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**Question Paper Code : 91660**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

First Semester

Civil Engineering

GE 6152 – ENGINEERING GRAPHICS

(Common to all Branches)

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

(5×20=100 Marks)

1. a) Draw an ellipse when the eccentricity is  $\frac{2}{3}$  and the distance of the focus from the directrix is equal to 50 mm. Also draw a normal and tangent to a point on the ellipse which is at a distance of 70 mm from the directrix. (20)

(OR)

- b) Draw the following views of the component shown in Fig. 1 by free hand sketching : (20)
- i) Front view
  - ii) Top view and
  - iii) Right side view

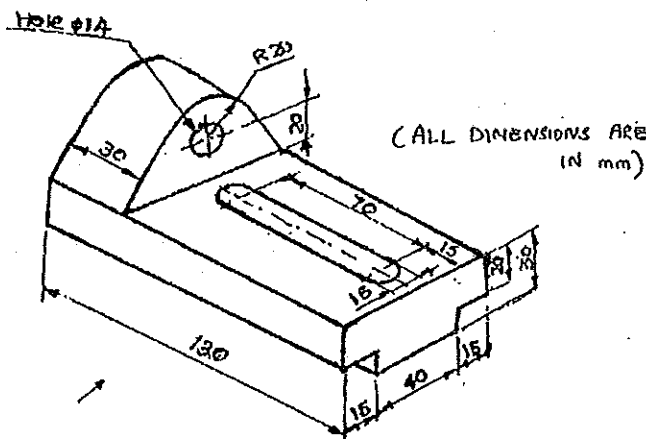


Fig. 1

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2. a) The top view of a 80 mm long line AB measures 65 mm, while the length of its front view is 55 mm. Its one end A in the H.P. and 12 mm in front of the V.P. Draw the projections of AB and determine its inclinations with the H.P. and V.P.

(20)

(OR)

- b) A pentagonal lamina of 30 mm side rests on the H.P. on one of its corners with its surface inclined at  $30^\circ$  to the H.P. Draw its projections when the side opposite to the resting corner is  $45^\circ$  inclined to V.P.

(20)

3. a) A square prism of base side 35 mm and axis length 60 mm lies on the HP on one of its longer edges with its faces equally inclined to the HP. Draw its projections when its axis is inclined at  $30^\circ$  to the VP. Use change of position method.

(20)

(OR)

- b) Draw the projections of a hexagonal prism of base side 20 mm and axis length 50 mm when it rests on the ground on one of its base edges and the axis inclined at  $35^\circ$  to the ground and parallel to the VP. Use change of reference line method.

(20)

4. a) A cone of base diameter 50 mm and height 65 mm is resting on HP on its base. A section plane cuts the cone in such a way that it is perpendicular HP and  $35^\circ$  inclined to VP. Also the section plane is passing through the cone at a distance of 12 mm in front of the axis. Draw its sectional front view and true shape of the section.

(20)

(OR)

- b) A cylinder of base 60 mm diameter and height of 75 mm rests with its base on HP. A section plane perpendicular to VP and inclined at  $30^\circ$  to HP bisects the axis of the cylinder. Draw the development of its lateral surface.

(20)

5. a) Draw the isometric projection of a sphere of diameter 16 mm kept centrally over a frustum of a square pyramid of height 25 mm. The frustum has a base of side 35 mm and top of side 20 mm. Take isometric lengths from an isometric scale drawn.

(20)

(OR)

- b) Draw the perspective view of a pentagonal prism of base side 20 mm and height 40 mm when it rests on its base on the ground plane with one of its rectangular faces parallel to and 20 mm behind the picture plane. The station point is 45 mm in front of the PP and 60 mm above the GP. The observer is 20 mm to the left of the axis. Draw the perspective by visual ray method. Use the top view and front view.

(20)