

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- 1st / 2nd • EXAMINATION – WINTER 2013

Subject Code: 110013

Date: 20-12-2013

Subject Name: ENGINEERING GRAPHICS

Time: 10:30 am – 01:30 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 have equal marks and Retain construction lines.**

Q.1

14

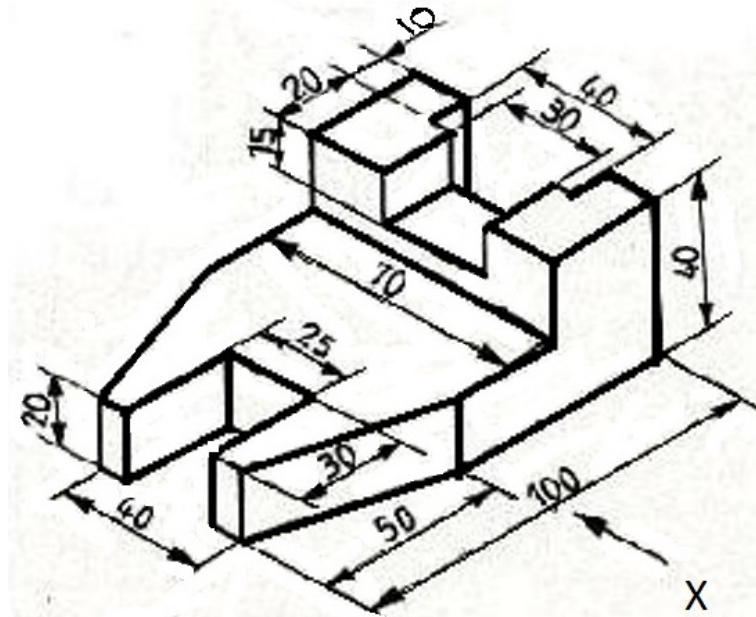


FIG - 1

FIG – 1 Shows the pictorial view of the object. Draw the sectional front view, top view and left hand side view using first angle method of projection.

Q.2 (a) As shown in **Fig- 2** A four bar chain mechanism has a fixed link O_1O_2 130 mm long. The O_1A 30 mm long is a driving crank revolving in clockwise manner. The driven crank O_2B 60 mm long is oscillating about the center O_2 . The link AB 110 mm long is attached with the driving and driven crank. Draw the locus of the point P which is midpoint of the link AB .

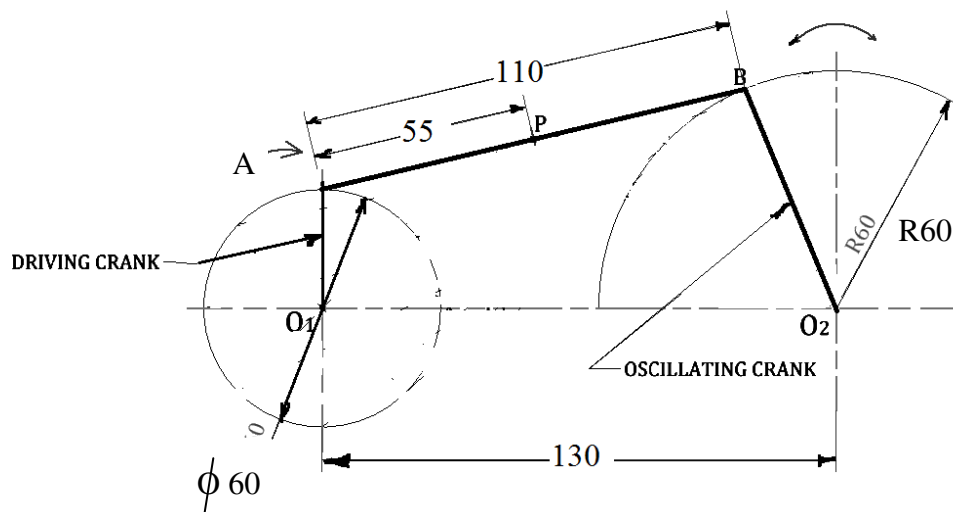


Fig- 2

(b) What is representative factor? Construct a plain scale in which 1 cm represents 5 kms. It should be long enough to measure a distance of 95 kms and 76 kms. 04

- Q.3** (a) Construct an ellipse by arcs of circle method. The major and minor axes are 140 mm & 100 mm respectively. Also draw the tangent and normal to the ellipse at any suitable point. **07**
- (b) A string is unwound from a circle of 30 mm radius. Draw the locus {Involute of circle} of the end of the string for unwinding the string completely. String is kept tight while being unwound. Draw normal and tangent to the curve at any point. **07**
- Q.4** (a) An isosceles triangle plate ABC having its base 50 mm and altitude 90 mm resting on H.P. on its base. The isosceles triangle is inclined at an angle 50° to the H.P. and the altitude in the top view is inclined at the angle 70° to the V.P. Draw the projections. **07**
- (b) A hexagonal pyramid of side of base 40 mm and height of axis 110 mm is resting on one of its inclined vertical surface on H.P. such that its axis remains parallel to the V.P. It is cut by a cutting plane which is inclined at an angle 45° with H.P. and bisecting the axis of the pyramid. Draw front view, sectional top view. **07**
- Q.5** (a) The top view and the front view of the line EF, measures 65 mm and 53 mm respectively. The line is inclined to HP and VP by 30 degree and 45 degree, respectively. The end E is on the HP and 10 mm in front of VP. Other end F is in the 1st quadrant. Draw the projections of the line EF and find its true length. **07**
- (b) The cone of diameter of base 50 mm and axis height 60 mm is resting on its base on H.P. as shown in the Figure - 3 below. One square hole of size 20 mm is cut through the cone as per the figure given below. Develop the surface of the cone. **07**

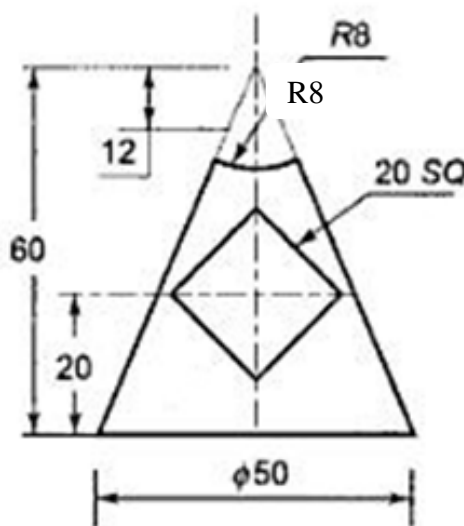


Figure - 3

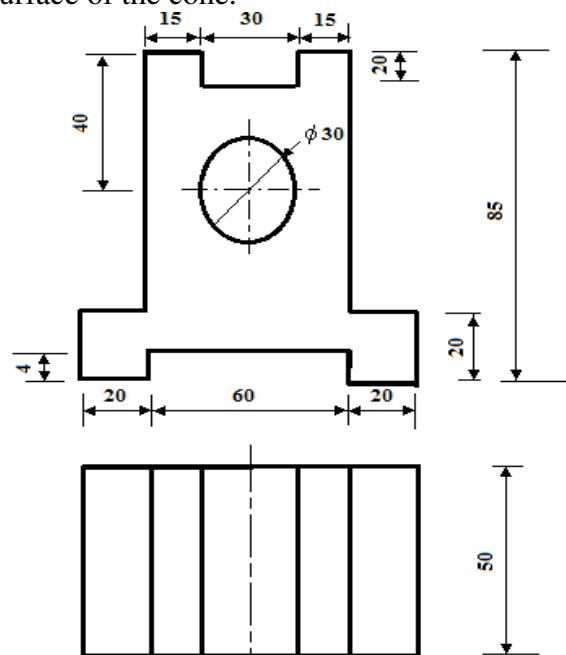


Figure - 4

- Q.6** A pentagonal pyramid has height 60 mm and the side of a base 30 mm. The pyramid rests on one of its sides of the base on the H.P. such that the triangular face containing that side is perpendicular to the H.P. and makes an angle of 45 degree with the V.P. Draw its projections. **14**
- Q.7** (a) Prepare isometric scale to measure 130 mm long line. **02**
- (b) Draw the isometric view of the following orthographic views shown in Fig - 4 **12**