Faculty of Engineering & Technology

First Semester B.E. Examination

ENGINEERING GRAPHICS—I

Time—Three Hours]   [Maximum Marks—40

INSTRUCTIONS TO CANDIDATES

(1) All questions carry marks as indicated.

(2) Solve **FOUR** questions as follows :

    (i) Q.No. 1 OR Q.No. 2

    (ii) Q.No. 3 OR Q.No. 4

    (iii) Q.No. 5 OR Q.No. 6

    (iv) Q.No. 7 OR Q.No. 8

(3) Due credit will be given to neatness and adequate dimensions.

(4) Retain the construction lines.

(5) Use of Drawing instruments is permitted.

1. (a) An artificial satellite is orbiting around the earth. The major axis of the orbit is 40,000 km and the

minor axis is 30,000 km. Draw the orbit of the satellite which is elliptical. 5

(b) The plan length of a straight line AB 72 mm long measures 62.4 mm while elevation length is 49.2 mm. Its end A is in the V.P. and 15 mm above the H.P. Draw the projection of straight line and determine its inclination with H.P. and V.P. 5

OR

2. (a) A line AB 120 mm long is tangent at the top of circular disc of 50 mm diameter, so that point A is at the top of the circumference of the circle. The line AB rolls around the circumference of circular disc in clockwise direction. Draw the locus of the end A, till the end B touches the circumference of the circular disc. Name the curve. 5

(b) Draw the three views of a line PQ when its one end P is 20 mm above the H.P. and 10 mm infront of the V.P.; its end Q is 55 mm above the H.P.

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and 60 mm infront of the V.P. The distance between projectors of P and Q (measured parallel to XY line) is 45 mm. Find True length, inclination with H.P. and V.P. 5

3. (a) A pentagonal plane ABCDE of side 40 mm is kept on the H.P. on its side AB in such a way that its surface makes an angle of 40° with H.P. Draw its three views, when its side AB is inclined at 30° with V.P., with its end A 20 mm infront of V.P. 5

(b) Front view and top view of a plane are circle with diameter 40 mm. Find the true shape of a plane and its angles with H.P. and V.P. 5

OR

4. A hexagonal prism side of base 30 mm and axis 70 mm is resting on one of the corners of base on H.P. in such a way that longer edge through that corner makes an angle of 45° with the H.P. Draw its projections when its axis is inclined at 30° to V.P. Draw its side view also. 10

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5. (a) Fig. 1 shows pictorial view of a machine component. Draw following views :

(i) Front view looking in the direction X.

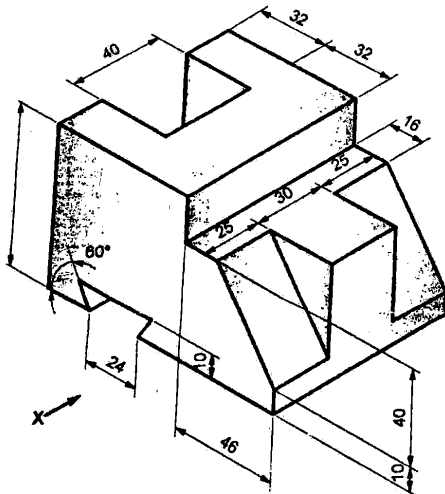(ii) Top view.

Give dimensions and scale used. 5

Fig. 1

(b) Fig. 2 shows pictorial view of an object. Draw following views :

(i) Front view looking in the direction X.

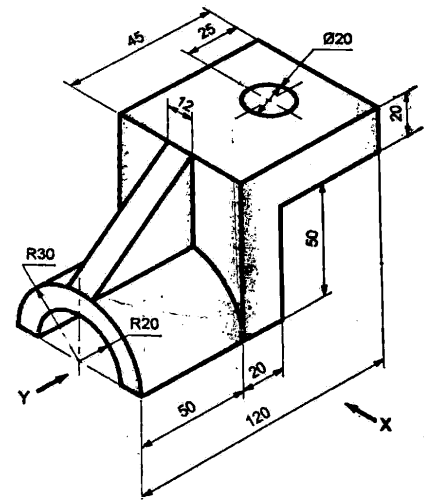(ii) Side view looking in the direction Y.

Give dimensions and scale used. 5

Fig. 2

OR

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6. Fig. 3 shows pictorial view of a machine component. Draw following views :
    (i) Front view looking in the direction X
    (ii) Top view
    (iii) Left hand side view.
    Give dimensions, scale used and also draw projection symbol. **10**
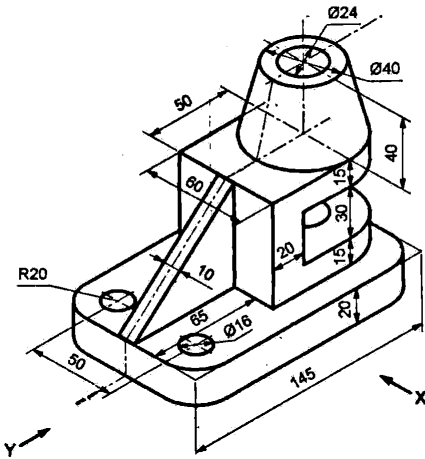

Fig. 3

7. (a) Construct an isometric scale to measure a length of 100 mm. **3**
    (b) A Hexagonal prism, side of hexagon = 35 mm and height = 40 mm is resting on its hexagonal

base on H.P. One of the side of hexagonal base is perpendicular to V.P. A right circular cone of base diameter 50 mm and axis 65 mm is kept centrally on the top hexagonal face, on its apex. The axes of both solids are vertical and coinciding. Draw the isometric projection for the given arrangement of solids. Show their common axis and indicate direction of viewing. **7**

OR

8. Fig. 4 shows Front view and Top view of an object. Draw the isometric view. Indicate direction of viewing. **10**
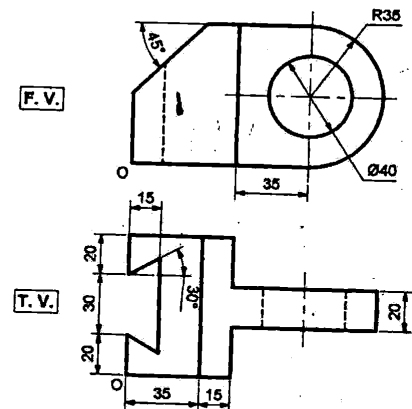

Fig. 4

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