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Question Paper Code : 91256

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Second Semester

Civil Engineering

GE 3251 – ENGINEERING GRAPHICS

(Common to : All Branches (Except Electronics Engineering
(VLSI Design and Technology)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

(5 × 20 = 100)

1. (a) Construct a parabola when the distance between focus and directrix is 40 mm. Draw the tangent and normal at the any point P on the curve.

Or

- (b) A coin of 40 mm diameter rolls over a horizontal table without slipping. A point on the circumference of the coin is in contact with the table surface in the beginning and after one complete revolution. Draw the cycloidal path traced by the point. Draw a tangent and normal at any point on the curve.
2. (a) A line PQ, 60 mm long has its end P 15 mm above HP and 20 mm in front of VP. Its top view and front view measures 50 mm and 40 mm respectively. Draw its projections and find its true inclinations with HP and VP.

Or

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

(i) Draw its projections

(ii) Determine the angle made by the lamina with HP.

3. (a) A square pyramid having base edge length 40 mm and axis height 70 mm is resting on HP with one of its base corner. Its axis inclined at 40° to HP and its axis is parallel to VP. Draw its projections.

Or

- (b) A hexagonal prism, side of base 25 mm and axis 50 mm long rests with one of its base corners on horizontal plane such that its base makes an angle of 60° to horizontal plane and its axis is parallel to vertical plane. Draw its projections. Also, in the final top view identify and highlight the visible and invisible edges.
4. (a) A square pyramid of base side 40 mm and axis 60 mm is resting on its base on the Horizontal Plane (HP), such that a side of the base is parallel to the Vertical Plane (VP). It is cut by a section plane perpendicular to the Vertical Plane (VP) and inclined at 45° to the Horizontal Plane (HP), bisecting the axis. Draw the development of its lateral surface.

Or

- (b) A cylinder of diameter 40 mm and height 60 mm is having its axis vertical. It is cut by a plane perpendicular to vertical plane and inclined at 30° to horizontal plane. The plane bisects the axis of the cylinder. Draw its front view, sectional top view, sectional side view and true shape of the section.
5. (a) A pentagonal pyramid, base 30 mm and axis 65 mm long, rests with its base on horizontal plane. An edge of the base is parallel to 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 pentagonal pyramid of 30 mm side and 50 mm in height is lying on the ground plane on its apex, in such a way that its base is parallel to the ground plane. The pyramid's axis is 80 mm behind the picture plane. The station point is located 60 mm in front of the picture plane and 40 mm above the ground plane. The central plane is 50 mm away from the axis of the pyramid towards the left. Draw the perspective view of the pyramid.