

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM- I / II Winter Examination-Dec.-2011

Subject code: 110013**Date: 21/12/2011****Subject Name: Engineering Graphics****Time: 10.30 am -1.30 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. Lines, dimensions etc. should be as per BIS SP-46.
5. Retain all construction line.

- Q.1 (a)** Explain the difference between 1st angle and 3rd angle orthographic projection. **03**
- (b)** Figure No.1 shows the Pictorial view of an object. Draw the following views using first angle projection method (a) Sectional Front elevation looking from direction X, take section along A-A (b) Top view (c) Side view from left. Show all dimensions. **11**
- Q.2 (a)** Figure No.2 shows the four bar chain mechanism O_1ABO_2 and the dimensions of are as below : **07**
 $O_1A = O_2B = 1125$ mm connecting link $AB = 375$ mm
 Draw the locus of midpoint M of AB, considering O_1A as driving link.
- (b)** A circle of 50 mm diameter rolls along the circumference of another circle of 150 mm diameter from outside. Draw the path of a point P on the circumference of the rolling circle for one complete revolution and name the curve. **07**
- Q.3 (a)** A straight AB has its end A 10 mm above HP and end B 50 mm in front of the V.P. Draw the projections of line AB, if it is inclined to H.P. by 30° and to V.P. by 45° and it is 50 mm long. **07**
- (b)** ABCD is a rhombus of diagonals $AC = 110$ mm and $BD = 70$ mm. Its corner A is in the H.P. and the plane is inclined to H.P. such that the plan appears to be a square. The plan of diagonal AC makes an angle of 20° to the V.P. Draw the projections of the plane and find its inclination with H.P. **07**
- Q.4 (a)** The top view of 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end A is in the H.P. and 12 mm in front of the V.P. Draw the projections of line AB and its inclinations with the H.P. and the V.P. **07**
- (b)** The top plan of a pair of equal legs AB and AC of compass appears as an isosceles triangle having base 50 mm and vertex angle at 45° . Actual lengths of compass legs AB and AC are 120 mm. Assume points B and C on H.P. and line connecting B and C is perpendicular to V.P.. Draw the projections and find (i) the actual angle between two legs (ii) the height of point above HP and (iii) angle of plane, containing compass, makes with H.P. **07**
- Q.5 (a)** Engineering graphics is a language of all persons involved in engineering activities. Discuss the statement. **03**
- (b)** A cone, base 75 mm diameter and axis 80 mm long is resting on its base on the H.P. It is cut by a section plane perpendicular to the V.P., inclined at 45° to the H.P. and cutting the axis at a 35 mm from the apex. Draw front view, sectional top view and true shape of the section. **11**
- Q.6 (a)** Write short note on BIS SP-46 engineering drawing standard. **03**

