T03/T05/T06/T07/T24/T34/T35/T50/T51/T52/TES021/TML021/EE/2016

Time : 3 Hours **Marks : 80**

Instructions :

1. All Questions are Compulsory.
2. Each Sub-question carry 5 marks.
3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
4. Question paper of 80 Marks, it will be converted in to your programme structure marks.

1. Solve any **four** sub-questions.

   a) List any ten drawing instrument used to draw the engineering drawing. 5

   b) Give proper sizes of following sheets 5

      i) A_0 ii) A_1 iii) A_2 iv) A_3 v) A_4

   c) List five types of line and write their uses. 5

   d) Write any four general rules for dimensioning. 5

   e) Construct a scale of 1:4 to show centimeters and long enough to measure upto 5 centimeters. 5

2. Solve any **four** sub-questions.

   a) Construct a right angle PQR Describe a circle of 20mm radius touching the sides PQ and QR. 5

   b) Two lines converge to a point making an angle of 30° between them. A point P is between these lines 15mm from one line and 25mm from the other. Draw circle to touch both the lines and pass through P. 5

   c) A ball thrown up in the air reaches a maximum height of 45 meters and travels a horizontal distance of 75 meters. Trace the path of the ball assuming it to be parabolic. 5

   d) Draw an Archimedean spiral of two convolutions, the greatest and the least radii being 115mm and 15mm respectively. Draw a tangent and a normal to the spiral at a point, 65mm from the pole. 5

   e) Inscribe an ellipse in a parallelogram having sides 150mm and 100mm long and an included angle 120°. 5

3. Solve any **four** sub-questions.

a) A thin rod AB, 100mm long revolves uniformly about its centre O. During its one revolution a point P moves along AB at uniform speed from A to B. Draw the locus of P. 5

b) A point M is 20mm below H.P. and lies in the third quadrant. Its shortest distance from *xy* is 40mm. Draw its projections. 5

c) Fig.1 shows machine element. Draw its front view from 'X' direction. 5

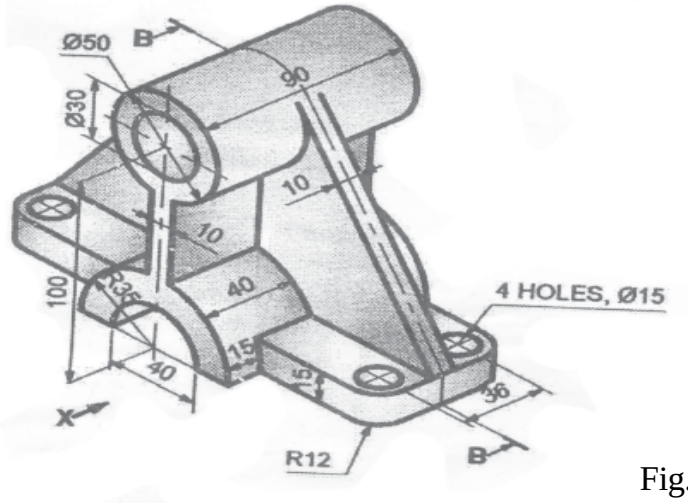

Fig.1

d) The front view of a line AB measure 65mm and makes an angle of 45° with *xy*. A is in the H.P. and the V.I. of the line is 15mm below the H.P. The line is inclined at 30° to the V.P. Draw the projections of AB and find its true length and inclination with the H.P. also locate its H.T. 5

e) A line AB, 75mm long is inclined at 45° to the H.P. and 30° to the V.P. Its end B is in the H.P. and 40mm in front of the V.P. Draw its projections and determine its traces. 5

4. Solve any **four** sub-questions.

a) A 60° set square of 125mm longest side is 50kept that the longest side is in the H.P. making an angle of 30° with the V.P. and the set square itself inclined at 45° to the H.P. Draw the projection of the set square. 5

b) Draw a regular hexagon of 40mm side, with its two sides vertical. Draw a circle of 40mm diameter in its centre the figure represents a hexagonal plate with a hole in it and having its surface parallel to the V.P. Assume the thickness of the plate to be equal to that of a line. 5

c) A plate having shape of an isosceles triangle has base 50mm long and altitude 70mm. It is so placed that in the front view it is seen as an equilateral triangle of 50mm sides and one side inclined at 45° to *xy*. Draw its top view. 5

d) A hexagonal prism, base 30mm side and axis 75mm long has an edge of the base parallel to the H.P. and inclined at 45° to the V.P. Its axis makes an angle of 60° with the H.P. Draw its projections. 5

e) A square pyramid base 40mm side and axis 75mm long is placed on the ground on one of its slant edges, so that the vertical plane passing through that edge and the axis makes an angle of 30° with the V.P. Draw its two views. 5