

C 3433

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Annual Pattern — First Year

(Regulation 2004)

Civil Engineering

GE 1 XO1 — ENGINEERING GRAPHICS

(Common to all branches)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (5 × 20 = 100 marks)

1. (a) (i) Construct an ellipse when the distance of its focus from its directrix is equal to 50 mm and eccentricity is $\frac{2}{3}$. Also draw a tangent and a normal to the ellipse. (10)
- (ii) Sketch the front and top view of the object given in figure 1. (10)

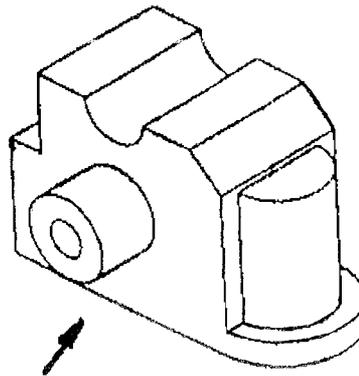


figure 1

Or

- (b) (i) Construct a hyperbola when the distance between the focus and the directrix is 40 mm and the eccentricity is $\frac{4}{3}$. Draw a tangent and normal at any point on the hyperbola. (10)
- (ii) Sketch the elevation and plan of the object given in figure 2. (10)

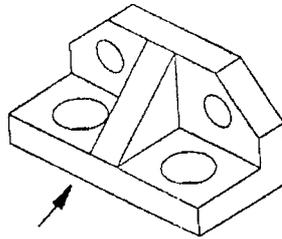
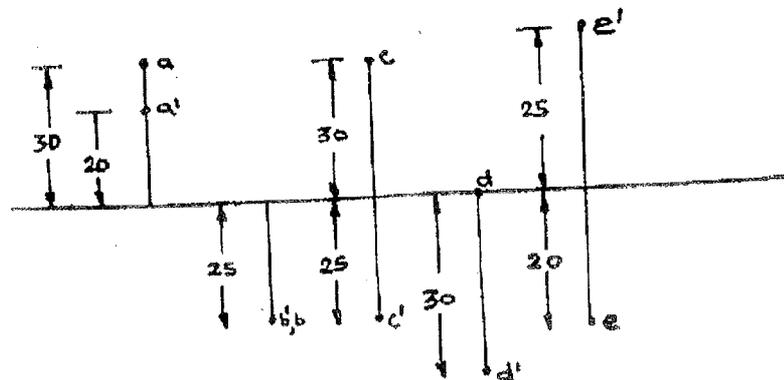


figure 2

2. (a) (i) Draw the projections of the following points on a common reference line. Take 30 mm distance between the projectors. (10)
- A, 35 mm above Hp and 25 mm in front of Vp
 B, 40 mm below Hp and 15 mm behind Vp
 C, 50 mm above Hp and 25 mm behind Vp
 D, 45 mm below Hp and 25 mm behind Vp
 E, 30 mm behind Vp and on Hp.
- (ii) A straight line AB has its end A 20 mm above Hp and 25 mm in front of Vp. The other end B is 60 mm above Hp and 65 mm in front of Vp. The ends of the line are on the same projector. Draw its projections. Find the true length, true inclinations of the line with Hp and Vp, also mark the traces. (10)

Or

- (b) (i) Mention the position of the following points with respect to the planes of projection. All dimensions are marked in mm. (10)



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(10)

- (ii) A line AB has its end A in Hp and 40 mm in front of Vp. Its front view is inclined at 50° to XY and has a length of 70 mm. The other end B is in Vp. Draw its projections. (10)

(10)

3. (a) A right circular cone diameter of base 56 mm and height 65 mm, rests on its base on Hp. A section plane perpendicular to Vp and inclined to Hp at 45° cuts the cone meeting its axis at a distance of 36 mm from its base. Draw its front view, sectional top view and true shape of the section. (20)

Or

- (b) A right regular pentagonal pyramid side of base 25 mm and length of axis 50 mm, lies on one of its triangular faces on Hp with its axis parallel to Vp. A section plane perpendicular to the Hp and inclined to Vp at 30° cuts the pyramid bisecting its axis. Draw its top view, sectional front view and true shape of the section. (20)

ference
(10)

4. (a) A square pyramid of base side 30 mm and altitude 65 mm is resting on Hp on its base with a side of base inclined at 25° to Vp. It is cut by a plane inclined at 35° to Hp and perpendicular to Vp and bisects the axis. Draw the development of the remaining lower portion of the pyramid. (20)

Or

- (b) A cone of base 50 mm and axis length 70 mm rests with its base on Hp. A section plane perpendicular to Vp and inclined at 35° to Hp bisects the axis of the cone. Draw the development of the truncated cone. (20)

25 mm
65 mm
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the line
(10)

5. (a) Draw the isometric projection of a frustrum of a cone of base diameter 60 mm and top base diameter 35 mm and axis length 50 mm rests on Hp on its base. (20)

Or

- (b) A model of steps has 3 steps of 15 mm tread and rise 10 mm. The steps measure 60 mm wide. The vertical edge of bottom step which is nearer to the picture plane is 25 mm behind pp and the width of the steps recede to the left at an angle of 30° to pp. The station point is 100 mm in front of pp and 60 mm above ground plane and 30 mm to the right of the vertical edge which is nearest to pp. Draw the perspective view of the model. (20)

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(10)