

- d) Draw the Isometric projection of a 50 mm diameter sphere resting centrally on the top of a cylindrical block of base 60 mm diameter and height 90 mm.

OR

Draw the isometric projection of a cube of side 50 mm resting centrally on the top of a Cylindrical Block of base 60 mm and height 80 mm.

\*\*\*\*\*

Roll No .....

**BE - 105**

**B.E. I & II Semester**

Examination, December 2015

**Engineering Graphics**

*Time : Three Hours*

*Maximum Marks : 70*

- Note:* i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.  
 ii) All parts of each question are to be attempted at one place.  
 iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.  
 iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Explain the principle of diagonal.
- b) What are the uses of involute and spiral curve?
- c) Draw the Locus of a point equidistant from a given point and a fixed straight line.
- d) Draw a rectangle 50 mm and 75 mm side. Draw an ellipse circumscribes the rectangle.

OR

A stick AB, 12cm long rotates about fixed end A at constant angular velocity of  $\pi/6$  rad/sec. A point p moves along the stick from A to B with velocity 0.5 cm/sec. Draw a curve traced by point p when it moves from a position 3 cm away from point A to end B. Draw Tangent and normal to the curve when p is at the middle of the stick AB, name the curve.

[2]

2. a) Define H.T. and V.T. related to projection of lines.
- b) Compare the first angle and third angle projection method. Describe your answer by giving suitable illustrations.
- c) A point is 50 mm below H.P. in third quadrant and its shortest distance from XY line is 65 mm. Draw its front and top view.
- d) The end  $p$  of a line PQ is 120 mm long is 30 mm above H.P. and 60 mm behind V.P. The line is inclined at an angle of  $30^\circ$  with the reference planes of projection. The point Q is below the H.P. Draw the projections of the line PQ and locate the point Q.

OR

A line AB 120 mm long is inclined at  $45^\circ$  to H.P. and  $30^\circ$  to V.P. The end A is in the second quadrant and end B is in fourth Quadrant. A point C in AB 40 mm from A. in both the planes. Draw the projection of AB.

3. a) Explain H.T. and V.T. related to projection of planes.
- b) Show by means of traces each of the following planes.
  - i) Perpendicular to H.P. and V.P.
  - ii) Parallel to and 40 mm away from V.P.
- c) An equilateral Triangle of 5 cm side has its V.T parallel to and 2.5 cm above xy line. It has no H.T. Draw its projection when one of its side is inclined at  $45^\circ$  to the V.P.
- d) A square prism, with the side of its base 40 mm and Axis 70 mm long is Lying on one of its base edges on the H.P. in Such a Way that this base edge makes an angle of  $45^\circ$  with V.P. ,and the Axis is inclined at  $30^\circ$  to the H.P. Draw projection of solid using Auxiliary plane method.

[3]

OR

Draw the projection of a cube of 25 mm long edges resting on H.P. on one of its corners with a solid diagonal perpendicular to V.P.

4. a) What are the different positions of section plane with reference to principal planes?
- b) What is the Importance of section and intersection of solids?
- c) Explain with diagram the difference between the parallel and radial line development method for solids.
- d) A vertical cylinder of 80 mm diameter is completely penetrated by another cylinder of 60 mm diameter, their axis bisecting each other at right angles. Draw their projections showing curve of penetration assuming the axis of penetrating cylinder to be parallel to V.P.

OR

A cone diameter of base 60 mm and Axis 70 mm long is resting on its base on the H.P. It is cut by an A.I.P. So that the true shape of the section is an isosceles triangle having 50 mm base. Draw the plan, the elevation and true shape of the section.

5. a) What is the difference between Isometric view and Isometric projection?
- b) Draw a Isometric scale.
- c) Write the difference between solid and surface modelling. What are the limitations of CAD?