

Code No: **R231206**

**R20**

**SET - 1**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM**  
**I B. Tech II Semester Supplementary Examinations January-2025**

**ENGINEERING GRAPHICS**

**(Common to CSE, IT, CSE(DS), CSE(AI), CSE(CS), CSE(AI&ML), AI&DS, AI&ML)**

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Construct a conic when the distance of its focus from its directrix is equal to 50 mm and its eccentricity is  $\frac{2}{3}$ . Name the curve, mark its major axis and minor axis. Draw a tangent at any point, P on the curve. [7M]  
b) An area of 144 sq cm on a map represents an area of 36 sq Km on the field. Find the RF of the scale of the map and draw a diagonal scale to show Km, hectometers and decameters and to measure up to 10 Km. Indicate on the scale a distance 7 Km, 5 hectometers and 6 decameters [7M]

**(OR)**

2. a) A circular wheel of diameter 100 mm rolls over a straight surface without slipping. Draw the curve traced by a point P for one revolution of the wheel. Assume that the critical position of the point P is at the top of the vertical centre line of the wheel. Name the curve. [7M]  
b) Construct a forward reading vernier scale to read distance correct to decameter on a map in which the actual distances are reduced in the ratio of 1: 40,000. The scale should be long enough to measure up to 6 km. Mark on the scale a length of 3.34 km and 0.59 km. [7M]

**UNIT-II**

3. a) A point P is 15 mm above the HP and 20 mm in front of the VP. Another point Q is 25 mm behind the VP and 40 mm below HP. Draw the projections of P and Q keeping the distance between their projectors equal to 90 mm. Draw straight lines joining i) Their top views and ii) Their front views. [7M]  
b) A line AB is on H.P and its one end A is 20 in front of V.P. The line makes an angle of  $45^\circ$  with VP and its front view 60 long. Draw the projections of the line and determine the true length [7M]

**(OR)**

4. a) The top view of a 75mm long line AB measures 65mm, while its front view measures 50mm. It's one end A is in HP and 12mm in front of VP. Draw the projections of AB and determine its inclination with HP and VP [7M]  
b) A pentagonal plate of 45 mm side has a circular hole of 40 mm diameter in its centre. The plane stands on one of its sides on the H.P. with its plane perpendicular to V.P. and  $45^\circ$  inclined to the H.P. Draw the projections. [7M]

**UNIT-III**

5. A Hexagonal Prism, having a base with a 30 mm side and 65 mm long axis, has an edge it's base in the VP Such that the axis is inclined at  $30^\circ$  to the VP and Parallel to the HP. Draw its Projections? [14M]

(OR)

6. A right circular cone 50mm base diameter and 80mm height rests on the ground on one of the points of the base circle. Its axis is inclined to H.P at  $50^\circ$  and to V.P at  $30^\circ$ . Draw the projections of the cone. [14M]

**UNIT-IV**

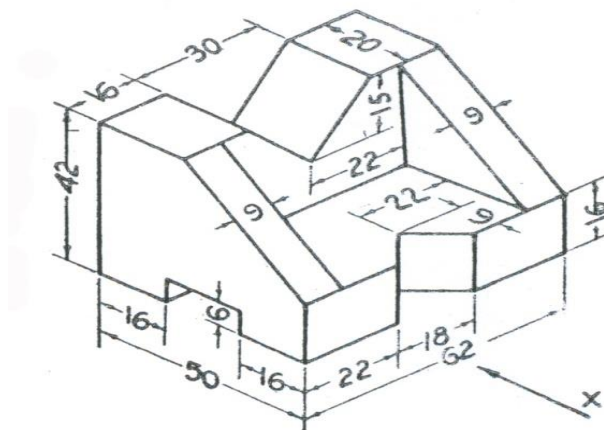
7. A Pentagonal prism of side of base 20 mm and height 50 mm stands vertically on its base with a rectangular face perpendicular to V.P. A cutting plane perpendicular to V.P and inclined at  $60^\circ$  to the axis passes through the edges of the top base of the prism. Develop the lower portion of the lateral surface of the prism. [14M]

(OR)

8. A frustum of a square pyramid has its base 50 mm side, top 25 mm side and height 75 mm. Draw the development of its lateral surface. [14M]

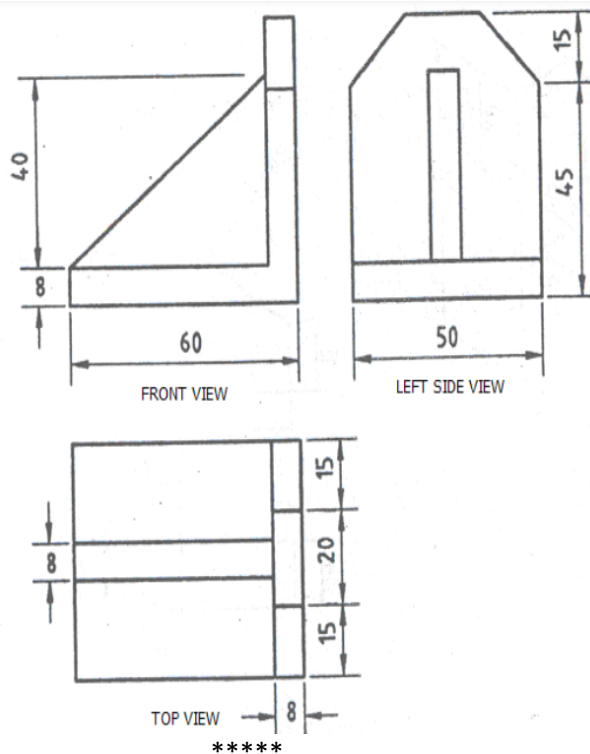
**UNIT-V**

9. Draw the Front view, Top view and Side view of the given object [14M]



(OR)

10. Draw the isometric view of the given orthographic projection of the object? [14M]



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