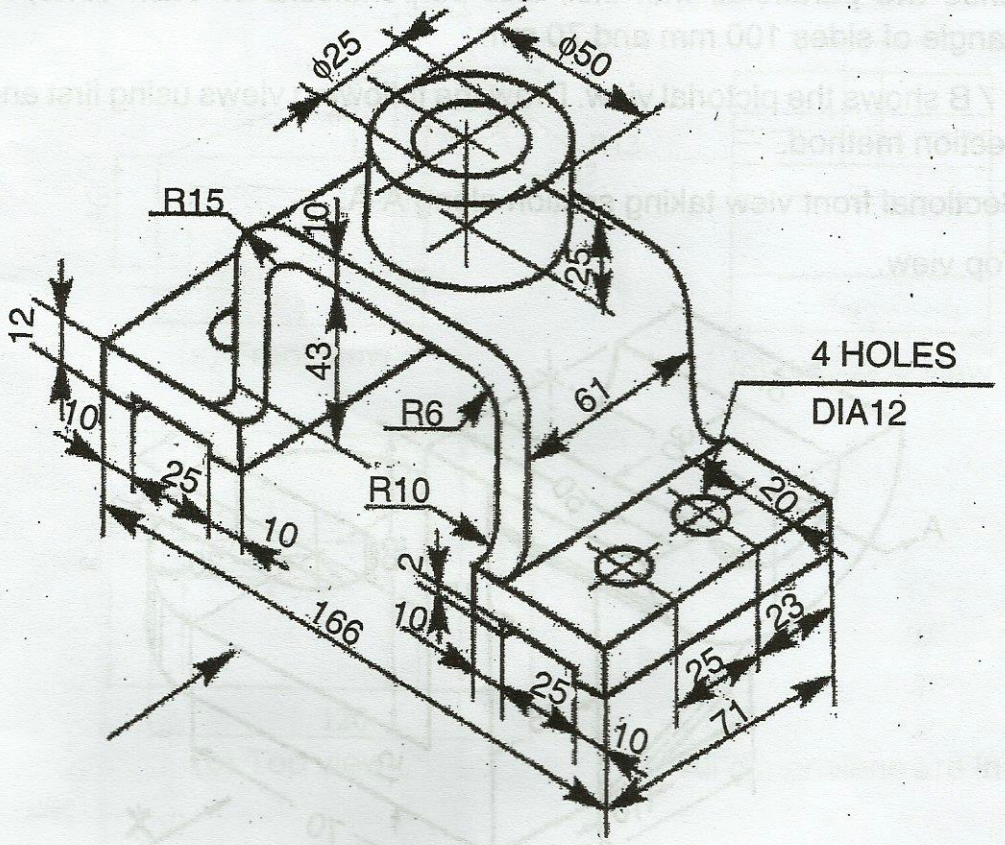


Fig. 6A

B) Two orthographic views are given in Fig. 6B below. Draw an isometric view. **10**

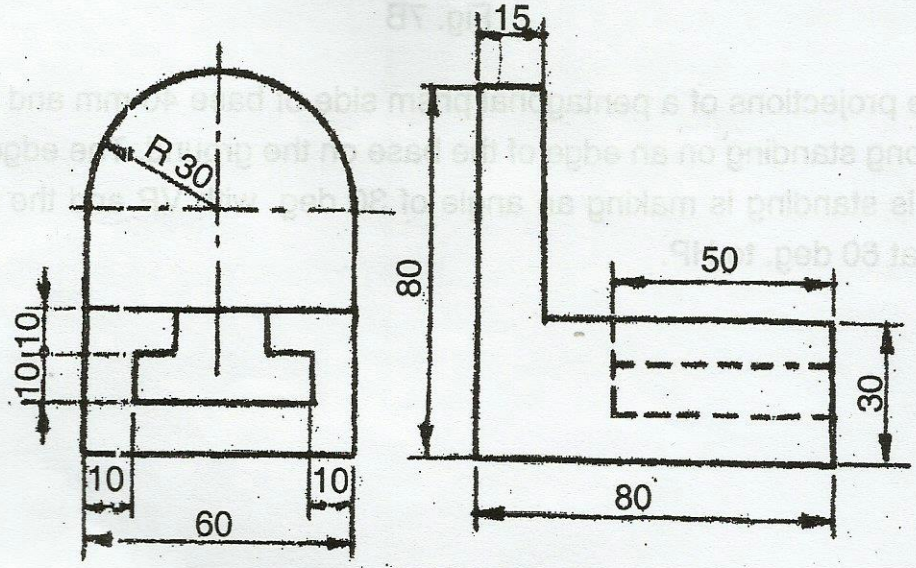


Fig. 6B

PART – C

Answer **any one** question :

7. A) Inscribe two parabolas with their axis perpendicular to each other, in a rectangle of sides 100 mm and 70 mm. **10**

B) Fig. 7 B shows the pictorial view. Draw the following views using first angle projection method.

i) Sectional front view taking section along A-A.

ii) Top view. **10**

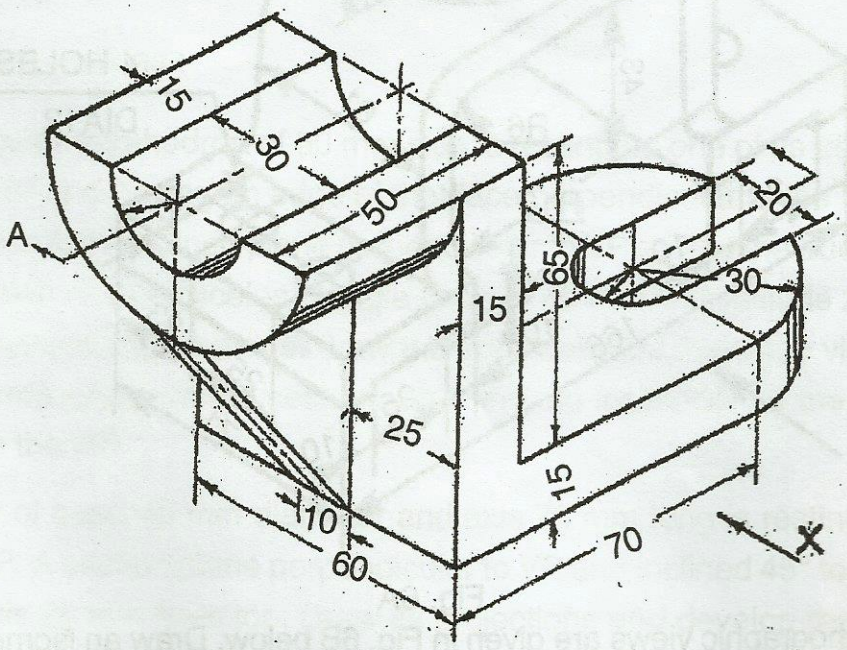
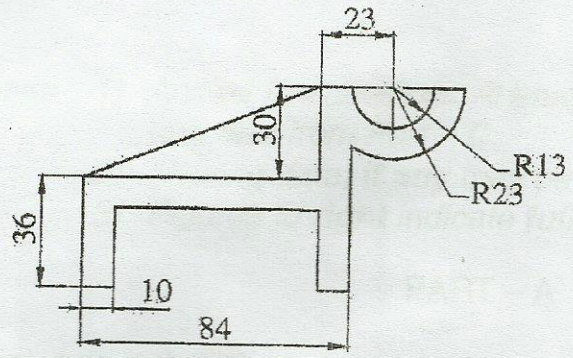


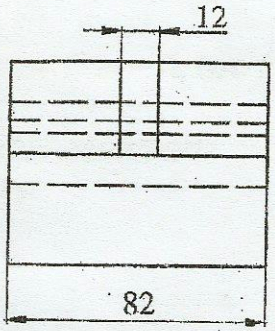
Fig. 7B

8. A) Draw the projections of a pentagonal prism side of base 40 mm and axis 70 mm long standing on an edge of the base on the ground. The edge on which it is standing is making an angle of 30 deg. with VP and the axis inclined at 60 deg. to HP. **10**

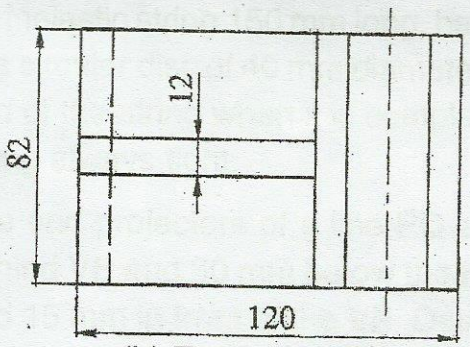
B) Fig. 8B shows orthographic views. Draw an isometric view. **10**



(a) Front view



(c) Left-side view



(b) Top view

All dimensions are in mm

Fig. 8B