Question Paper Code : 51707

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

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) Two points C and D are 110 mm apart. The third point E is 80 mm from C and 65 mm from D. Draw an ellipse passing through the points C, D and E and measure the focal distance.

Or

   (b) A circular wheel of 40 mm diameter rolls on another fixed wheel of 70 mm diameter and above it for one complete revolution of the rolling wheel. Draw the curve traced by a point on the circumference of the rolling wheel which is initially situated at the common contact between the wheels. Draw a tangent and normal to the curve at the point on it which is 70mm from the center of the fixed wheel.

2. (a) A line AB, 65 mm long, has its end A 20 mm above the horizontal plane and 25 mm in front of the vertical plane. End B is 40 mm above the horizontal plane and 65 mm in front of the vertical plane. Draw the projections of AB. Find its inclinations with the vertical plane and horizontal plane.

Or

   (b) A circular lamina of 60 mm diameter rests on H.P. with a point 1 on its circumference. The lamina is inclined to H.P. such that the top view of it is an ellipse of minor axis 35 mm. The top view of the diameter through point 1 resting on H.P. makes an angle of 45° with V.P.

      (i) Draw its projections

      (ii) Determine the angle made by the lamina with H.P.

3. (a) A Pentagonal Pyramid of the side of the base 25 mm and axis 55 mm long, lies with one of its slant surfaces on HP such that its axis is parallel to VP. Draw its projections.

Or

(b) A regular hexagonal prism of 30 mm sides and an axis 80mm long is resting on HP on one of its corners of the base. The axis makes 30° with HP and the plan of the axis makes 45° with the VP. Draw its projections.

4. (a) A square prism side of base 30 mm and an axis 60 mm long, rest with its base on HP and one of its rectangular faces is inclined at 30° to VP. A Section plane perpendicular to VP and inclined 60° to HP cuts the axis of to the prism at a point 20 mm from its top end. Draw the sectional top view and the true shape of the section.

Or

(b) A regular hexagonal pyramid of the side of the base 30 mm and height 60 mm is resting vertically on its base on HP such that two of the sides of the base are perpendicular to VP. It is cut by a plane inclined at 40° to HP and perpendicular to VP. The cutting plane bisects the axis of the pyramid. Obtain the development of the lateral surface of the truncated pyramid.

5. (a) . A pentagonal pyramid, base 30 mm, and axis 65 mm long, rests with its base on the horizontal plane. An edge of the base is parallel to the vertical plane and nearer to it. A horizontal section plane cuts the pyramid and passes through a point on the axis at a distance of 25 mm from the apex. Draw the isometric projection of the frustum of the pyramid.

Or

(b) A square pyramid with a base edge of 30 mm and an altitude of 50 mm rests on its base on the ground with a base edge parallel to the Picture Plane [PP]. The axis of the pyramid is 25 mm behind the PP and 25 mm to the right of the Station Point[SP]. The SP is 50 mm in front of the PP and 60 mm above the ground. Draw its perspective view.