

B. Tech. Second Semester (Food, Pulp, Oil, Petro) (Old)  
Engineering Drawing : 2 SCT 4

P. Pages : 3

Time : Four Hours



AU - 3109

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Retain the construction lines.
  5. Use of pen Blue/Black ink/refill only for writing the answer book.
  6. Use of drawing instrument is permitted.

SECTION - A

1. a) Draw a Vernier scale of R.F. =  $\frac{1}{24}$  to read yards, feet and inches and to measure upto 4 yards. Show lengths representing i) 2 yards 2 feet 10 inches ii) 1 feet 3 inches. 6
- b) A pendulum of a clock, 100 mm long, oscillates through  $60^\circ$ . During one cycle of oscillation, a point p moves from the moving end to the pivoted at uniform velocity. Draw the locus of point P for one oscillation. 7  
Assume initial position of the pendulum to be vertical.

OR

2. a) The distance between Nagpur and Chandrapur is 156 km. The cities are shown 156 mm apart on a road map. Draw a diagonal scale with this R.F. and long enough to measure up to 200 km. Mark on it the following distances (i) 109km (ii) 168 km. 6
- b) Link OC hinged at O is 80 mm long. It carries a circular disc at C of radius 25 mm capable of rotating about the center point C. Link OC initially vertical turns uniformly towards the right side by an angle of  $45^\circ$  and then towards the left side by total angle of  $90^\circ$  and then to the initial vertical position. During the same time the disc revolves uniformly in the clockwise direction through one complete revolution. Draw the locus of the point 'P' on the disc, initially at the lowest position. 7
3. a) A circle of diameter 40 mm rolls on a straight line without slipping. In the initial position a diameter AB of the circle is parallel to the line on which the circle rolls. Draw the loci of points A & B for one complete revolution of the circle. 7
- b) The throw of ball from fielder on a cricket ground reaches the wicket keeper gloves, following parabolic path, maximum height achieve by the ball above the ground is 31 m. Assuming the point of throw and point - of catch to be 1 m above the ground, draw the path of the ball. The radial distance between the fielder and wicket keeper is 75 m. 6

OR

4. a) The vertex of a hyperbola is 60 mm, from focus. Draw the curve if eccentricity is 1.5. Draw a normal and tangent at a point on the curve, 70 mm from the directrix. 6
- b) A circle of 40 mm diameter rolls without slipping on the inside of another circle of diameter 160 mm. Show the path of a point on the periphery of the rolling circle diametrically opposite the initial point of contact between the circles. When rolling circle make one rotation clockwise. Name the curve. 7

P.T.O

5. Fig. 1 shows the pictorial view. Draw by first angle projection method following views. 14
- Front View
  - Top View
  - Side View

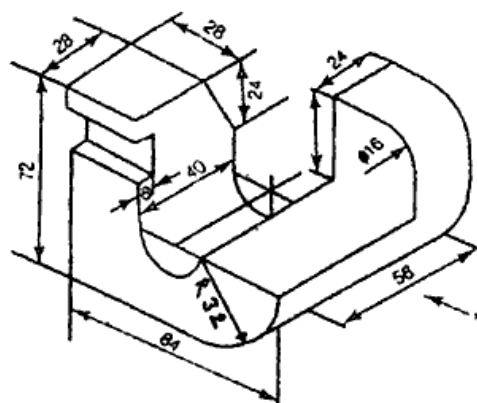


Fig. 1

OR

6. Fig. 2 shows pictorial view. Draw by third angle projection method following views. 14
- Front View
  - Top View
  - Side View

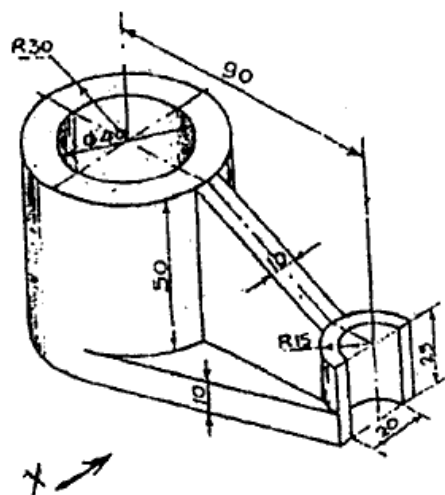


Fig. 2.

### SECTION - B

- ABCD is a symmetrical trapezium with  $AB = 50$  mm &  $CD = 80$  mm as its parallel sides & 60 mm height. The plane has its side AB in V.P. & CD 35 mm away from it. The elevation of BC makes an angle of  $35^\circ$  with XY line obtain the projections of the plane & find angles with the reference plane. 7
- A line AB 60 mm long makes  $45^\circ$  &  $30^\circ$  angles with VP & HP respectively. Draw the projections and determine its traces when the end point A is 10 mm in front of V.P. & 20 mm above H.P. 6

OR

- A pentagonal pyramid of 35 mm base edge & 70 mm height is resting on the H.P. with one of its triangular surfaces perpendicular to the H.P. and parallel & nearer to V.P. Draw its projections. 6
- A cylindrical disc of 70 mm diameter and 30 mm length of axis, has its axis inclined at  $30^\circ$  to the H.P. and plan of axis  $40^\circ$  to the V.P. Draw its projections. 7

9. a) A square prism of 40 mm base side & 75 mm axis length is resting on its base on the H.P. with its faces equally inclined to the V.P. It is cut by an AIP such that the true shape of the section is an isosceles triangle of maximum size. Draw the F.V., Sectional T.V. and true shape of section. 7

b) Draw neat, proportionate free hand sketches of the following.

i) Rag foundation bolt 4

ii) Flanged Nut 2

OR

10. a) Draw neat, proportionate free hand sketches of the following. 6

i) Sellers thread

ii) Ring Nut

iii) Any four types of set screw's thread.

- b) A hexagonal prism side of the base 25 mm long and axis 65 mm long is resting on an edge of the base on the H.P. its axis being inclined at  $60^\circ$  to H.P. & parallel to V.P. A section plane inclined at  $45^\circ$  to V.P. & Normal to H.P. cuts the prism & passes through a point on the axis 20 mm away from the top surface. Draw the T.V., Sectional F.V. & true shape of section. 7

11. Fig. 1 shows two views of an object. Draw Isometric view. 14

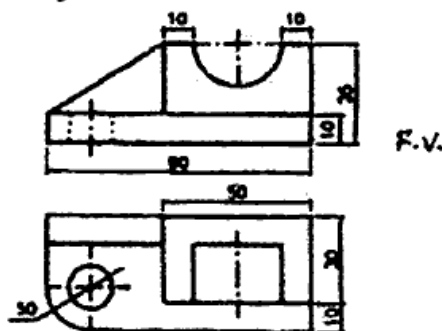


FIG-1 (T.V.)

OR

12. Fig. 2 shows two views of an object. Draw Isometric Projection. 14

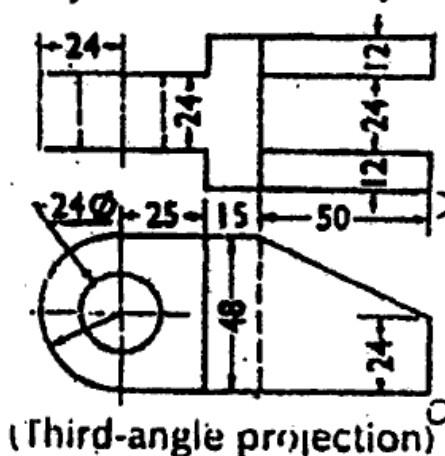


Fig. 2

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