

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem- 1st Regular Examination January 2011****Subject Code: 110013****Subject Name: Engineering Graphics****Date: 13/ 01 /2011****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

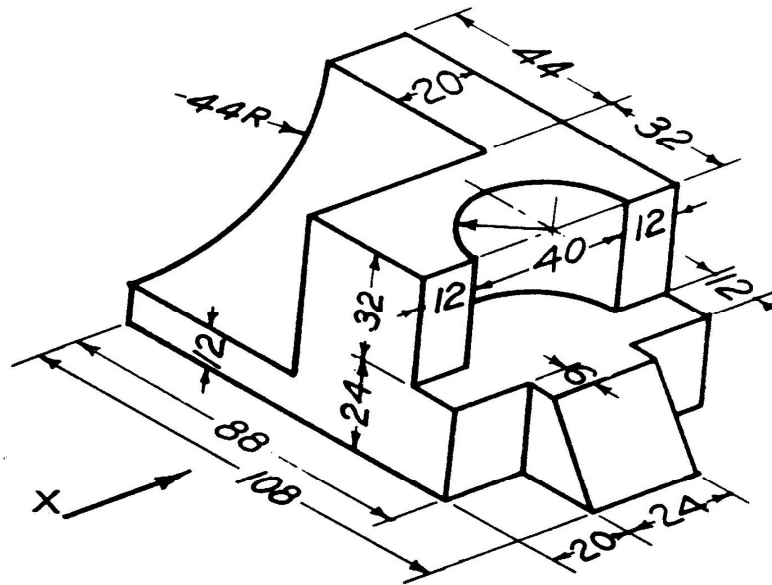
1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Retain all construction lines and projection lines.

Q.1

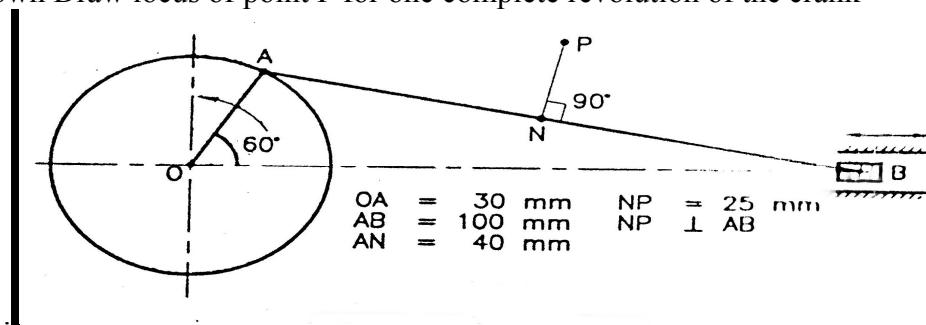
The following figure shows pictorial view of an object. Draw to the full scale the following views, using first angle projection method. Insert all dimensions.

14

1. Front view looking in the direction of arrow X
2. Top view,
3. Right hand side view

**Q.2**

- (a) OAB is a slider crank mechanism. Slider B is sliding on a straight path passing through O as shown in Figure given below. Crank OA is 30 mm and rotates in anticlockwise direction and length of connecting rod AB is 100 mm. A rod NP of 30 mm length is attached to AB such that AN = 40 mm and NP is perpendicular to AB as shown. Draw locus of point P for one complete revolution of the crank

07

- (b) Draw a hyperbola having eccentricity 8:5, the vertex V of which is at a distance of 25mm from the directrix AB. Find at least 8 points to draw the curve. Find the distance of the focus F from the directrix. Also draw a normal and a tangent to the curve at a distance 52mm from the focus. **07**

OR

- (b) A point P moves towards another point O, 75 mm from it, and reaches it during $1\frac{1}{4}$ revolution around it in clockwise direction. Its movement towards O is uniform with its movement around it. Draw the curve traced out by the point P and name it. **07**

- Q.3** ABCD is a rhombus of diagonals AC = 100 mm and BD = 70 mm. Its corner A is in the H.P. and the plane is inclined to the H.P. such that its plan appears to be a square and the plan of the diagonal AC makes an angle of 20° to the V.P. Draw the projections of the plane and find its inclination with the H. P. **14**

OR

- Q.3** A pentagonal pyramid, side of the base 30 mm and axis 75 mm is resting on its base on the HP with one edge of base inclined at 30° to VP. It is cut by a section plane perpendicular to the VP, inclined at 40° to the HP and passing through a point on the axis 20 mm above the base. Draw the development of the surface of portion of the pyramid containing the major portion of the base. **14**

- Q.4** A square pyramid, side of the base 40 mm and axis 60 mm long, has one of its base edges in the H.P. and axis inclined at 30° to the HP. Draw its projections when a) the top view of the axis makes an angle 45° with the V.P. and b) the axis makes an angle of 45° with the V.P. **14**

OR

- Q. 4** A cone, base 40 mm diameter and axis 60 mm long, rests on its base on the HP. It is cut by a section plane perpendicular to the VP and parallel to one of its generators and passing through a point on the axis at a distance of 25 mm from the apex. Draw the front view, sectional top view, sectional side view and the true shape of the section. Give the name of that True shape. **14**

- Q.5** A line AB is having its end A 10 mm, above H.P. and 30 mm in front of V.P. It is inclined at 45° to H.P. and 30° to V.P. The end B is below H.P. and behind V.P. Draw the projections of the line AB if the plan length is 80 mm. Also, find the true length of the line. **14**

OR

- Q.5** Draw the isometric view of the object, the orthographic views of which are shown in the figure below. **14**

