VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) I-Semester Backlog Examinations, December-2017
Engineering Graphics - I

Time: 3 hours   Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. Sketch symbolic lines for representing Centre lines and Cutting Plane lines. Mention the difference between them in their representation.

2. Differentiate between Aligned and Unidirectional methods of dimensioning with the help of neat sketches.

3. Define Representative Fraction (RF) in scales. Give an example for representing a reducing scale.

4. Define cycloid and show the same by a simple sketch.

5. A point 20 mm below the reference line 'XY' represents both the FV and TV of a point 'A'. State the position of the point.

6. A straight line is seen in its FV as a point 20 mm below 'XY'. Define the position of the straight line w.r.t. the HP and the VP.

7. Define Auxiliary Vertical Plane and Auxiliary Incline Plane.

8. An isosceles triangle of base 30mm and altitude 40mm is seen as an equilateral triangle of 30mm side in its TV. Draw the projections and find its inclination with the HP.

9. What is the difference between a Frustum and Truncated solid? Show them with the help of simple sketches.

10. A square prism of base 30mm and height 50mm is resting on one of its bases in the VP with its axis 40 mm above the HP. Draw its projections when all its faces are equally inclined to the HP.

Part-B (5 × 10 = 50 Marks)

11. a) Explain the principle of Vernier scale. What is its least count?   [3]

    b) The distance between two points on a map is 12 cm. The real distance between them is 20 km. Draw a diagonal scale to measure up to 25 km and show how a distance of 13.6 km on it.   [7]

12. a) Give practical applications of the following curves   [3]

        a) Ellipse   b) Parabola   and   c) Hyperbola

    b) A circus man rides on a motor cycle inside a globe having 6 m diameter. The motor cycle wheel is 1 m diameter. Draw the locus of a point on the circumference of the wheel of the motor cycle for one complete revolution.   [7]

13. a) The front view of a 75m long line AB measures 50mm while its top view measures 60mm. If the end A is in the HP and 15mm in front of VP, draw its projections and determine the inclinations of the line with both HP and VP.   [5]

    b) A 90mm long line PQ is inclined at 30^0 to the HP and 45^0 to the VP. The end P is 15mm above the HP and 25mm in front of the VP. Draw its projections and show its traces.   [5]

14. a) A pentagon ABCDE with 30 mm side has its side AB in the VP and perpendicular to the HP. Draw its projections when the corner D is 30mm in front of the VP and find its inclination with the VP. [5]

    b) A thin square plate with 50 mm side stands on one of its corners in the HP and the opposite corner is raised so that one of the diagonals is twice that of the other. If one of the diagonals is parallel to both the reference planes, draw its projections and determine the inclination of the plane with HP. [5]

15. a) A square prism having base 25mm side and axis 50mm long is resting on one of its bases on the ground so that the axis is 50mm in front of VP. Draw its projections when a side of its base is inclined at 30^0 to the VP [5]

    b) A pentagonal pyramid having base 30mm side and axis 70mm long rests on a corner of its base such that the edge of the base opposite to this corner is parallel to HP and the apex is 55mm above HP. Draw its projections. [5]

16. a) In Engineering Drawing, which lines are drawn as thick continuous lines and which lines are drawn as thin continuous lines? [5]

    b) Draw a parabola that has a distance of 50mm between the focus and directrix. Draw a normal and tangent to the parabola at a point 35 mm from the focus. [5]

17. Answer any *two* of the following:

    a) The distance between the end projectors of a line AB is 50mm. If the end A is 10mm above HP and 35mm in front of VP and the end B is 40mm above HP and 15mm in front of VP, draw the projections of the line and find its true length. [5]

    b) A semi-circular plate of 50mm diameter rests on its diameter on the HP with the surface inclined at 30^0 to HP. Draw the projections when the diameter is perpendicular to the VP. [5]

    c) A Pentagonal prism with the edges of the base 20mm and axis 50mm long rests on one of its edges of the base on the ground such that the rectangular face containing that edge is inclined at 30^0 to HP. Draw its projections. [5]

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