Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 21186

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Second Semester

Civil Engineering

GE 3251 — ENGINEERING GRAPHICS

(Common to : All Branches)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

(Use of A3 sheet is permitted)

Answer ALL questions.

(5 × 20 = 100)

1. (a) Construct an ellipse when the distance between focus and the directrix is 30mm and the eccentricity is 3/4. Draw tangent and normal at any point P on your curve. (20)

Or

(b) Draw an epi-cycloid of a circle of 40 mm diameter which rolls outside on another circle of 150 mm diameter for one revolution clock-wise. Draw a tangent and a normal at any point on the curve. (20)

2. (a) A line PQ is inclined to both VP and HP. One end of the line is 10 mm above HP and 15 mm in front of VP. The other end is 50 mm above HP and 60 mm in front of VP. The distance between the end projectors is 40 mm. Draw its projections. Find the actual length of the line. (20)

Or

(b) A square lamina PQRS of side 40 mm rests on the ground on its corner P in such a way that the diagonal PR is inclined at 45° to the HP and apparently inclined at 30° to the VP. Draw the projections. (20)

3. (a) A cone of diameter 35 mm and height 55 mm is lying on the ground with one of its generators parallel to the VP and on the HP. Draw its projections. (20)

Or

(b) A pentagonal pyramid of base side 40 mm and altitude 75 mm rests with its base on HP and with a side of base parallel to VP. It is cut by a section plane perpendicular to VP and inclined at 35° to HP and bisecting the axis. Draw the sectional plan of the pyramid and the true shape of the section. (20)

4. (a) A cone of base 50 mm diameter and height 70 mm with its base on HP. A section plane perpendicular to VP and inclined at 30° to HP bisects the axis of the cone. Draw the development of the lateral surface of the truncated cone. (20)

Or

(b) A hexagonal prism of base sides 35 mm and axis length 55 mm is resting on one of its bases with two of the vertical faces perpendicular to VP. It is cut by a plane inclined at 50° to HP and perpendicular to VP and passing through a point at a distance 15 mm from the top base. Draw its front view, sectional top view, and true shape of section. (20)

5. (a) Draw the isometric view of a cylinder of diameter 40 mm and height 60 mm when its axis is perpendicular to VP. (20)

Or

(b) A square prism of base 25 × 25 mm and height 40 mm rests on the GP on one of its ends with a rectangular face receding away from the PP towards right making 60° with PP. The corner nearest to the PP is 40 mm to the left of the station point and 20 mm behind the PP. The station point is 60 mm above the GP and 50 mm in front of the PP. Draw the perspective view of the prism by visual ray method. Use the top view and the front view. (20)
