

SEM 2-7(RC16-17)

F.E. (Semester – II) (Revised in 2016-17) Examination, May/June 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) For a perfect gas, relation between pressure (P) and volume (V) in isothermal expansion is given by the law  $PV = \text{constant}$ . Draw the isothermal expansion curve for an enclosed volume of gas if 0.0566 cu m of gas corresponds to a pressure of 0.355 kg per sq.cm. Name the curve. 10
- B) The end A of a line AB is 15 mm above HP and 20 mm in front of VP. The end B is 10 mm below HP and 20 mm behind of VP. The end projectors of the line AB are 50 mm apart. Determine the true length of the line AB and its true inclinations with HP and VP. 10
2. A) An equilateral triangular lamina of side 30 mm has a corner point 15 mm above HP and 25 mm in front of VP. Its surface is inclined to HP at  $45^\circ$ . Draw its projections when a side containing that corner point makes an angle of  $15^\circ$  to VP. 10
- B) An object 'T' is placed on the ground and in the centre of a room  $5m \times 4m \times 3m$  high. Determine graphically its distance from one of the corners of the roof. 10
3. A) Draw the projections of pentagonal plane of side 25 mm, resting in HP on one of its edges. The plane of the pentagon is inclined at  $45^\circ$  to HP and perpendicular from the midpoint of the resting edge to the opposite corner makes an angle of  $30^\circ$  with VP. 10
- B) A right regular pentagonal prism, side of base 25 mm and axis 55 mm long is resting on an edge of base on the ground. The edge on which it is resting is making an angle of  $45^\circ$  with VP and the axis is inclined at  $50^\circ$  to HP. Draw its projections. 10



## PART – B

Answer any two questions.

4. A) A cone, diameter of base 80 mm and axis 100 mm long is resting on its base on HP. It is cut by an A.I.P. such that the true shape of the section is a parabola of base 60 mm. Draw its projections. 10
- B) A right circular cone, diameter of base 40 mm and height 50 mm, rests on its base on HP. A section plane perpendicular to VP and inclined to HP at  $45^\circ$  cuts the cone bisecting its axis. Draw the projection of truncated cone and develop its lateral surface. 10
5. A square pyramid of 40 mm side of base and 60 mm long has its base in HP and all edges of the base are equally inclined to VP. It is cut by a section plane perpendicular to VP and inclined at  $45^\circ$  to HP such that it bisects axis. Draw its front view, sectional top view, sectional side view and 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.  
 i) Front view looking in direction of arrow.  
 ii) Top view. 10

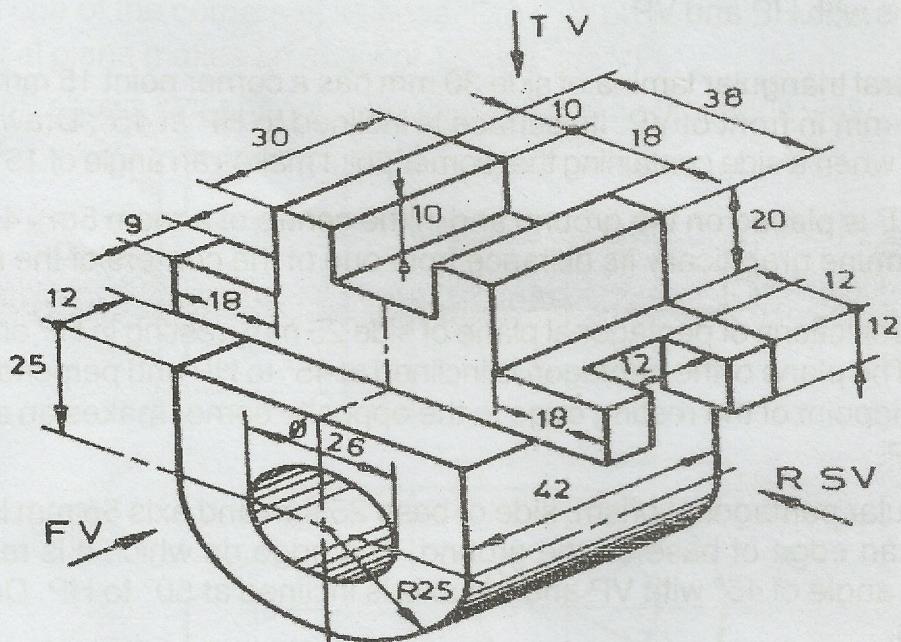


Fig. 6 A

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

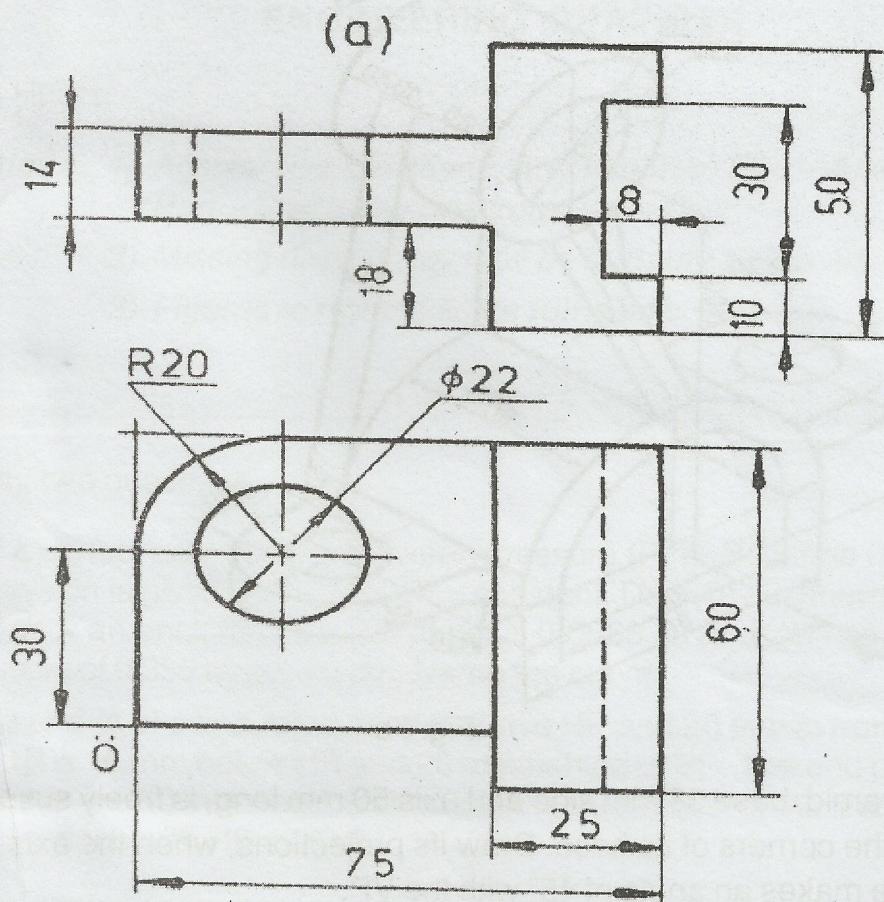


Fig. 6 B  
PART - C

Answer any one question.

7. A) A thin circular disc of 40 mm diameter is allowed to roll without slipping from upper edge of sloping plank which is inclined at  $15^\circ$  with the horizontal plane. Draw the curve traced by the point on the circumference of the disc for one revolution. Name the curve. 10
- B) Fig. 7 B shows the pictorial view. Draw the following views using first angle projection method. 10
- a) Front View



## PART – B

Answer any two questions.

4. A) A cone, diameter of base 80 mm and axis 100 mm long is resting on its base on HP. It is cut by an A.I.P. such that the true shape of the section is a parabola of base 60 mm. Draw its projections. 10
- B) A right circular cone, diameter of base 40 mm and height 50 mm, rests on its base on HP. A section plane perpendicular to VP and inclined to HP at  $45^\circ$  cuts the cone bisecting its axis. Draw the projection of truncated cone and develop its lateral surface. 10
5. A square pyramid of 40 mm side of base and 60 mm long has its base in HP and all edges of the base are equally inclined to VP. It is cut by a section plane perpendicular to VP and inclined at  $45^\circ$  to HP such that it bisects axis. Draw its front view, sectional top view, sectional side view and 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.

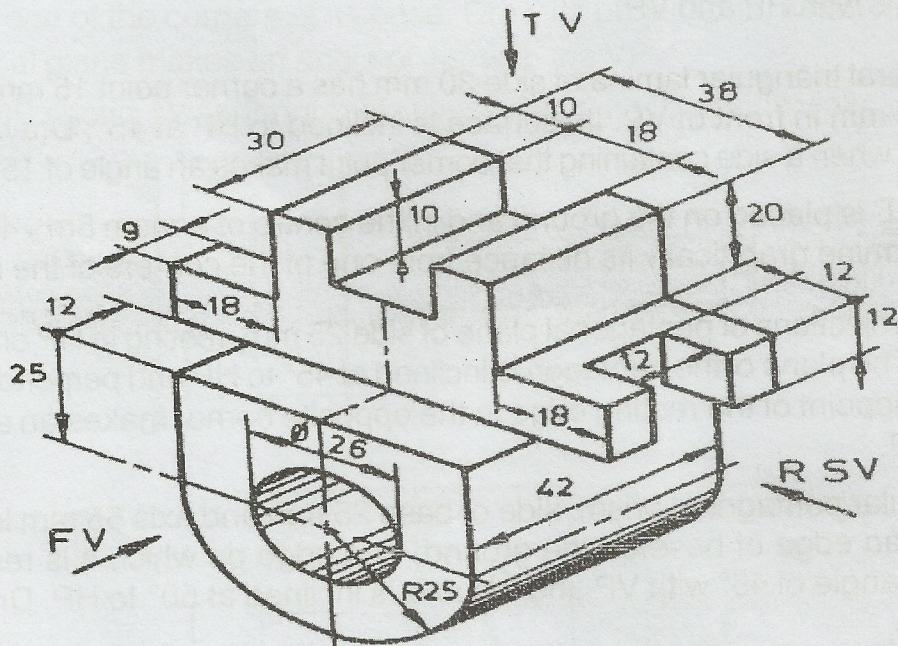


Fig. 6 A

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

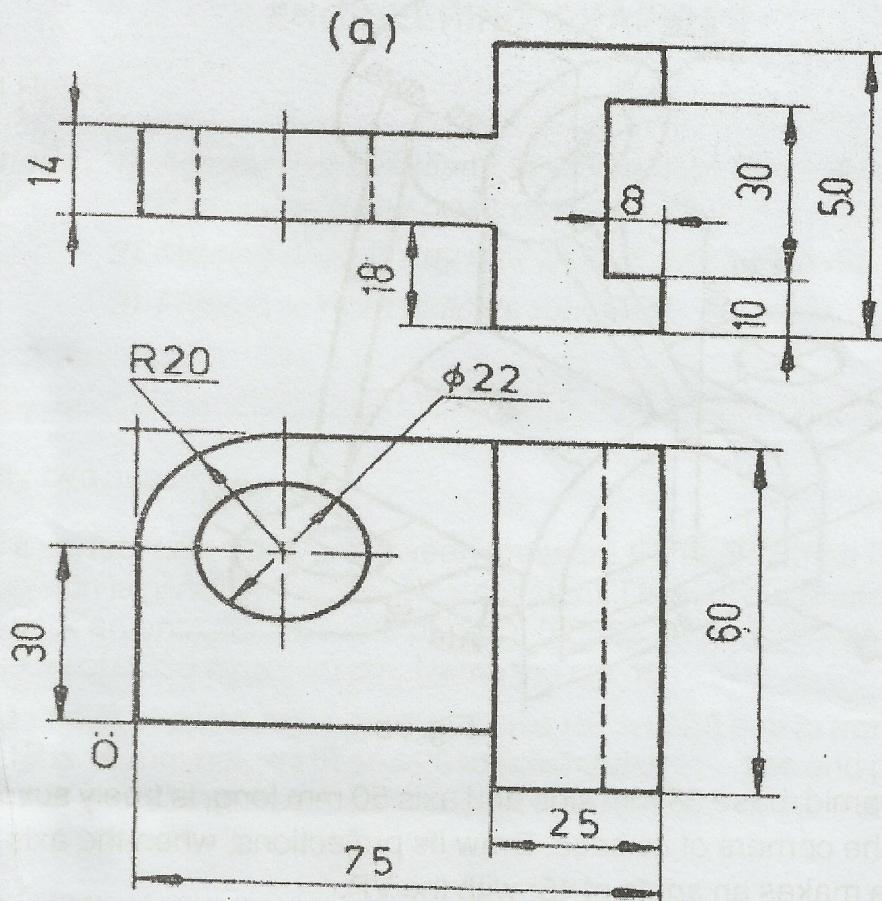


Fig. 6 B  
PART - C

Answer any one question.

7. A) A thin circular disc of 40 mm diameter is allowed to roll without slipping from upper edge of sloping plank which is inclined at  $15^\circ$  with the horizontal plane. Draw the curve traced by the point on the circumference of the disc for one revolution. Name the curve. 10
- B) Fig. 7 B shows the pictorial view. Draw the following views using first angle projection method. 10
- a) Front View



b) Sectional Right Hand Side View along Section A-A.

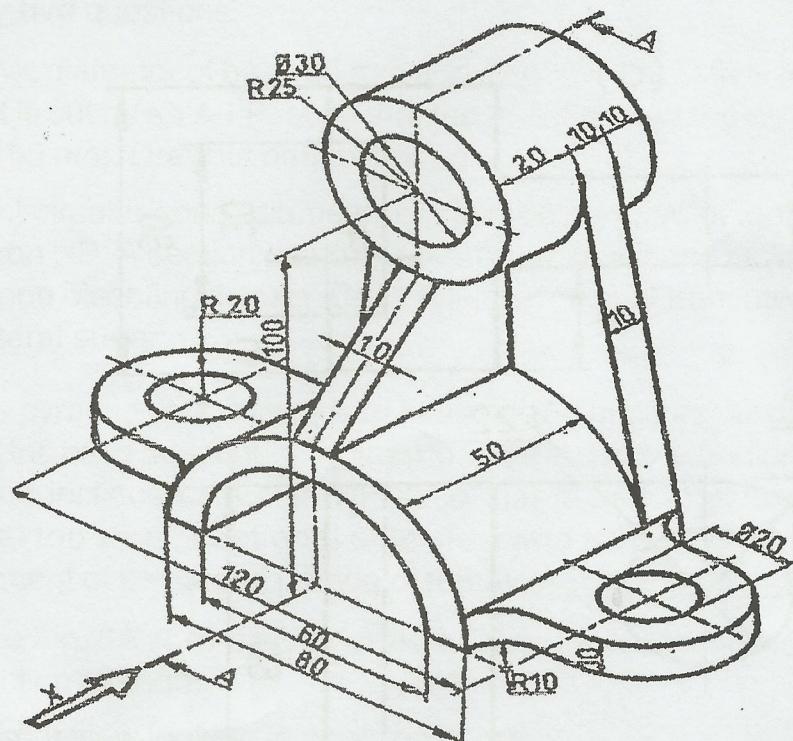


Fig. 7b

8. A) A square pyramid, base 38 mm side and axis 50 mm long, is freely suspended from one of the corners of its base. Draw its projections, when the axis as a vertical plane makes an angle of  $45^\circ$  with the VP. 10

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

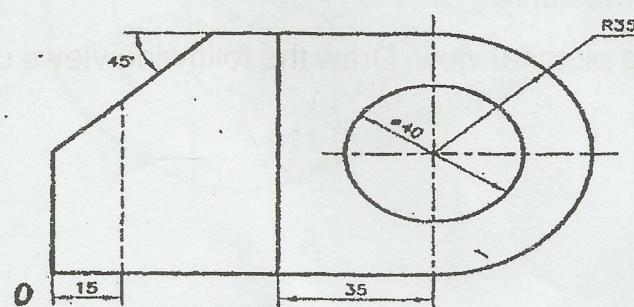
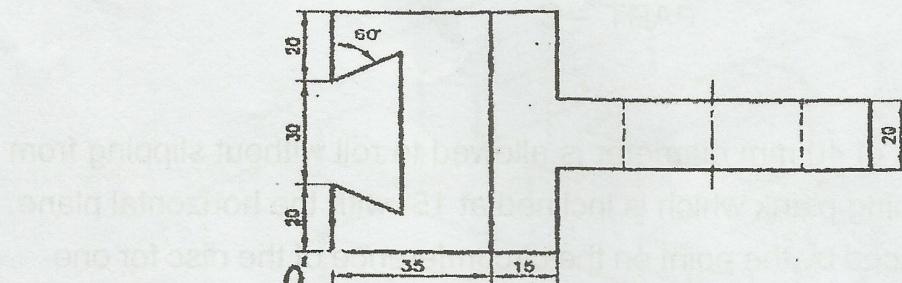


Fig. 8 B