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VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. I Year I-Semester (New) Examinations, December – 2015

Engineering Graphics-I

Time: **3** hours Max. Marks: 50

*Note: 1. Answer **ALL** questions in **Part-A** and any **FIVE** questions from **Part-B***

Part-A (15 Marks)

1. Draw a 45° angle and bisect it using the compasses.
2. Define representative fraction.
3. What is the nature of a Hypocycloid when the radius of the directing circle is equal to the diameter of the rolling circle?
4. State the position of point A when it's Front View is 10mm below '*XY*' and top view 25mm above '*XY*'.
5. One end of a line is in the second quadrant and the other is in third. Which of the two views of the line will cross the reference line 'XY'?
6. Differentiate between first and third angle projections.
7. The front view of a line AB is parallel to 'XY' and measures 30mm. What is its true length if the top view measures 65mm? The end A is 20mm above HP and 15mm in front of VP.
8. Draw the projections of pentagon when its true shape is seen in side view.
9. Define the auxiliary inclined plane and auxiliary vertical plane.
10. A tetrahedron with a 60mm edge is resting on a face on the H.P. such that an edge is perpendicular to V.P. Draw its projections.

Part-B (5 X 7 = 35 Marks)

11. a) A rectangular field of 25000 square meters is represented on a map by a rectangle 5cm x 4cm sides. Calculate the R.F.

    b) A 1.6 cm long line on a map represents a length of 6 m. Determine it's R.F. and draw a scale long enough to measure up to 60 m. Show a distance of 46 m on it.

12. a) What principle is used for construction of ellipse using 'intersecting arcs' method?

    b) Construct a parabola when its double ordinate is 150mm and abscissa is 75mm.

Contd... 2

13. a) A line PQ 80mm long, has its end P at 10mm above H.P. and 25 mm in front of V.P. The line is inclined at 30° to the H.P. and 60° to the V.P. Draw its projections. [3]

b) A 100mm long line AB, has its end A at 50mm in front of V.P. The H.T. is 60mm in front of the V.P. and V.T. is 80 mm above the H.P. The distance between the H.T. and V.T. is 130 mm. Draw the projections of the line AB and determine its inclinations with H.P. and V.P. [4]

14. a) A pentagonal plane with a 30mm side has one of its corners in the V.P. and the surface is inclined at 30° to the V.P. The edge of the plane opposite to that corner is parallel to the V.P. and inclined at 45° to the H.P. Draw its projections. [3]

b) A rhombus having 100 mm and 40 mm long diagonals has its smaller diagonal parallel to both the reference planes and the longer diagonal is inclined at 30° to the H.P. Draw its projections. [4]

15. a) Briefly describe the types of regular polyhedron. [3]

b) A Pentagonal prism having a base with 30mm side and 60mm long axis is resting on one of its rectangular faces on the H.P. with the axis parallel to the V.P. Draw its projections. [4]

16. a) Differentiate between aligned and unidirectional systems of linear dimensioning. [3]

b) Two fixed points A and B are 80mm apart. Trace the complete path of a point P moving in such a way that the sum of its distance from A and B is always the same and equal to 110mm. Name the curve. Draw a tangent and a normal at a point 40mm away from the fixed point. [4]

17. a) A thin 30° – 60° set-square has its longest edge in the V.P. and inclined at 30° to the H.P. Its surface makes an angle of 45° with the V.P. Draw its projections. [3]

b) A square prism, base 40mm side and height 65mm, has its axis inclined at 45° to the H.P. and has an edge of its base on the H.P. and inclined at 30° to the V.P. Draw its projections. [4]