

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.E. Sem-I Remedial examination March 2009**  
**Subject code: 110013**  
**Subject Name: Engineering Graphics**

Date: 20 / 03 / 2009

Time: 02:00pm To 5:00pm

**Instructions:****Total Marks: 70**

1. Attempt all questions.
2. Figures to the right indicate full marks.
3. Retain all the construction lines and show the required dimensions.
4. Take suitable scale whenever required and mention it clearly.
5. Assume missing data or dimension and mention it clearly.
6. Figure drawn in the question paper is not to the scale.
7. Dimensions shown in the figure are in mm.

- Q.1** Refer the object shown in **FIGURE: 1**. Draw the following orthographic views using the FIRST angle projection method. Use the Aligned System of dimensioning. **14**  
 (i) Front View from the direction X (ii) Top View (iii) Left Hand Side View
- Q.2** (a) Draw the simple slider crank mechanism OAB in which the crank OA is of 25 mm and the connecting rod AB is of 100 mm. The slider B is sliding on a straight path passing through point O. Draw the locus of the mid point M of the connecting rod AB for one complete revolution of the crank. **07**
- (b) The major axis and the minor axis of the ellipse are 120 mm and 80 mm respectively. Construct the ellipse by the oblong method. **07**
- OR**
- (b) A wheel of the diameter 50 mm rolls over the straight line for one rotation. Draw the path traced by the point P which is initially at the point of the contact between the wheel and the straight line. Name the path traced. **07**
- Q.3** A circular plane of 60 mm diameter is resting on H.P. on a point A of its circumference. The plane is inclined at  $30^{\circ}$  to the H.P. The diameter AB of the plane makes an angle of  $45^{\circ}$  with the V.P. Draw the projections of the circular plane. **14**
- OR**
- Q.3** A square prism is having the side of base 40 mm and the height 80 mm. It is resting with its base on the H.P. such that all the vertical faces of the prism are equally inclined to the V.P. A hole of 40 mm diameter is drilled centrally through the prism such that the axis of the hole is at  $90^{\circ}$  to the V.P. Draw the plan and the elevation of the prism. Show the development of the lateral surfaces of the prism. **14**
- Q.4** A pentagonal pyramid is having its base ABCDE and the apex O. The length of the axis is 80 mm and the edge of base is 30 mm. The pyramid is resting on the H.P. with the edge CD on it. Draw the projections when the axis of the pyramid is inclined at  $30^{\circ}$  to the H.P. and the plan of the axis of the pyramid makes  $45^{\circ}$  with the V.P. **14**
- OR**
- Q.4** A cone having the diameter of base 80 mm and the height 90 mm is resting with its base on the H.P. It is cut by A.I.P. inclined at  $45^{\circ}$  to the H.P. The cutting plane passes through the mid point of the axis of the cone. Draw the elevation, the sectional plan and the true shape of the section. **14**

**Q.5** A line AB has a point P on it such that  $AP : PB = 1 : 2$ . The end A is in the first quadrant and it is 20 mm above H.P. while the end B is in the V.P. The point P is 35 mm from the H.P. The line is inclined at  $30^\circ$  to the H.P. and the elevation length of the line is 70 mm. Draw the projections of the line AB and the point P. Find the true length, the plan length and the inclination of the line with V.P. **14**

**OR**

- Q.5** (a) The top view of an object is a square of 60 mm side while the front view is a circle of radius 30 mm. Draw the isometric projection of the object. **07**
- (b) Draw the isometric drawing of the frustum of a square pyramid when the length of the bottom edge is 60 mm, the length of the top edge is 40 mm and the height of the frustum is 70 mm. **07**

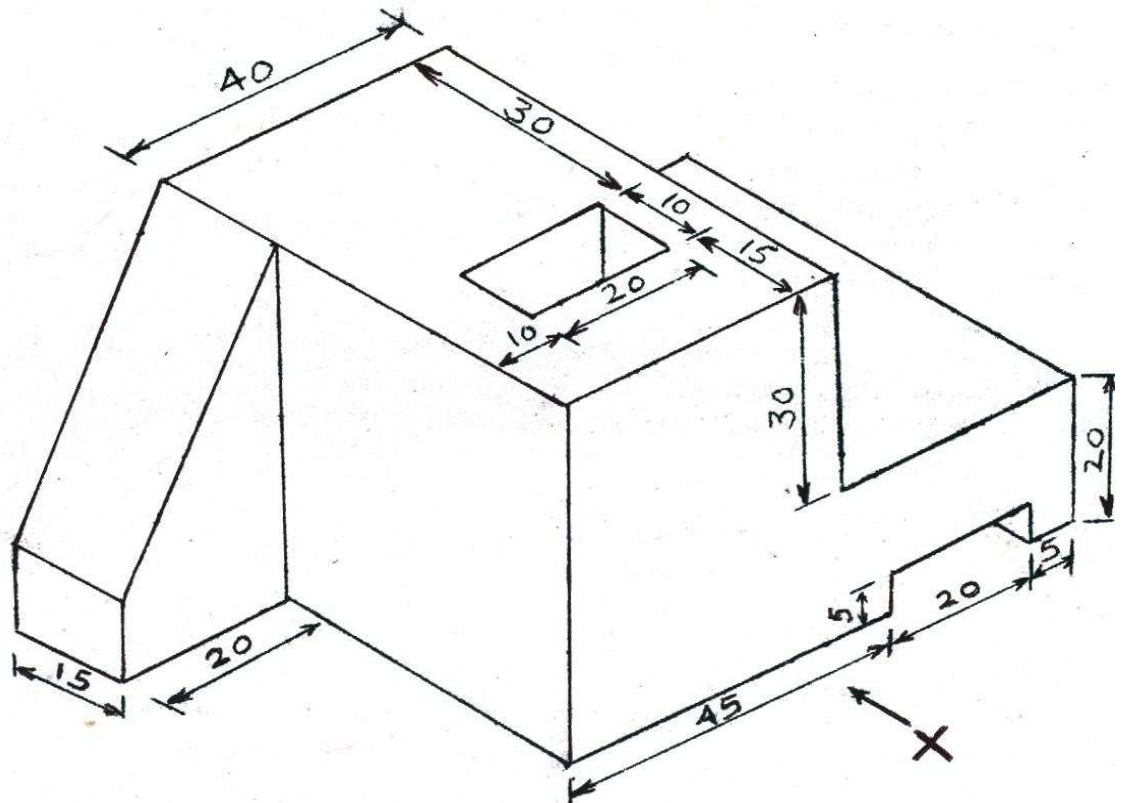


FIGURE : 1

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