

R18

Code No: 152AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

ENGINEERING GRAPHICS

(Common to EEE, IT, CSIT, ITE, CE(SE), CSE(CS), CSE(DS), CSE(N), CSD)

Time: 3 Hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

- 1.a) Draw an ellipse when the distance between the focus and directrix is equal to 40 mm and the eccentricity is 0.75. Also draw a tangent and a normal to the ellipse at a point 35 mm from the focus.
- b) A circle of 50 mm diameter rolls in another fixed circle of radius 80 mm. Draw the hypocycloid for the point P on the rolling circle, which is at the contact point of the rolling and fixed circles. [8+7]

OR

- 2.a) Construct a plain scale of R.F=1:50,000 to show kilometers and hectometers and long enough to measure up to 7 kilometers. Measure a distance of 54 hectometers on your scale.
- b) A circle of 50 mm diameter rolls on another fixed circle of radius 80 mm. Draw the epicycloid for the point P on the rolling circle, which is at the contact point of the rolling and fixed circles. [8+7]

- 3.a) Draw the projections of the following points on the same ground line, keeping the distance between projectors equal to 30mm.
- i) A: 30 mm in front of VP and 50 mm above HP
 - ii) B: 40 mm behind VP and 60 mm above HP
 - iii) C: 25 mm behind VP and 30 mm below HP
 - iv) D: 55 mm in front of VP and 25 mm below HP
 - v) E: 50 mm from both planes and the point is in third quadrant
- b) A straight-line AB has its endpoint A 15 mm in front of the VP and end point B 50 mm above the HP. The line is inclined at 45° to the HP, while its front view is inclined at 60° to the XY line. Draw the projections of the straight-line AB if its top view is 35 mm long. Find the true length and the angle of inclination of the line with the VP. [8+7]

OR

- 4.a) Draw the projections of a pentagon ABCDE of side 25 mm. The surface is parallel to VP and perpendicular to HP with one side perpendicular to HP.
- b) A line PQ has its end P, 10 mm in front of VP and 15 mm above HP. The other end Q is 50 mm in front of VP. The front view has a length of 70 mm. The distance between the end projectors is 60 mm. Draw the projections of the line. Find its true length and true inclinations. [8+7]
- 5.a) A pentagonal pyramid having base edge 30 mm and axis 70 mm long is resting on one of its triangular faces in HP and having axis parallel to VP. Its axis is making an angle of 30° with XY line. Draw its plan of elevation.
- b) A cone of 50 mm base diameter and axis 65 mm is suspended from a point on the base. Draw its plan and elevation. [8+7]

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OR

- 6.a) A cylinder has 50 mm base and 70 mm long. Its axis is making 30° with VP and 45° with HP. Draw its plan and elevation.
- b) A regular hexagonal lamina of 30 mm side rests on one of its edges on HP. Its plane is inclined at 45° to HP and the edge on which it rests is inclined at 30° to VP. Draw its projections. [7+8]

7. A cylinder 25 mm in diameter, with an axis 40 mm long is resting on its base, with its axis perpendicular to the HP. Draw the projections of the cylinder and develop the lateral surface of the cylinder. [15]

OR

8. A hexagonal prism is resting on H.P on its base with two edges of base parallel to V.P. It is cut by an A.I.P which is perpendicular to V.P and inclined to H.P by 45° and passing through a point 40 mm above the base and on axis. Draw elevation, sectional plan, sectional side view and true shape of section. Take side of base 30 mm and height 60 mm. [15]

9. Draw the isometric view of the following figure 1. All dimensions are in 'mm'. [15]

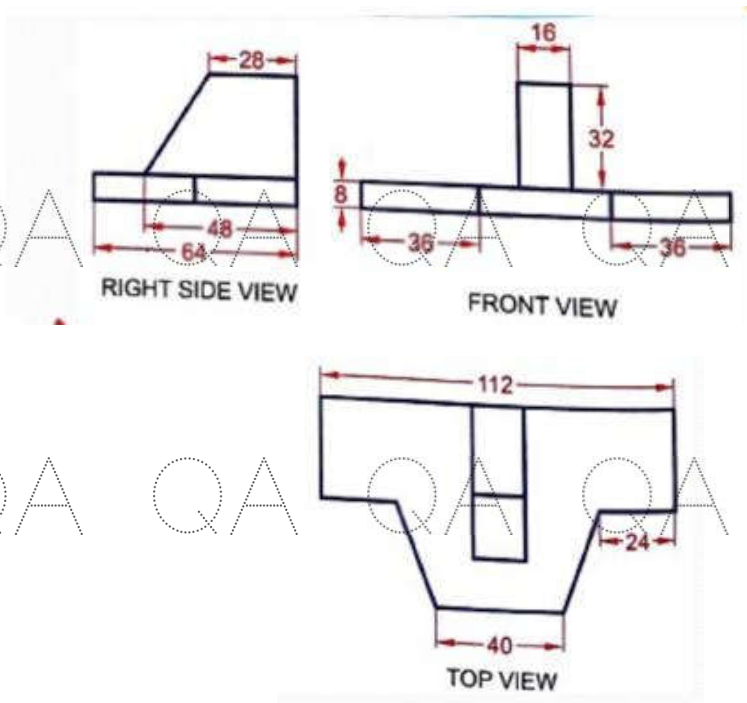


Figure 1

OR

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