

Seat No.	
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F.E. (Semester - I) (Revised) (New) Examination, Dec. - 2013

ENGINEERING GRAPHICS

Sub. Code: 59180

Day and Date : Saturday, 28-12-2013

Total Marks : 100

Time : 9.00 a.m. to 1.00 p.m.

- Instructions :
- 1) All questions are compulsory.
  - 2) Use first angle method of projection.
  - 3) Figures to the right indicate full marks.
  - 4) Retain all construction lines.
  - 5) Assume suitable data & dimensions wherever reqd.
  - 6) All dimensions are in mm.

SECTION - I

- Q1) a) The cross section of an object is the combination of an equilateral triangle and a semicircle. The base of the semicircle is attached with the base of triangle. The diameter of the semicircle and the sides of the triangle are of the same length & equal to 60mm. Draw a curve traced out by the end of the rope (which is 170mm long) when it is completely wound around the object. Take the semicircle of the object at the top & triangle at the bottom. One end of the rope is attached to the bottom corner of the triangle. [7]
- b) Draw a rectangle having its sides 125 mm and 75mm long. Inscribe two parabolas in it in such a way that their axis bisect each other at right angle. [6]
- Q2) a) Solve any three of the following :
- i) Ref. Fig. I (a). Through point 'C', draw a line 'CD'=50mm long parallel to given line 'AB' at a distance of 25mm away from it. The line CD makes an angle  $30^\circ$  with H/O. [4]
  - ii) Ref. Fig. I (b). Complete the projections of line 'AB' when 1) its grade = 60% 2) Bearing = S  $80^\circ$ E w.r.t. 'A' and 3) F.V. length = 70 mm. [4]
  - iii) Ref. Fig. I (c). Complete the projections of frontal line 'KR' = 40mm long, having an upward slope of 1 in 2 at point. K. The point 'K' lies on line AB. [4]
  - iv) Ref. Fig. I (d). Find the perimeter of the triangle 'ABC'. [4]

- b) An isosceles triangular plane 'ABC' has its base side 60mm and altitude 80mm. It is placed on its base side on FRP in such a way that, its F.V. appears to be an equilateral triangle of 60mm sides having one side inclined at  $45^\circ$  to HRP. Draw its projections. [12]

- Q3) A hexagonal pyramid, with 30mm base side and 70mm height of axis, is resting on one of its base edges on the ground such that, the triangular face containing that edge is vertical. Draw the projections of the pyramid when the edge of the base on which it is resting, makes an angle of  $45^\circ$  to FHP. Take apex away from observer. [13]

**SECTION-II**

- Q4) A pictorial view of an object is shown in Fig- II-a. Referring this fig, draw following views by using first angle method of projection.

- a) Sectional front-view along direction X, with section along A-A. [10]  
 b) Top-view. [6]  
 c) Left hand side view. [6]  
 d) Insert important dimensions. [2]

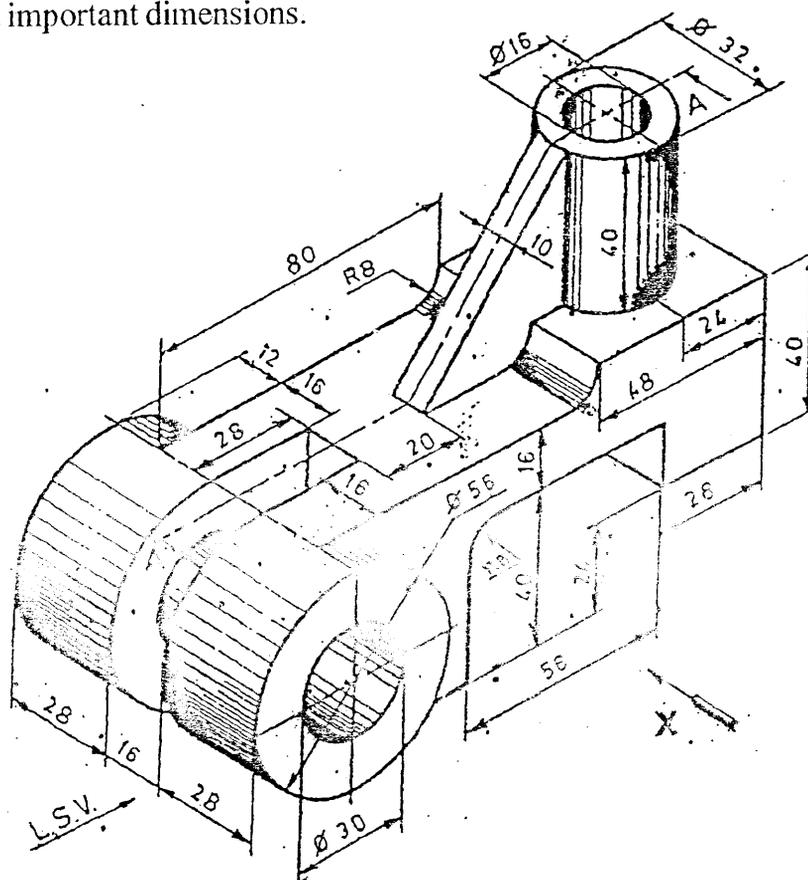


Fig - II (a)

- Q5) A hexagonal pyramid with side of base of 30mm and axis 60mm long, is resting on its base on HRP, having an edge of the base parallel to FRP. It is cut by a section plane which is perpendicular to FRP and inclined at  $45^\circ$  to HRP and passing through a point on the axis, 25mm above the base. Draw its F.V., sectional T.V. and true shape of section. Develop the lateral surface of the remaining portion of the solid. [13]
- Q6) Orthographic projections of two objects are shown in Fig.II-b(1) and Fig.II-b (2). Prepare an isometric view of any one of the above two objects by using full scale. Take point 'O' as point of origin. [13]

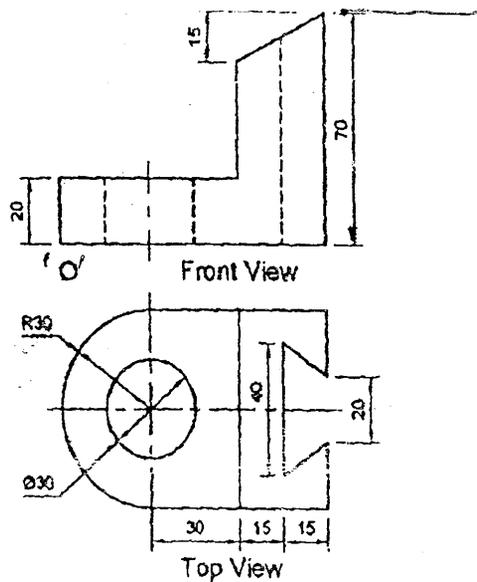


Fig - II b (1)

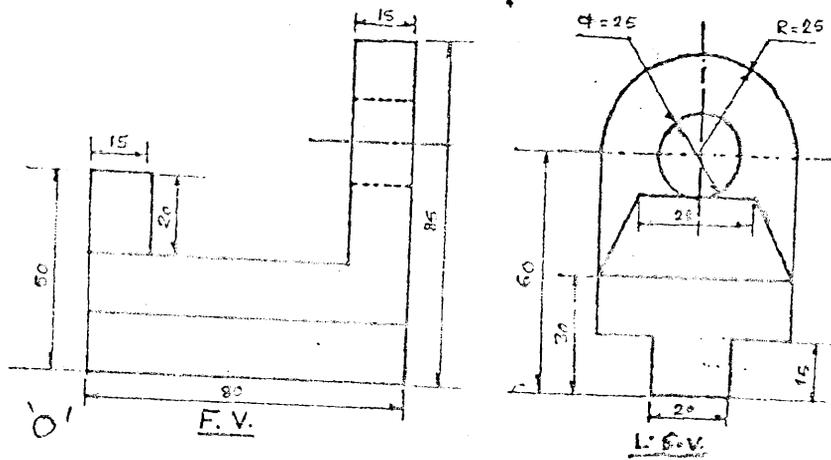


Fig - II b (2)

