

Code No: 151AD

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year I Semester Examinations, January/February - 2024

ENGINEERING GRAPHICS
(Common to ECE, AI&DS, AI&ML)

Time: 3 Hours

Max Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Construct a diagonal scale of R.F = $1/6250$ to read up to 1 kilometer and to read meters on it. Show a length of 653 meters on it.
- b) A point P moves in a plane such that the product of its distances from two fixed straight lines perpendicular to each other is constant and equal to 1200 mm^2 . Draw the locus of point P if its distance from one of the lines is 30 mm at some instant. Locate 8 points and name the curve. Draw a tangent and normal to the curve at any point. [8+7]

OR

- 2.a) Draw the locus of a point P on a circle of 40 mm diameter which rolls inside a fixed circle of 80 mm diameter for one complete revolution. Name the curve.
- b) Construct a diagonal scale of R.F = $3:200$ showing meters, decimeters and centimeters. The scale should measure up to 6 meters. Show on it a distance of 4.56 meters. [7+8]

3. A line RS having a length of 90 mm is inclined 30° to HP and 45° to VP. The point R is 10 mm above HP and 15 mm in front of VP, and the end S is in second quadrant. Draw the projections of the line. [15]

OR

4. A square ABCD of 50 mm side has its corner A in the H.P, its diagonal AC inclined at 30° to the H.P. and the diagonal BD inclined at 45° to the V.P. and parallel to the H.P. Draw its projections. [15]

5. Draw the projections of a cube of 25 mm long edges resting on the H.P. on one of its corners with a solid diagonal perpendicular to the V.P. [15]

OR

6. A tetrahedron of 60 mm long edges rests with one of its faces on H.P. and an edge is perpendicular to V.P. A section plane perpendicular to V.P cuts the tetrahedron such that the true shape of section is an isosceles triangle of base 50 mm and altitude 36 mm. Draw the front view, sectional top view, and the true shape of the section. Also find the inclination of the section plane. [15]

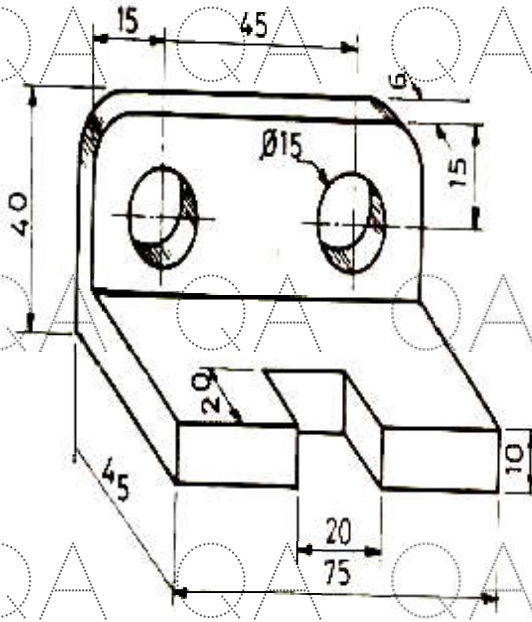
7. Develop the lateral surface of a frustum of cone of height 60 mm, base circle diameter 60 mm and top surface diameter 30 mm. [15]

OR

8. A cylinder 50 mm dia. and 70 mm axis is completely penetrated by a triangular prism of 45 mm sides and 70 mm axis, horizontally. One flat face of prism is parallel to VP and contains the axis of cylinder. Draw projections showing the curves of intersection. [15]

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9. The isometric view of an object is shown below, Draw its front view, top view, and right-side view. All dimensions are in mm. [15]



OR

10. A hemisphere of diameter 30 mm rests centrally on its circular base on the top of a frustum of a cone of base diameter 60 mm, top diameter 30 mm and height 60 mm. Draw isometric view of the combination. [15]

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