

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. E. - SEMESTER – I • EXAMINATION – WINTER • 2014**

**Subject code: 110013****Date: 31-12-2014****Subject Name: Engineering Graphics****Time: 10:30 am - 01:30 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumption wherever necessary.
3. Figures to the right indicate full marks.
4. Don't rub construction/ projection lines after completion of drawing.
5. All dimensions are in mm.
6. Figure in the question paper is not to the scale.
7. Take suitable scale whenever required and mention in clearly.

- Q:-1** (a) A link PQ of 80 mm length rotates about its centre in the anticlockwise direction. While the link completes one revolution, the insect walks across the length from one end to the other. Plot the locus of the insect assuming the rotation of the link and the motion of the insect as uniform. **07**
- (b) A string is unwound from a pentagon of 25 mm side. Draw the locus of end P for unwinding the one turn of string. String is kept tight during the operation of unwinding. Give the name of curve. Draw the tangent and normal to the curve at any point. **07**
- Q:-2** (a) A line AB 65 mm long appears to be 55 mm in plan and 45 mm in elevation. It's end A is 20 mm below H.P. and 40 mm behind V.P. Draw projections of a line and find the true angle of inclinations of line with H.P. and V.P. **07**
- (b) A circular plate of negligible thickness and 46 mm diameter appears as an ellipse in the top view, having its major axis 46 mm long and minor axis 28 mm long. Draw its front view when the major axis of ellipse makes an angle of  $60^\circ$  to V.P. **07**
- Q:-3** (a) A square prism, having base 30 mm side and axis 50 mm long, has its axis inclined at  $45^\circ$  to the H.P. and has an edge of its base on the H.P. and inclined at  $30^\circ$  to the V.P. Draw the projection. **07**
- (b) A cone, having diameter of base 50 mm and axis 65 mm long, is lying on the ground on one of its generator with the axis parallel to V.P. It is cut by a horizontal section plane 12 mm above the H.P. Draw its sectional top view and development of surface for the remaining part of cone. **07**
- Q:-4** (a) A line is measuring 80 mm long has one of its end 60 mm above H.P. and 20 mm in front of V.P. The other end is 15 mm above H.P. and in front of V.P. The front view of the line is 60 mm long. Draw the projection of line and find the **07**

true angle of inclination of line with H.P. and V.P.

- (b) Draw the projection of cylinder, base 30 mm diameter and axis 40 mm long, rests with a point of its base circle on H.P. such that the axis is making an angle of  $30^\circ$  with H.P. and its top view perpendicular to V.P. 07

- Q:-5** (a) A pentagonal pyramid, base 30 mm side and axis 60 mm long, is lying on one of its triangular faces on the H.P. with axis parallel to the V.P. A vertical section plane bisects the top view of the axis and makes an angle of  $30^\circ$  with V.P. Draw the sectional front view and development of surface of the remaining part of the pyramid. 07

- (b) A regular hexagon of 20 mm size has a corner in the H.P. Its surface is inclined at  $40^\circ$  to H.P. and top view of the diagonal through the corner which is in the H.P. makes an angle of  $55^\circ$  with the V.P. Draw its projections 07

- Q:-6** (a) Differentiate between first angle projection method and Third angle projection method. 03

- (b) Draw the following views for the Figure:-1. Give the dimensions using Aligned dimensioning method.

- (i) Front view 03  
(ii) Top view 04  
(iii) Sectional left hand side view 04

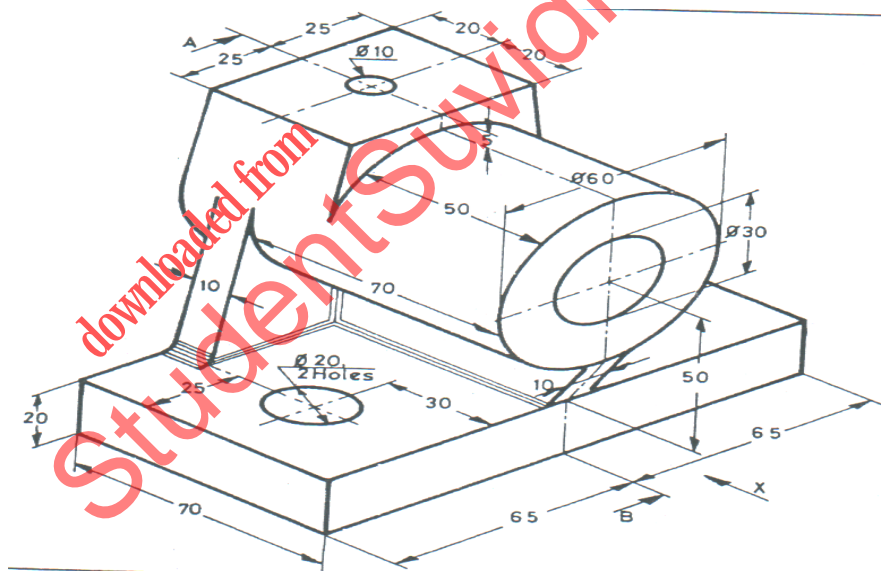


Figure :-1

- Q:-7** (a) Draw the isometric view for the figure:-2 09

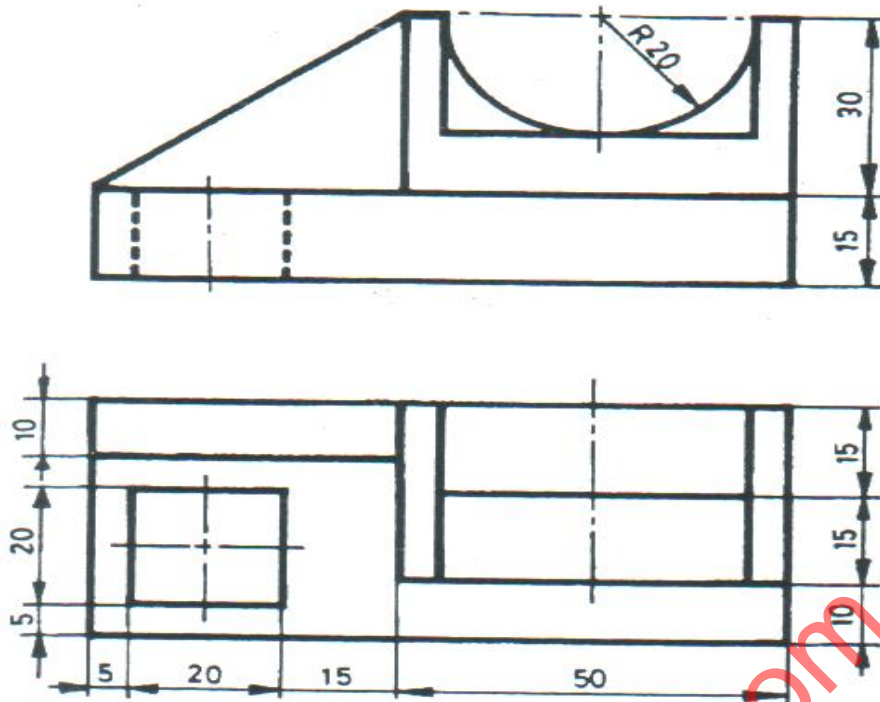


Figure :-2

(b)

(i) Define representative fraction. If the distance of 300 km is represented as 15 cm on the map find representative fraction. 02

(ii) Draw the illustration and write the application of following lines used in engineering graphics:- 03

- (1) Long chain thin
- (2) Long chain thick at ends and thin elsewhere
- (3) Short dash line

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