Roll No .....

BE - 105

B.E. I & II Semester

Examination, June 2015

Engineering Graphics

Time : Three Hours

Maximum Marks : 70

Note : All questions are to be attempted with internal choices. Assume suitable data if missing.

1. a) Construct a diagonal scale to measure KMS, HMS, and spaces of 125 diameters when a distance of 1 km is represented by 3 cms and long enough to measure upto 5 kms. Indicate on the scale, a distance of 3 kms, 5 hms and 5 dams. 7

   b) Construct a hyperbola when the distance of focus from the directrix is equal to 60 mm and eccentricity = $\frac{3}{2}$. Draw a tangent and normal at any point on the hyperbola. 7

   OR

   A circle of 40 mm diameter rolls on the outside of a base circle of the same diameter. Draw the curve traced by a point on the rolling circle for one complete revolution of the rolling circle. Name the curve. 7

2. a) State the similarities and dissimilarities in the projection of points which lies in the second angle and the fourth angle. 2

b) How determine the true length and true inclinations of line. 2

c) A point P is 30 mm above HP and 25 mm infront of VP. Determine its least distance from the xy line. 3

d) The front view of a line AB measures 65 mm and makes an angle of 45° with xy. A is in the HP and the VT of the line is 15 mm below the HP. The line is inclined at 30° the VP. Draw the projections of AB and find its true length and inclination with the HP. Also locate its HT. 7

OR

A line AB is in the first quadrant. Its end A and B are 20 mm and 60 mm in front of the VP respectively. The distance between the end projections is 75 mm. The line is inclined at 30° to the HP and its HT is 10 mm above xy. Draw the projections of AB and determine its true length and the VT. 7

3. a) Regular pentagon 40 mm side, has its corner A in HP and opposite side CD parallel to both the HP and VP. Draw its projections when plan of AB and AE measure 35 mm and the corner point A is 54 mm in front of the VP. 7

b) Draw the projections of a cube 25 mm when it is resting on one its corners of base in such a way that the base makes an angle of 45° with HP and the vertical edges of the cube remain parallel to VP. 7

OR

A pentagonal pyramid, side of base 25 mm and height 45 mm is resting on one of its triangular faces on horizontal plane with its axis parallel to VP. Draw its projections. 7

4. a) A cone with a 60 mm base diameter and a 70 mm long axis. Rests on its base on the HP. It is cut by an AIP such that the true shape of the section is a hyperbola with a 40 mm base and 50 mm altitude. Draw its sectional top view and true shape of the section. 7

b) A square hole with a 25 mm side is cut in a cylindrical drum with a 60 mm diameter and 70 mm height. The faces of the hole are inclined at 45° to the HP and axis intersects with that of the drum at right angles. Draw the development of its lateral surface. 7

OR

A right cone with a 50 mm base diameter and a 60 mm axis is resting on its base in the HP. It is cut by an auxiliary inclined plane parallel to and 8 mm away from the extreme generator. Draw the development of the lateral surface of the remaining solid. 7

5. a) What is AutoCAD? 2

b) Explain the various EDIT commands. 2

c) Write the steps for drawing a cone of 20 mm base and height 60 mm. 3

d) Draw an isometric view of the frustum of a hexagonal pyramid having 35 mm base side, 20 mm top side and 80 mm long axis resting on its base on the HP with an edge of the base parallel to the VP. 7

OR

Draw an isometric view of a sphere with a 60 mm diameter truncated by a horizontal plane at a distance of 20 mm from the centre.

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