SEM 2 – 6 (RC 16-17)

F.E. (Semester – II) (RC 2016-17) Examination, Nov./Dec. 2017
ENGINEERING GRAPHICS

Duration : 4 Hours | Max. Marks : 100

Instructions : *1) Answer **five** questions. **Any two** from Part – **A**, **any two** from Part – **B** and **any 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) A shot is discharged from the ground level at an inclination of 60° to the ground which is assumed to be horizontal. The shot returns to the ground at a point 80 m from the point of discharge. Trace the path of the shot. Choose suitable scale. **10**

   B) A room is 6 m long × 5 m wide × 3.5 m high. Determine graphically the distance between a top corner and the bottom corner diagonally opposite to it. **10**

2. A) M is the midpoint of a line AB. A is 20 mm above HP and 15 mm in front of VP. M is 40 mm above HP and 30 mm in front of VP. The distance between the projectors of A and M is 40 mm. Draw the projections of line AB and find its true length and its inclination with HP and VP. **10**

   B) ABC is a thin triangular plate having its edges AB, BC and CA equal to 52 mm, 70 mm and 44 mm respectively. The edge AB rests on HP and makes an angle of 30° to VP and has its point A towards VP and 20 mm away from it. The plane of the plate is inclined to the HP at 30°. Draw its projections. **10**

3. A) A square lamina of side 50 mm appears as a rectangle of sides 50 × 18 mm in the top view. Draw its projections when its longer side is in HP and parallel to and 20 mm away from VP. Also find the inclination of the lamina with the HP. **10**

   B) A right regular tetrahedron, edge of base 40 mm, rests on HP on one of its edges such that the face containing that edge is inclined to HP at 30° and the edge is inclined at 45° to VP. Draw the projections of the solid. **10**

P.T.O.

PART – B

Answer **any two** questions :

4. A) A vertical cylinder 50 mm diameter is cut by an AVP making an angle of 30° to the VP in such a way that the true shape of the section is a rectangle of 40 mm × 80 mm sides. Draw the projections and true shape of the section. **10**

   B) A right circular cone, diameter of base 55 mm and height 80 mm, rests on ground on its base. An ant starts from a point on right side of its base rim and moves around the surface of the cone and finally comes back to the starting point. Find the length of the shortest path the ant should take in covering the distance along the surface of the cone. Also show the path in FV and TV. **10**

5. A right regular pentagonal pyramid is having base 30 mm side and axis 70 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 30 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) Figure 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.

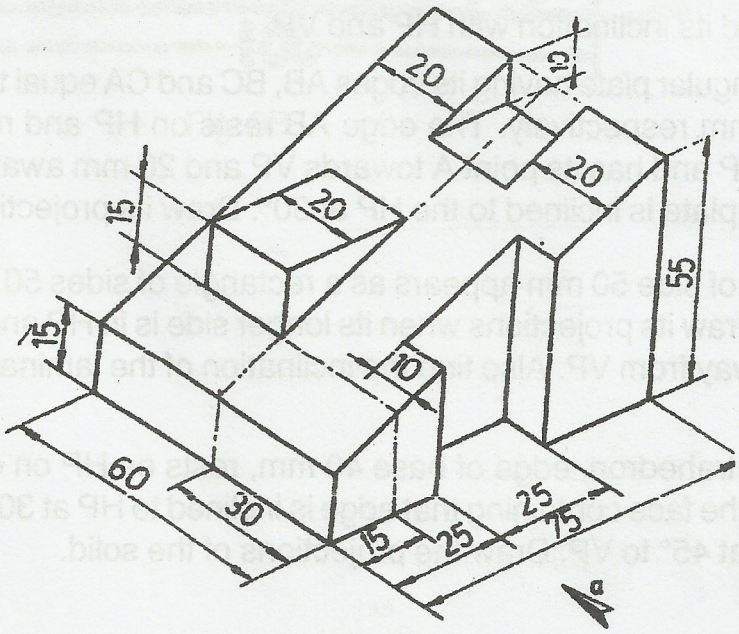

Fig. 6A

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

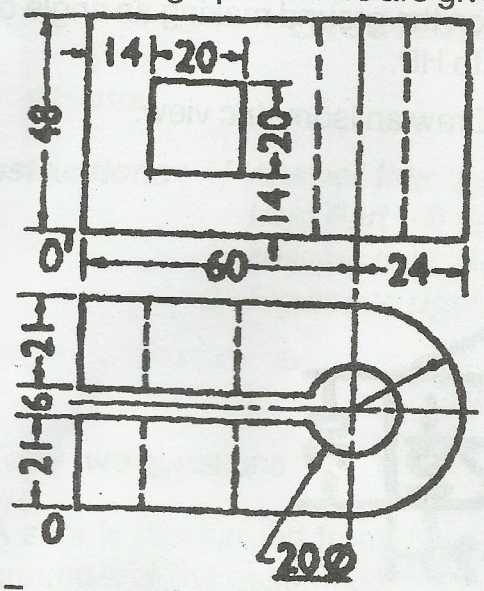

Fig. 6B

PART – C

Answer **any one** question :

7. A) A line AB is at an angle of 30° to the horizontal. Point 'F' is at a distance of 60 mm from AB. Draw the locus of a point P which moves in such a way that its distance from point F is always equal to its distance from line AB. **10**

B) Fig. 7B shows the pictorial view. Draw the following views using first angle projection method. **10**

i) Sectional Front view taking section along A-B.

ii) Top view.

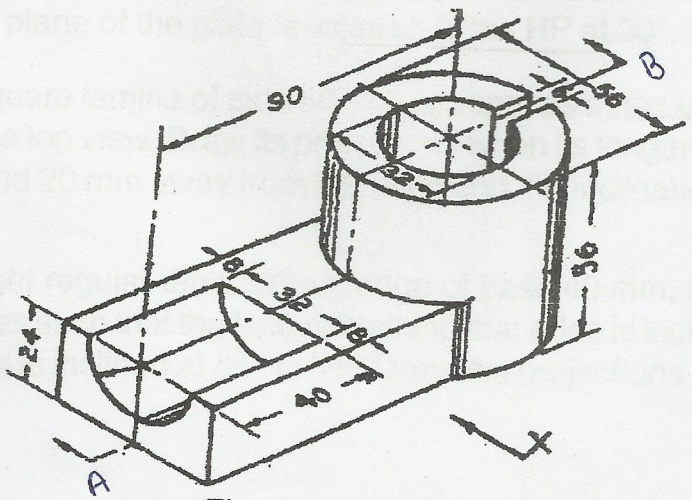

Fig. 7B

8. A) Draw the projections of a hexagonal prism side of base 40 mm and axis 70 mm standing on an edge of the base on the ground making an angle of 30° with VP and the axis inclined at 60° to HP. **10**

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

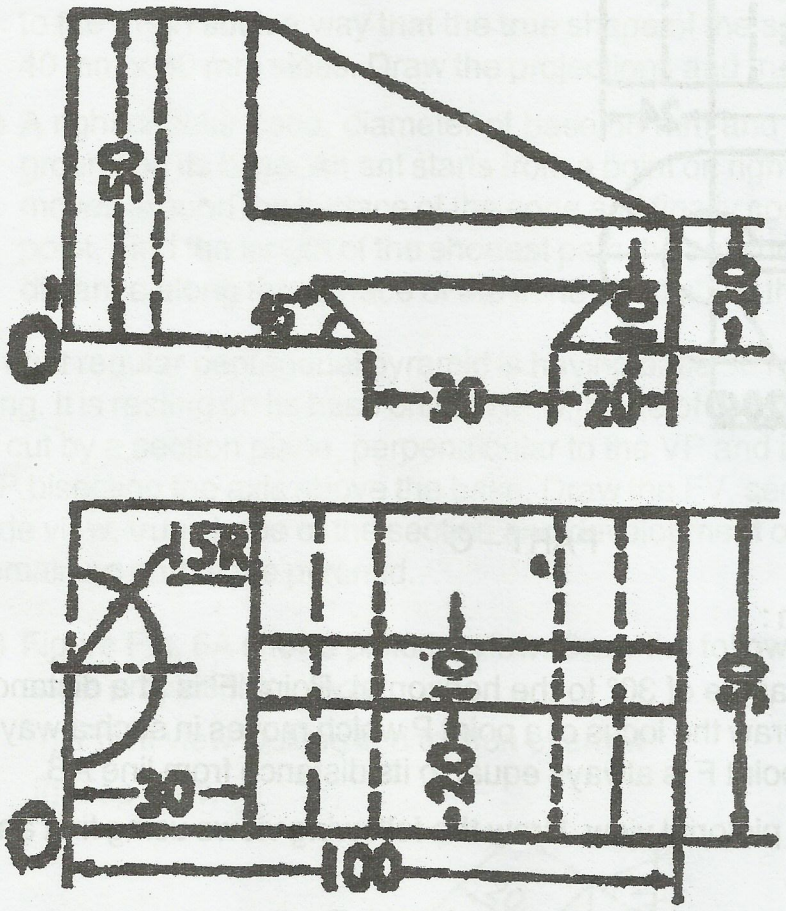

Fig. 8B