17205

13141

4 Hours / 100 Marks Seat No.
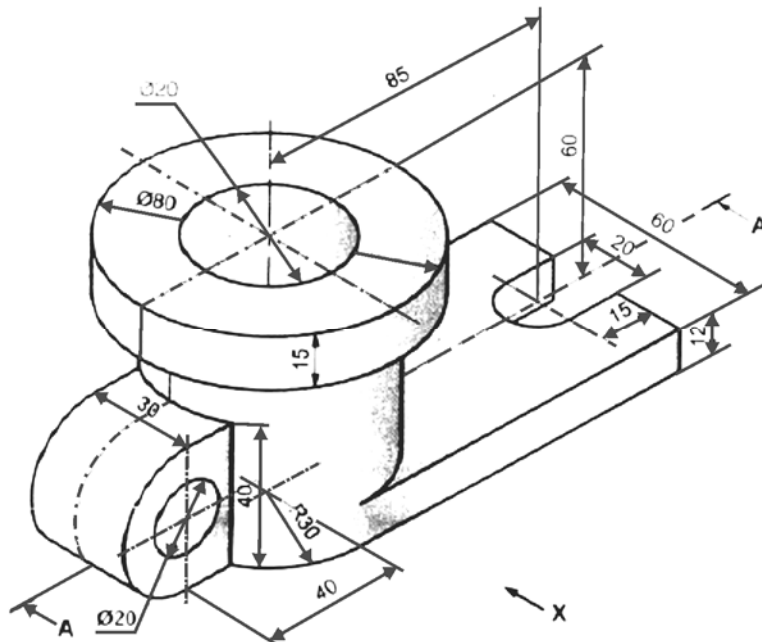
Instructions : (1) All Questions are *compulsory*.

(2) Figures to the right indicate full marks.

(3) Assume suitable data, if necessary.

(4) Use only H/2H grade pencils.

(5) Retain all construction lines.

Marks

1. (a) A pictorial view of an object is as shown in Figure.

Draw the following views.

(i) Sectional elevation section along A-A.   **5**

(ii) Plan   **5**

(Use first angle method of projection)

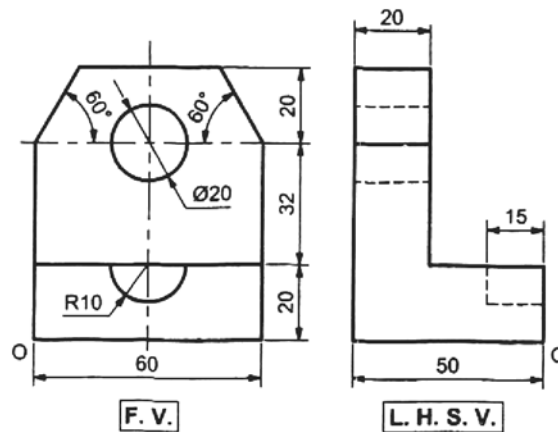**P.T.O.**

(b) Fig. No. 2 shows F.V and L.H.S.V. of an object.

Fig No. 2

Draw the following views of the object. Use first angle method of projection.

(i) Front view 4

(ii) Top view (missing view) 4

(iii) L.H.S.V. 2

2. (a) The top view of a 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end A is in the H.P. and 12 mm in front of V.P. Draw the projections of AB and determine its inclination with the H.P. & V.P. 8

(b) **Solve any ONE :** 8

(i) A regular hexagonal plate, 30 mm side, is resting on H.P. on one of its edges/sides. The surface of the plate is inclined at 45° to HP and is perpendicular to V.P. Draw the projections of plate. (Use first angle method of projection).

(ii) A circular plate of negligible thickness and 50 mm diameter appears as an ellipse in the top view, having its major axis 50 mm long and minor axis 30 mm long. Draw it projections when the major axis of the ellipse is perpendicular to V.P. Also determine its inclination with H.P.

3. **Solve any TWO :** 16

   (a) A cylinder of base diameter 40 mm and axis length 60 mm is kept on the V.P on a point of its base circle such that its axis is inclined to V.P at 30° and parallel to H.P. Draw the projections of cylinder.

   (b) A pentagonal prism having, base 25 mm side and axis 50 mm long, resting on one of its rectangular face on H.P; with axis parallel to H.P. & inclined at 45° to V.P. Draw its projections.

   (c) A cone, base diameter 50 mm and axis length 60 mm is kept on the V.P. on a point of its base circle in such a way that its apex is 50 mm infront of V.P. Draw the projections of the cone when elevation of axis is parallel to *x*-y line.

4. **Solve any TWO :** 16

   (a) A right circular cylinder, base 60 mm diameter and axis 100 mm long, is resting on its base on H.P. It is cut by a plane perpendicular to V.P. and inclined at 40° to H.P. and passing through a point on axis 30 mm from the top end. Draw

      (i) Front view. 2

      (ii) Sectional top view. 4

      (iii) True shape of section 2

   (b) A hexagonal prism of 35 mm side of end faces and 80 mm height is resting on one of its ends in H.P. with two opposite rectangular faces parallel to V.P. A cutting plane perpendicular to V.P. and inclined to H.P. Cut its half with true shape of section being the largest rectangle. Draw

      (i) Front view 2

      (ii) Sectional T.V. 2

      (iii) True shape of the section 4

   (c) A right circular cone of 50 mm base diameter and axis 80 mm long is resting on its base on H.P. It is cut by a section plane inclined at 60° to H.P & perpendicular to V.P. bisecting the axis. Draw

      (i) Front view 2

      (ii) Sectional T.V. 4

      (iii) True shape of section 2

5. **Solve any TWO :** **16**

    (a)   A cone, base 50 mm diameter and axis 70 mm long is resting on its base on the H.P. It is cut by an (auxiliary inclined plane) AIP inclined at 45° to H.P. and bisecting the axis. Draw the development of lateral surface of the cone.

    (b)   Draw the development of lateral surface of a pentagonal prism with edge of base 40 mm and height 90 mm, kept on H.P. with an edge of base parallel to V.P, when it is cut by an AIP (auxiliary inclined plane) inclined at 30° to H.P. and bisecting the axis of the prism.

    (c)   Fig. 3 shows the front view and top view of a tray. Draw the development of lateral surface on a flat sheet such that it can be folded in the form of tray.
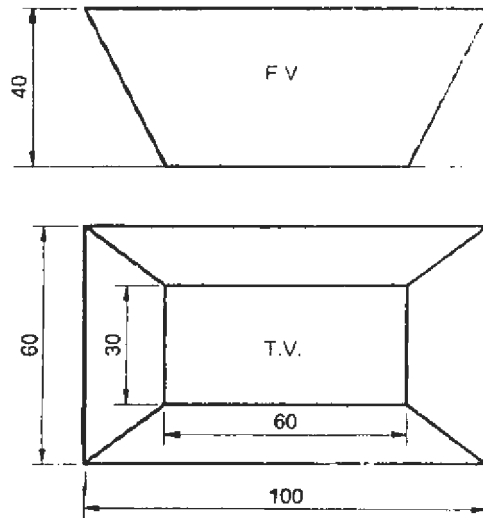

Fig. 3

6. Draw the freehand sketches of any **FOUR** of the following : **16**

    (i)   Acme thread

    (ii)   Eye foundation bolt

    (iii)   Check nut or capstan nut

    (iv)   Gib head key

    (v)   Single rivetted lap joint

    (vi)   Split pin