17205

11920

4 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

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

Marks

1. a) A pictorial view of an object is shown in Figure No. 1. Draw following views using first angle method of projection.

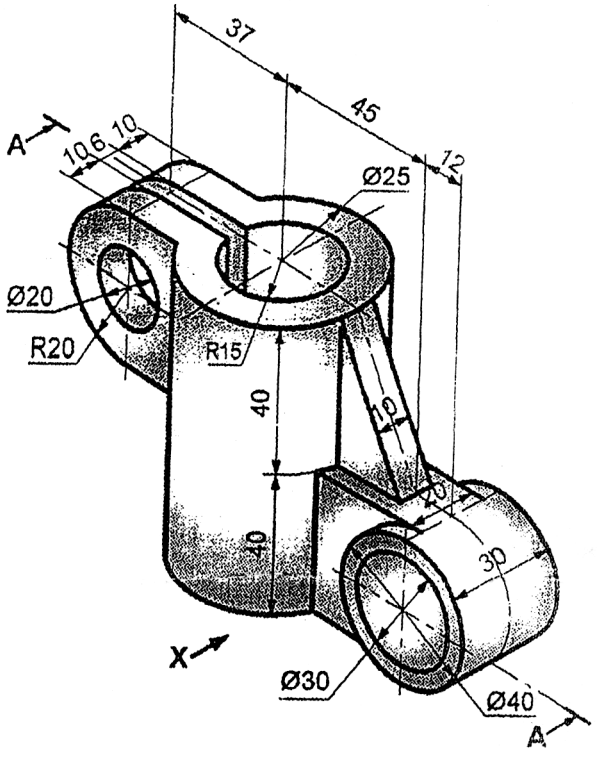

Figure No. 1

(i) Sectional front view looking in direction X (Section A-A) **6**

(ii) Top View. **4**

P.T.O.

Marks

b) Figure No. 2 shows the front view and top view. Draw the following views of an object using first angle method of projection.

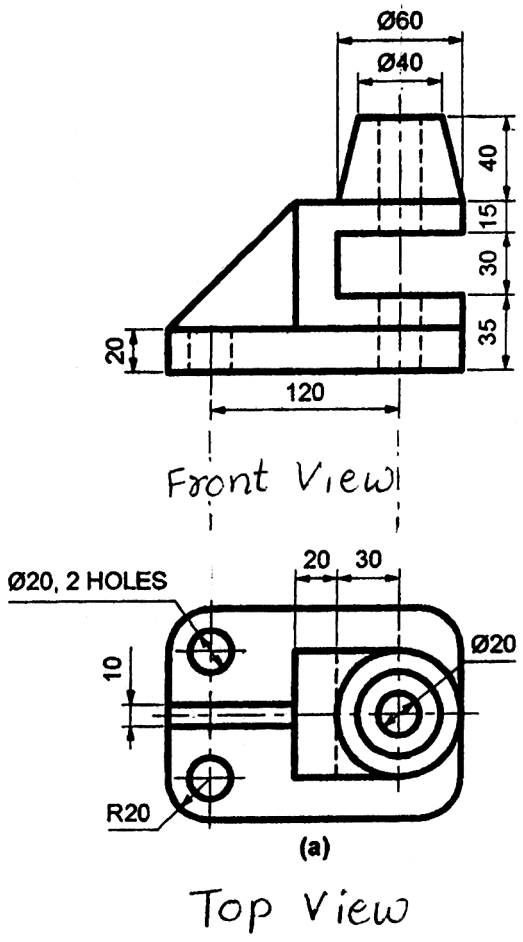

Figure No. 2

(i) Front view **2**

(ii) Top view **3**

(iii) Left hand side view **5**

Marks

2. a) A line PQ 90 mm long has its end P is in HP and 30 mm infront of VP. The line is inclined at 40° to HP and 35° to VP.

Draw its projections and measure the length of front view and top view and inclinations made by it. **8**

b) **Attempt any <u>ONE</u> of the following:** **8**

(i) A pentagonal plate of 40 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 center of plate is 50 mm from VP. Draw three views of pentagonal plate.

(ii) A rectangular plate having smallest side 40 mm and longest side 60 mm is kept on the HP on its smaller side with surface perpendicular to V.P. It is inclined to HP in such a way that top view appears as a square. Draw three views and find inclination of plane with HP.

3. **Attempt any <u>TWO</u> of the following:** **16**

a) A right circular cone base diameter 60 mm and axis length 70 mm, is resting on its apex on HP. Draw the projections of cone, when axis is parallel to VP and inclined at 45° to HP. Use first angle method of projection.

b) A square prism side of base 50 mm and axis length 70 mm is kept on the VP on an edge of its base such that its axis makes an angle of 30° to VP and parallel to HP. Draw the projections of prism.

c) A hexagonal pyramid side of base 30 mm and axis length 70 mm is kept on the HP on the corner of its base such that base makes an angle of 60° to HP and axis parallel to VP. Draw its projections by using auxiliary plane.

Marks

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

a) A right circular cylinder of 60 mm base diameter and axis 100 mm long is resting on HP on its base. It is cut by a section plane perpendicular to VP and inclined to HP in such a way that true shape of section is an ellipse having major axis 80 mm. Draw

(i) Front view **2**

(ii) Sectional top view **4**

(iii) True shape of section **2**

b) A square prism of base edge 40 mm and axis 100 mm long is resting on its base on HP with all base edges equally inclined to VP. A cutting plane inclined to HP and perpendicular to VP cuts the cone and passes through mid-point of axis. The cutting plane cuts the cone such that true shape appears a rhombus of major diagonal 70 mm. Draw.

(i) Front view **2**

(ii) Sectional top view **4**

(iii) True shape of section **2**

c) A tetrahedron of side 70 mm is kept on HP on one of its triangular face with an edge of that triangular face perpendicular to VP. It is cut by a section plane in such a way that true shape of section is a square. Draw.

(i) Front view **2**

(ii) Sectional top view. **4**

(iii) True shape of section **2**

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

a) Draw the development of lateral surface of a pentagonal prism with edge of base 40 mm and height 90 mm, kept on HP on its base with an edge of base parallel to VP. It is cut by a sectional plane inclined at 30° to HP and bisecting the axis of the prism. **8**

Marks

b) Draw the development of lateral surface of part P of the cone shown in Figure No. 3.

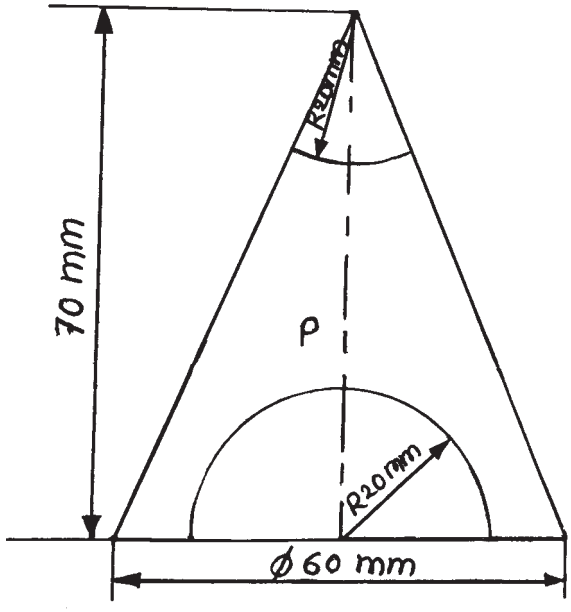

Figure No. 3

c) Draw the development of lateral surface of part P of cylinder shown in Figure No. 4.

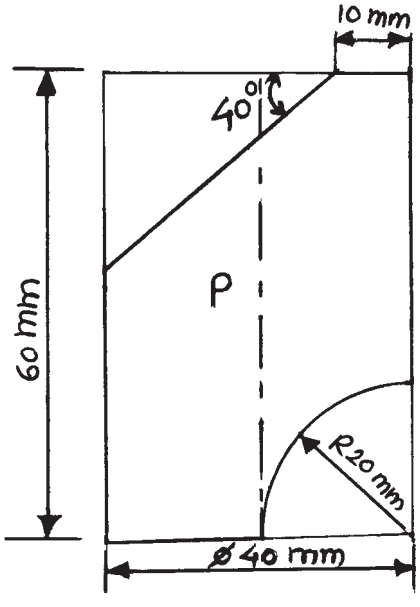

Figure No. 4

Marks

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

a) Acme thread.

b) Double rivetted lap joint.

c) Flange coupling.

d) Rag foundation bolt.

e) Hexagonal nut in two views.

f) Locking by split pin.