SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY
DEEMED UNIVERSITY

Course: B.E./B.Tech. Semester: I
Title of the paper: Engineering Graphics - I Max. Mark: 80
Sub. Code: ET 107 (2002/2003/2004/2005) Time: 3 Hours

PART – A (10 x 2 = 20)
Answer ALL the Questions

1. What is an involute?
2. How to calculate the included angle of a regular polygon?
3. State the difference between first angle projection and third angle projection.
4. In third angle projection, the object is kept at _____.
5. Define horizontal trace (HT) of a line.
6. The imaginary line passing through the center of any object is known as _____.
7. What is truncated solid.
8. A right circular cone is kept with its axis perpendicular to the HP and parallel to VP. What is the shape of the elevation?
9. Whatsoever be the position of the section plane cutting a sphere, the true shape is always a _____.
10. A right circular cone is cut by a plane perpendicular to the base of the cone and passing through the vertex. What is the true shape of the section?

PART – B (5 x 12 = 60)
Answer ALL the Questions

11. Inscribe an ellipse inside a rectangle 140mm x 65 mm.

(or)

12. The angle of inclination of the projectile is 60° to the ground. The range (horizontal distance) of the projectile motion is 12 m. Trace the path of projection.

13. Draw an involute of hexagon of base side 35 mm.

(or)

14. Draw an epicycloid of a circle 60 mm diameter which rolls outside of another circle of 180 mm diameter for one revolution. Draw tangent and normal for any point on the curve.

15. A straight line 80 mm long has one end 20 mm in front of VP and 15 mm above HP, while the other end is 60 mm in front of VP and 55 mm above HP. Draw the plan and elevation of the line. Determine the inclinations of the line to HP and VP.

(or)

16. Draw the projection of a straight line AB 80 mm long inclined at 40° to HP and 30° to VP. The end A is on HP. The end B is on VP.

17. A hexagonal pyramid of base side 30 mm and axis 75 mm is lying on HP on one triangular face, the axis being parallel to VP. Draw front and top view.

(or)

18. Draw the projections of a cone of base diameter 35mm and axis length 70 mm when it lies on one of its generations with the axis parallel to VP.

19. A pentagonal pyramid of base side 30 mm and axis 70 mm is resting on its base on HP with two of its base sides equally inclined to VP. It is cut by a section plane perpendicular to VP and inclined 40° to HP passes through the axis at a height of 30 mm above the base. Draw the front view, sectional top view and true shape of the section.

(or)

20. A sphere of 60 mm diameter is resting on HP. A cutting plane perpendicular to VP and 45° to HP cuts the sphere 15 mm away from its centre. Draw sectional view and true shape of the section.