

Code No: 131AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year I Semester Examinations, May/June - 2019

ENGINEERING GRAPHICS

(Common to ME, MCT, MMT, MSNT)

Time: 3 hours

Max. Marks: 75

Answer all five questions

All questions carry equal marks

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- 1.a) Construct a diagonal scale to read 2 km when its RF=1:20,000. Mark on it a distance of 1.15 km.
- b) Draw an epicycloid having a generating circle of diameter 75 mm and a directing curve of radius 200 mm. Also draw a normal and a tangent at a point P on the curve. [7+8]

OR

- 2.a) A circle of 40 mm diameter rolls along a straight line without slipping. Draw the curve traced by a point on the circumference, for i) one complete revolution and ii) one and a half revolutions of the circle. Name the curve. Draw a normal and tangent to the curve at a point 25 mm from the straight line.
- b) The major and minor axes of an ellipse are 80 mm and 50 mm respectively. Construct the curve. [8+7]

3. The distance between the end projectors of a line AB is 40 mm. The end point A is 15 mm above HP and 20 mm in front of V.P. The line is inclined at  $30^\circ$  to the HP. Draw its projections if the true length of the line is 80 mm. Find its inclination with the VP. Take the end point B in the 1<sup>st</sup> quadrant. [15]

OR

4. A rectangular plate of negligible thickness of size  $35 \times 20$  mm has one of its shorter edges in the VP, with that edge inclined at  $40^\circ$  to HP. Draw the top view, if its front view is a square of side 20 mm. [15]

5. Draw the projections of hexagonal pyramid of base 25 mm and height 60 mm when one of its triangular faces lies on HP, and its base edge is at right angle to the VP and the axis of the pyramid is parallel to VP. [15]

OR

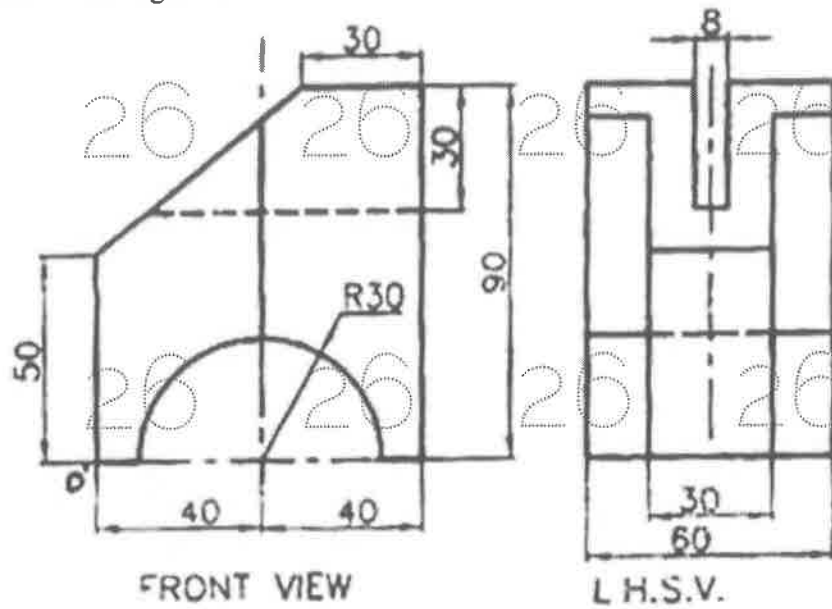
6. A tetrahedron of 75 mm long edges has one edge parallel to the HP and inclined at  $45^\circ$  to the VP, while a face containing the edge is vertical. Draw its projections. [15]

7. A square pyramid of base side 25 mm and altitude 50 mm rests on its base on the HP with two sides of the base parallel to VP. It is cut by a plane bisecting the axis and inclined at  $30^\circ$  to the base. Draw the front view, sectional top view and true shape of the section. Also draw the development of the lower part of the pyramid. [15]

OR

8. A hexagonal pyramid of 25 mm edge of base and axis 50 mm long is resting on its triangular face in the HP with its axis parallel to the VP. It is cut by a section plane perpendicular to the HP and inclined at  $30^\circ$  to VP, and passing through a point on the axis 20 mm from the base. Draw the top view, sectional front view and true shape of the section when the apex is removed. [15]

9. Figure shows two views of an object. Draw the isometric view of the object. All dimensions in the figure are in mm. [15]



- OR
10. A paper weight consists of three portions. The bottom-most portion is a cylinder with 80 mm diameter and 25 mm height. On it is situated the middle portion which is the frustum of a cone with 80 mm base diameter, 50 mm top diameter and 40 mm height. The topmost portion is hemi- sphere with 30 mm radius. Draw the isometric projection of the paper weight. [15]

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