R22

Code No: 182AV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year II Semester Examinations, February - 2025

COMPUTER AIDED ENGINEERING GRAPHICS

(Common to CSE(AI&ML), CSE(IOT), AI&DS, AI&ML)

Time: 3 Hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

1.a) A volume of 8 cm^3 of a model represents 64 m^3. What is the RF? [1]

b) Define eccentricity. [1]

c) The front view of a line is parallel to XY and measures 30 mm. What is its true length if the top view measures 65 mm? [1]

d) If the front view of a plane lies in the reference line, will its top view always be the true shape? [1]

e) Distinguish between triangular pyramid and tetrahedron. [1]

f) What is the difference between the top view of a hexagonal prism and that of a hexagonal pyramid when both solids rest on their bases in the H.P. with similar orientation? [1]

g) What is the shape of the developed surface of a tetrahedron of 60 mm edge? [1]

h) Sector of a circle of 60 mm radius and 120^0 represents development of the lateral surface of a cone. What is the diameter of the top view of the cone? [1]

i) How does a sphere of 50 mm diameter appear in its isometric projection? [1]

j) Draw the isometric view (by free hand sketch) corresponding to the orthographic views of the solid shown below figure 1. [1]

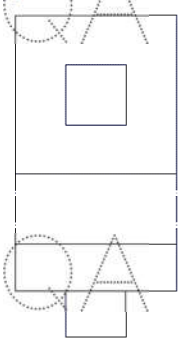

Figure 1

PART - B

(50 Marks)

2.a) Draw a parabola when the distance of its focus from its directrix is 60 mm and eccentricity is 3/2. Also, draw a tangent and a normal to the parabola at a point 70 mm away from the directrix.

b) Draw a diagonal scale of R.F. = (3/100) showing meters, decimeters, and centimeters, and to measure up to 5 meters. Show a length of 3.78 m on it. [5+5]

OR

3.a) Construct a rectangular hyperbola, when a point 'P' on it is at a distance 30 mm and 40 mm from two asymptotes. Also, draw a tangent to the curve at a point 35 mm from an asymptote.

b) On a map, the distance between two points is 14 cm. The real distance between them is 20 Km. Draw a diagonal scale of this map to read kilometers and hecta meters, and to measure up to 25 Km. Show a distance of 17.6 Km on this scale. [5+5]

4. A 90 mm long AB is inclined to 30^0 the H.P and 45^0 to the V.P. It is mid-point above the H.P. is 35 mm and infront of V.P is 50 mm. Draw its projections. [10]

OR

5. A pentagonal plane of 30 mm side has one of its sides in the V.P. and inclined at 60 degrees to the H.P. while the surface of the plane makes an angle of 40 degrees to V.P. Draw its projections. [10]

6. A cone of base 55 mm diameter and axis 65 mm long, rests with its base on the HP. A section plane perpendicular to both HP and VP cuts the cone at a distance of 8 mm from its axis. Draw its top view, front view, and sectional side view. [10]

OR

7. One of the body diagonals of a cube of 45 mm edge is parallel to the H.P. and inclined at 45 degrees to the V.P. Draw the front view and top view of the cube. [10]

8. A cone of base diameter 60 mm and axis 70 mm rests vertically with its base on the ground. A slot of the shape of an equilateral triangle of side 30 mm is cut through the cone so that its axis is perpendicular to the V.P and intersects the axis of the cone at right angles. The base of the slot is at a distance of 10 mm above the base of the cone. Draw the development of the lateral surface of the cone with the slot. [10]

OR

9. A vertical cylinder of base diameter 30 mm and axis 45 mm long is sectioned such that its front view appears as an isosceles triangle of 30 mm base and height 45 mm. Develop its surface. [10]

10. Draw the isometric projection of a frustum of hexagonal pyramid. side of base 30 mm, the side of top face 15mm, and height 50 mm. [10]

OR

11. Draw the front view, top view and left side view of the object whose isometric view is shown in Figure 2.(All dimensions are in mm). [10]

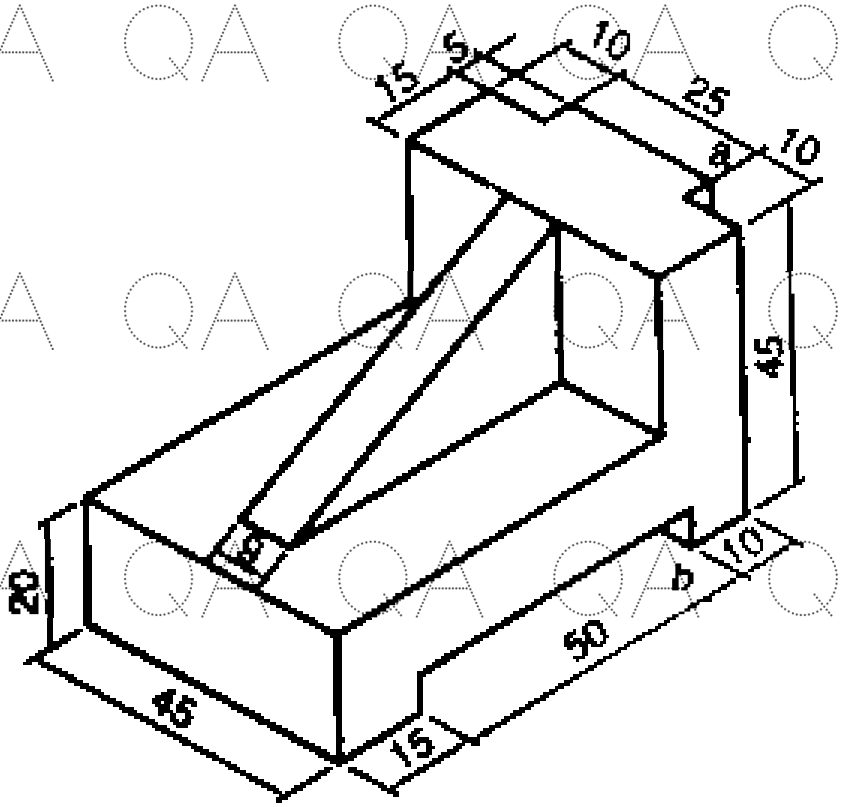

Figure 2

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