Question Paper Code : 70117

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Second Semester

Civil Engineering

GE 3251 — ENGINEERING GRAPHICS

(Common to : All Branches)

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

(5 × 20 = 100)

1. (a) Construct a parabola when the distance between the focus and directrix is 30 mm. Also draw the tangent and normal to any point on the curve.

Or

   (b) Develop the involute of a square of side 25 mm. Also draw the tangent and normal at any point on the curve.

2. (a) A point P is on HP and 30 mm in front of VP. Another point Q is on VP and 40 mm above HP. The distance between their projectors parallel to XY line is 50 mm. Find the distance between their front and top views of the points P and Q.

Or

   (b) A pentagonal lamina of side 30 mm rests on the ground with one of its sides inclined at 30° to VP while the surface of the lamina is inclined at 45° to HP. Draw the projections of the lamina.

3. (a) A square pyramid of base side 30 mm, axis height 60 mm is resting on HP on one of its base corners with its axis inclined at 50° to HP and parallel to VP. Draw its projections when the base sides containing the resting corners are equally inclined to HP.

Or

   (b) A hexagonal pyramid of base side 35 mm and axis height 65 mm is resting on HP on one of its triangular faces with its axis parallel to VP. Draw its projections.

4. (a) A cylinder of base diameter 50 mm and height 65 mm rests on its base on HP. It is cut by a plane perpendicular to VP and inclined at 30° to HP and meets the axis at a distance 30 mm from the base. Draw the front view, sectional top view and true shape of the section.

Or

(b) A hexagonal pyramid 25 mm side of base and axis 65 mm long is resting on its base on HP with one of the edges of the base parallel to VP. It is cut by a vertical section plane at a distance of 8 mm from the axis towards right side. Develop the lateral surface of the left part of pyramid.

5. (a) A square pyramid of base side 40 mm and height 70 mm rests centrally over a cube of edge 50 mm, which itself is placed on a cylinder of diameter 80 mm and thickness 30 mm. Draw the isometric projection of the combination of solids, if the axis of the three solids are in common line.

Or

(b) A frustum of a square pyramid of base edge 30 mm and top edge 20 mm. The height of the frustum is 35 mm. It rests or its base on the ground with the base edges equally inclined to picture plane. The axis of the frustum is 30 mm to the right of the station point. The station point is 55 mm in front of PP and 50 mm above GP. The nearest base corner is 10 mm behind picture plane. Draw the perspective projection of the frustum.