

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER- 1<sup>st</sup> / 2<sup>nd</sup> • EXAMINATION – SUMMER 2013**

**Subject Code: 110013****Date: 12-06-2013****Subject Name: ENGINEERING GRAPHICS****Time: 02:30 pm – 05:30 pm****Total Marks: 70****Instructions:**

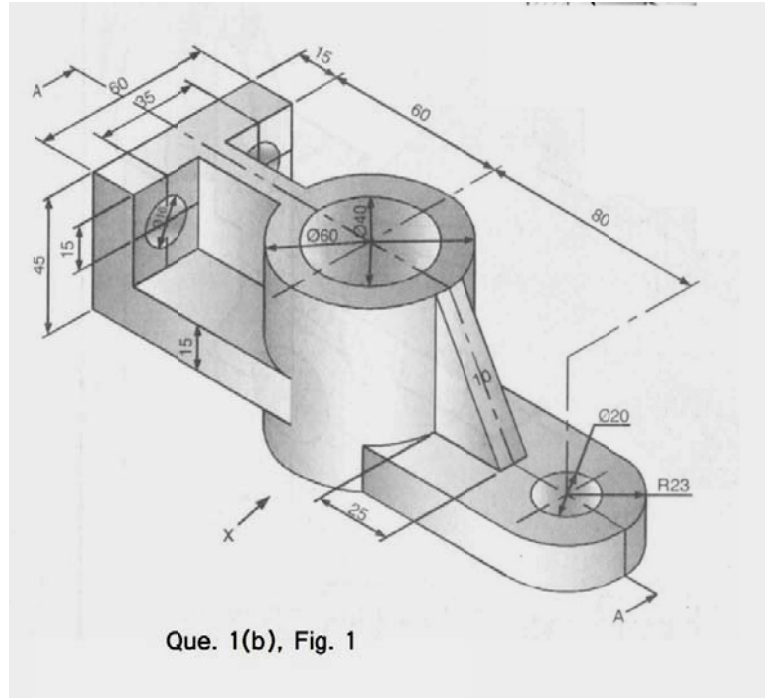
1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Each question carry equal marks (14 marks)
5. Retain all construction lines.
6. Lines, dimensions etc. should be as per BIS-SP-46.

- Q.1** (a) Differentiate in between Unidirectional system and Aligned system of dimensioning. **03**
- (b) Fig. 1 shows the pictorial view of an object. Draw the following views: **11**
- (i) Sectional front view from A-A,
  - (ii) R.H.S. view and
  - (iii) Top view using 1<sup>st</sup> angle Projection Method.
- Q.2** (a) A circular disc of diameter AB = 80mm rotates about its centre O for one revolution. The point P, which is initially at A moves to the centre when the disc completes the half revolution and then comes back to A in the remaining half revolution. Trace the locus of the point P, assuming the rotation of the disc and the movement of the point P to be uniform. **07**
- (b) Construct three convolutions of the involute of 10 mm long line. **07**
- Q.3** (a) The projectors of the ends of a line AB are 50 mm apart. The end A is 20 mm above horizontal plane and 30 mm in front of the vertical plane. The end B is 10 mm below the HP and 40 mm behind the V.P. Determine the true length of AB and its inclination with H.P. also find its apparent angles. **07**
- (b) A regular pentagonal plane having the side 30 mm is resting on H.P. on one of its corners. The surface of the plane is inclined to the H.P. at 45°. Draw the projections of the plane when the side opposite to the corner on which it rest on H.P. is inclined at 30° to V.P. **07**
- Q.4** (a) A pentagonal prism rests on one of its edges of the base on H.P. with its axis inclined at 45° to the H.P. The top view of the axis is inclined at 30° to the V.P. Draw the projections of the prism, assuming the edge of the base to be 30 mm and the axis 70 mm long. **07**
- (b) A cone diameter of base 50 mm and height 80 mm is resting on the H.P. on one of its generators with axis parallel to the V.P. It is cut by horizontal section plane passing through a point on the axis 55 mm away from the apex. Draw the elevation and sectional plan of cone. **07**
- Q.5** (a) The length of the Khandala Tunnel on the Mumbai-Pune express way is 330 m, on the road map it is shown by 16.5 cm long line. Construct a plain scale to show metres and to measure up to 400 m. Show length of 290 m long on the express way. **07**
- (b) Two points A and B are 100 mm apart. Third point C is 75 mm from A and 50 mm from B. Draw an ellipse passing through A, B and C. **07**
- Q. 6** (a) A right circular cone diameter of base 50 mm and axis 60 mm long, resting on its base on H.P. A semi circular hole of radius 15 mm is cut through the cone such that, the axis of the hole is perpendicular to V.P. and intersecting the axis of the cone at 20 mm above the base. The flat surface of the hole is parallel to H.P. draw the development of lateral surface of the cone. **07**

- (b) A line PQ 60 mm long has its end P on V.P. and end Q on H.P. Line is inclined to H.P. by  $60^\circ$  and V.P. by  $30^\circ$  and it is 20 mm away from the profile plane. Draw the projections of the line. **07**

- Q. 7** (a) Construct the isometric scale for 100 mm long line. **03**  
 (b) Fig. 2 shows the front view and top view of the object. Draw the Isometric Projection. **11**

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Que. 1(b), Fig. 1

