

Code No: 131AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year I Semester Examinations, May - 2018

ENGINEERING GRAPHICS

(Common to CE, AE, MIE, PTM, CEE)

Time: 3 hours

Max Marks: 75

Answer all five questions
All questions carry equal marks

- 1.a) Draw a vernier scale of R.F.=5 to read $1/5$ cm and $1/25$ cm and to measure up to 5 cm. Mark on the scale distance of 2.12 cm.
 - b) Draw an involute of a circle of 40 mm diameter. Also, draw a normal and tangent to it a point 100 mm from the center of the circle. [7+8]
- OR
- 2.a) Show by means of a drawing that when the diameter of the directing circle is twice that of the generating circle, the hypocycloid is a straight line. Take the diameter of the generating circle as 50 mm.
 - b) On a building plan, a line 20 cm long represents a distance of 10 m. Devise a diagonal scale for the plan to read up to 12 m, showing meters, decimeters and centimeters. Show on your scale the lengths 6.48 m and 11.14 m. [7+8]
- 3.a) A line AB is in the first quadrant. Its end A and B are 20 mm and 60 mm in front of V.P. respectively. The distance between the end projectors is 75 mm. The line is inclined at 30° to the H.P. and its H.T. is 10 mm above the XY. Draw its projections and determine its true length and the V.T.
 - b) The top view of a plate, the surface of which is perpendicular to the V.P. and inclined at an angle of 60° to the H.P. is a circle of 60 mm diameter. Draw its three views. [7+8]
- OR
- 4.a) A line AB, 65 mm long, has its end A in the H.P. and 15 mm in front of V.P. The end B is in the third quadrant. The line is inclined at 30° to the H.P. and at 60° to the V.P. Draw its projections.
 - b) A regular Hexagon of 40 mm side has a corner in the H.P. Its surface is inclined at 45° to the H.P. and the top view of the diagonal through the corner which is in the H.P. makes an angle of 60° with the V.P. Draw its projections. [7+8]
- 5.a) A cylinder of the diameter 50 mm and axis 70 mm long is perpendicular to the V.P. and 40 mm above H.P. one end 20 mm in front of V.P. Draw its projections.
 - b) A Tetrahedron of 75 mm long edges has one edge parallel to the H.P. and inclined at an angle of 45° to the V.P. While a face containing that edge is vertical. Draw its projections. [5+10]
- OR
- 6.a) A cone of the diameter of the base 40 mm and axis 75 mm, apex in H.P. and axis vertical and 40 mm in front of V.P. Draw its projections.
 - b) A pentagonal pyramid, base 30 mm side and axis 70 mm long, has one of its slant edges in the H.P. and inclined at an angle of 30° to the V.P. Draw its projections of the solid when the apex is towards the observer by auxiliary plane method. [5+10]
- 7.a) Mention any five applications of development of surfaces of solids.
 - b) A Cylinder, 65 mm diameter and 90 mm long, has its axis parallel to the H.P. and inclined at 30° to the V.P. It is cut by a vertical section plane in such a way that the true shape of the section is an ellipse having the major axis 75 mm long. Draw its sectional front view and true shape of the section. [5+10]

OR

- 8.a) What is a sectional view? Name the true shape of the section of a sphere cut by a vertical plane inclined to the V.P. Represent it?
- b) A hexagonal pyramid, base 50 mm side and axis 100 mm long, is lying on the H.P on one of its triangular faces with the axis parallel to the V.P. A vertical sectional plane the H.T of which makes an angle of 30° with the reference line passes through the center of the base and cuts the pyramid, the apex being retained. Draw the top view, sectional front view, true shape of the section and development of the surface of the cut pyramid. [5+10]
9. Draw the isometric view for the given figure 1. All dimensions are in mm. [15]

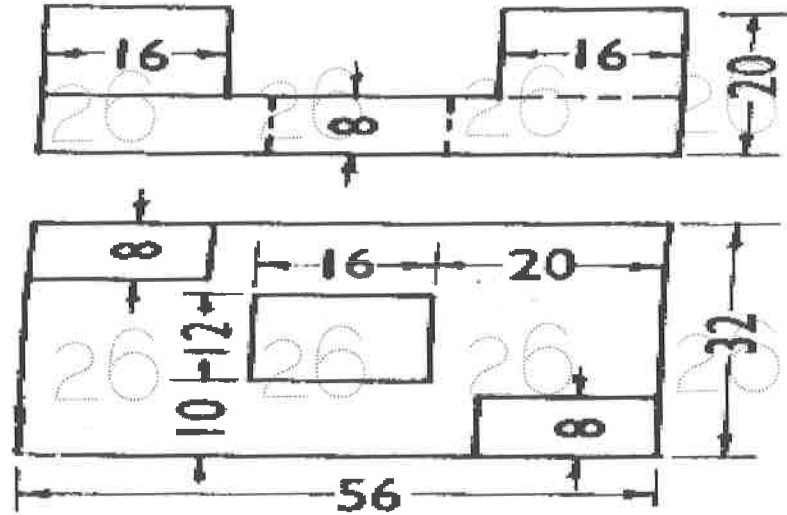


Figure: 1
OR

10. Draw Front view, Top view and side view for the following figure 2. All dimensions are in mm. [15]

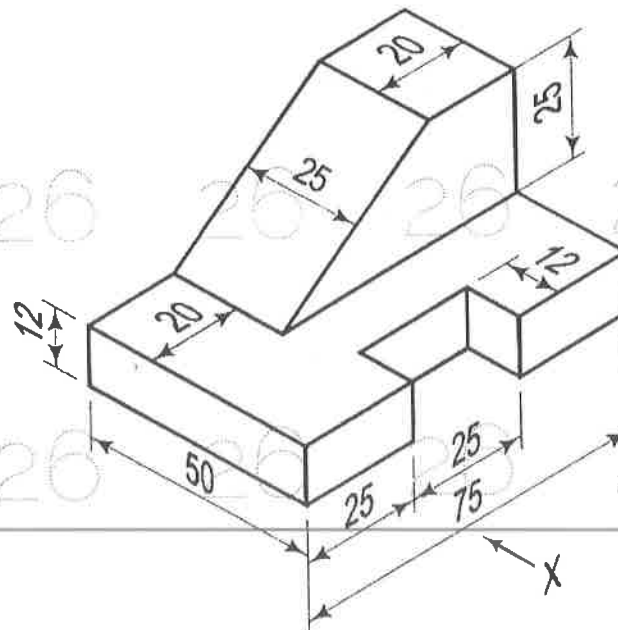


Figure: 2