Code No. : 11012 EG O3

VASAVI COLLEGE OF ENGINEERING (*Autonomous*), HYDERABAD
B.E. (CBCS) I-Semester Old Examinations, May/June-2018

Engineering Graphics-I
(Civil, EEE & Mech. Engg.)

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. What is the difference between plane scale and diagonal scale?

2. Distinguish between aligned and unidirectional system of dimensioning with the help of sketches.

3. The locus of a point that moves so that its distance from a fixed point called the _____ bears a constant ratio, always less than 1, to its perpendicular distance from a straight line called the _____.

4. Sketch an appropriate ellipse of major axis 12 cm and minor axis 8 cm.

5. The top view of a 75mm long line measures 55mm. The line is in VP, its one end being 25mm above the HP. Draw its projections.

6. A point D is situated 40 mm below HP and 20 mm in front of VP. Draw the projections.

7. Show a plane parallel to VP and 40 mm in front of it lying in the first quadrant by means of their traces.

8. What is the major difference(s) between Orthographic and Isometric projection?

9. What are the various positions which a solid can take with respect to the reference planes?

10. A cylinder is resting on HP with its axis parallel to VP and 30 mm in front of VP. Draw the front and top views if the diameter of the cylinder is 50 mm and height is 70 mm.

Part-B (5 × 10 = 50 Marks)

11. a) What is the scale factor?   [4]

    b) A rectangular plot of land measuring 1.28 hectare is represented on a map by a simple rectangle of 8 sq.cm. Calculate RF of the scale. Draw diagonal scale to read single meter. Show a distance of 438 m on it. (Hint: 1 hectare = 10,000 sq. meters).   [6]

12. a) What are different types of cycloidal curves, explain them in brief?   [4]

    b) A circle of 50mm diameter rolls on another circle of 175mm diameter. Draw the locus of a point on the circumference of the rolling circle for its one complete revolution. Draw a tangent and normal to the curve at a point 100mm from the centre of the directing circle.   [6]

13. a) The shortest distance of the point E to intersection line of HP and VP is 36 mm and point is 20 mm above HP. Draw the front and top views, if the point is in second quadrant.   [4]

    b) The top view of a 75mm long live AB measures 65mm while length of its front view is 50mm. Its one end A is in HP and 12mm in front of VP. Draw the projections of AB and determine its inclinations with the HP and VP.   [6]

14. a) Write the classifications of the planes with respect to reference planes. [4]

   b) A circular plane, 50mm diameter appears as an ellipse in the front view, having its [6] major axis 50mm long and minor axis 30mm long. Draw its top view when the major axis of ellipse is horizontal.

15. a) Draw the projection of a triangle prism of side 20 mm and axis 35 mm, if it is resting on [5] HP with its axis parallel to both HP and VP and in front of VP.

   b) Draw the projections of the cube of side 50 mm when it rests on the ground on one of its [5] corner and a face containing that corner is inclined at 30° to the ground and perpendicular to VP.

16. a) Explain the elements of dimensioning with the help of sketches. [5]

   b) Draw a parabola with its base equal to 180 mm and axis equal to 70 mm and mark focus [5] and directrix on it.

17. Answer any *two* of the following:

   a) The end projectors of a line PQ are 50 mm apart, while those drawn for its H.T. and V.T. [5] are 90 mm apart. The H.T. is 40 mm in front of the V.P. and V.T. is 80 mm above the H.P. Draw projections of PQ if its end P is 10 mm above the H.P. Also determine its true length and inclinations with the reference planes.

   b) A square lamina of 40 mm side rests on one of its sides on HP. The lamina makes 30^0 to [5] HP and the side on which it rests makes 45^0 to VP. Draw its projections.

   c) A Cone having 50 mm diameter and 70 mm long axis has a point of its base circle in the [5] VP, such that the axis is inclined at 45^0 to the VP and parallel to the HP. Draw its projections.

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