15162

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 of Non-programmable Electronic Pocket Calculator is permissible.

    (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) A pictorial view of the object is shown in Figure No. 1   **10**
(Use first angle method)
Draw the following views.

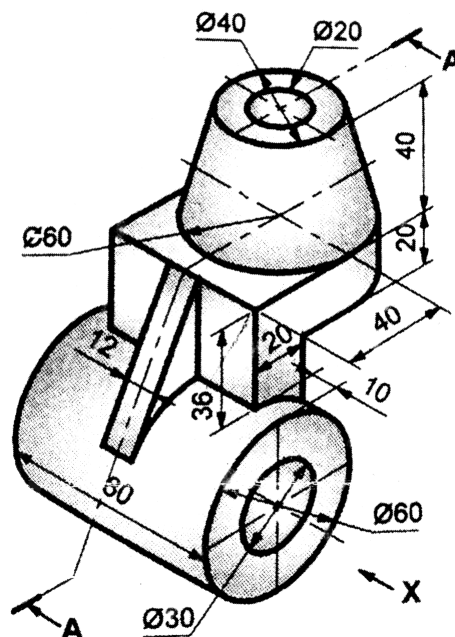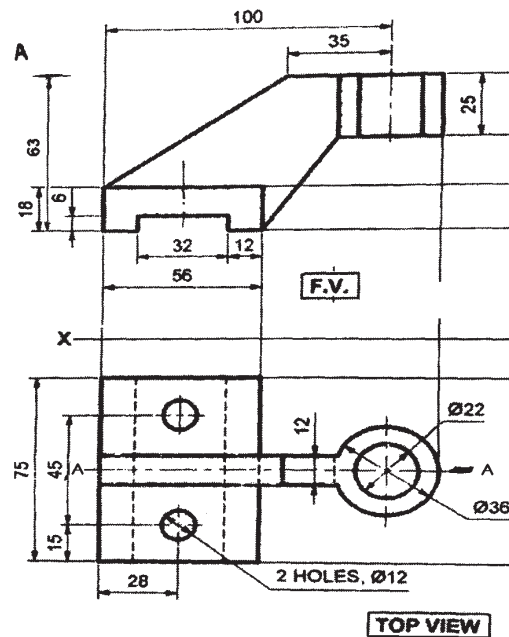   (i) Sectional front view (Section A - A)

    (ii) Top view

Fig. No. 1

P.T.O.

Marks

b) Figure No. 2 shows front view and top view of the object. **10**
Draw the following views of the object. (Use first angle method)

(i) Sectional front view A - A 4

(ii) Top view 2

(iii) Left hand side view (L.H.S.V.) 4

Fig. No. 2

2. a) A line AB 70 mm long, has its end 15 mm above HP and **08**
20 mm infront of VP. The line is inclined at 30° to the HP
and 45° to the VP. Draw the projections.

b) **Solve any ONE of the following:** **08**

(i) A circular plate of diameter 70 mm is resting on the HP.
The plate is inclined to HP in such a way that the top view
appears to be an ellipse of minor axis 40 mm. Draw the
projections of the plate and find its inclination to the HP.

(ii) A pentagonal plate of 30 mm side is resting on one of the
side on HP, such that plate is inclined at 40° with HP and
perpendicular to VP. The centre of plate is 50 mm form VP.
Draw its three views.

Marks

3. **Solve any TWO of the following:** **16**

a) A cone base diameter 50 mm and axis length 70 mm is kept on the HP on a point of its base circle such that its axis is inclined to the HP at 30° and parallel to VP. Draw the projections of cone.

b) A hexagonal prism edge of base 25 mm and axis 60 mm long rest on HP on an edge of base with that edge perpendicular to VP and axis inclined 45° to HP and parallel to VP. Draw the projections of prism.

c) A pentagonal pyramid side of base 30 mm and axis length 65 mm is kept on the HP on a corner of its base such that axis makes an angle of 30° to the HP and parallel to VP. Draw its projections.

4. **Solve any TWO of the following:** **16**

a) A cylinder of 50 mm diameter and 70 mm height has its axis vertical, it is cut by a section plane perpendicular to VP and inclined at 45° to HP and intersecting the axis 40 mm above the base. Draw:

    (i) Front view   2

    (ii) Sectional top view   2

    (iii) True shape of section   4

b) A hexagonal pyramid base 30 mm side and axis 65 mm long has its base on HP with an edge of base parallel to VP. A vertical section plane inclined at 45° to VP, cuts the pyramid at a distance of 10 mm from its axis. Draw:

    (i) Top view   2

    (ii) Sectional front view   4

    (iii) True shape of section   2

c) A right circular cone, base 60 mm diameter and axis 70 mm long has its base on the HP. It is cut by a section plane, Perpendicular to VP, inclined at 75° to HP and passing through a point 25 mm form the apex. Draw

    (i) Sectional top view   4

    (ii) Front view   2

    (iii) True shape of section   2

Marks

5. **Solve any TWO of the following:** **16**

a) A right circular cone, having diameter base 40 mm, axis length 60 mm resting on its base on HP is cut by a section plane perpendicular to VP and inclined to HP at 45° and bisecting the axis of the cone. Draw the development of surface of the cone.

b) A cylinder having base diameter 60 mm and axis length 80 mm has its base in HP. A square hole of side 25 mm is drilled centrally having its side equally inclined with HP and its axis being perpendicular to VP and bisecting the axis of the cylinder. Draw the development of the cylinder with the hole.

c) A square pyramid, side of base 50 mm and height of axis 75 mm stands on its base in the HP with an edge of base perpendicular to VP. A horizontal circular hole of diameter 24 mm is cut through the triangular faces of the pyramid and axis of the hole and pyramid intersect at 30 mm above the base. Draw the development of the lateral surface of the pyramid with hole.

6. **Draw neat and proportionate free hand sketches of any FOUR of the following:** **16**

a) Buttress thread

b) Eye foundation bolt

c) Hexagonal headed bolt

d) Locking by split pin

e) Capstan Nut

f) Single rivetted lap joint.

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