Total No. of Questions : 12] [Total No. of Printed Pages : 7

[3761]-105

F. E. (Semester - I) Examination - 2010

ENGINEERING GRAPHICS - I

(June 2008 Pattern)

Time : 4 Hours] **[Max. Marks : 100**

Instructions :

*(1) Answers **one** question from each unit. Answer **three** questions from section - I and **three** questions from section - II.*

*(2) Answers to the **two sections** should be drawn on **separate drawing sheet**.*

(3) Retain all construction lines.

(4) Use of log table, electronic pocket calculator is allowed.

(5) Figure in bracket indicate full marks.

(6) Assume suitable data, if necessary.

(7) Use only half imperial size drawing papers as answer sheets.

SECTION - I

UNIT - II : ENGINEERING CURVES

Q.1) (A) Draw an ellipse with the major axis 160 mm and minor axis 120 mm. The portion on the left side of the minor axis is to be drawn by Concentric Circles Method and on the right side of minor axis by Rectangle Method. Draw tangent and normal to the ellipse at a point 70 mm distance from the center of ellipse. **[08]**

(B) A car travels along a road inclined at 35° to the horizontal. Diameter of wheel of the car is 400 mm. Plot the path traced by a point on the circumference of the wheel, initially situated exactly at the point of contact of the wheel and the road. Name the curve. **[07]**

OR

Q.2) (A) Draw an Archimedean spiral of 1.5 convolutions the greatest and least radii being 125 mm and 35 mm respectively. **[07]**

(B) Rod AB, 90 mm long is rotating uniformly about B. During the time rod completes one revolution, point P starts from A and moves along rod uniformly to B and reaches back to point A. Draw the path traced out by point P. Give name of the curve. **[08]**

UNIT - III : ORTHOGRAPHIC PROJECTIONS

Q.3) For the object shown in fig. 1, draw the following views, using First Angle Method of Projection :

(a) Sectional Elevation in the direction of arrow 'X' (section along A-A) **[07]**

(b) Plan **[05]**

(c) End View from Right Hand Side **[05]**

Give all dimensions. **[03]**

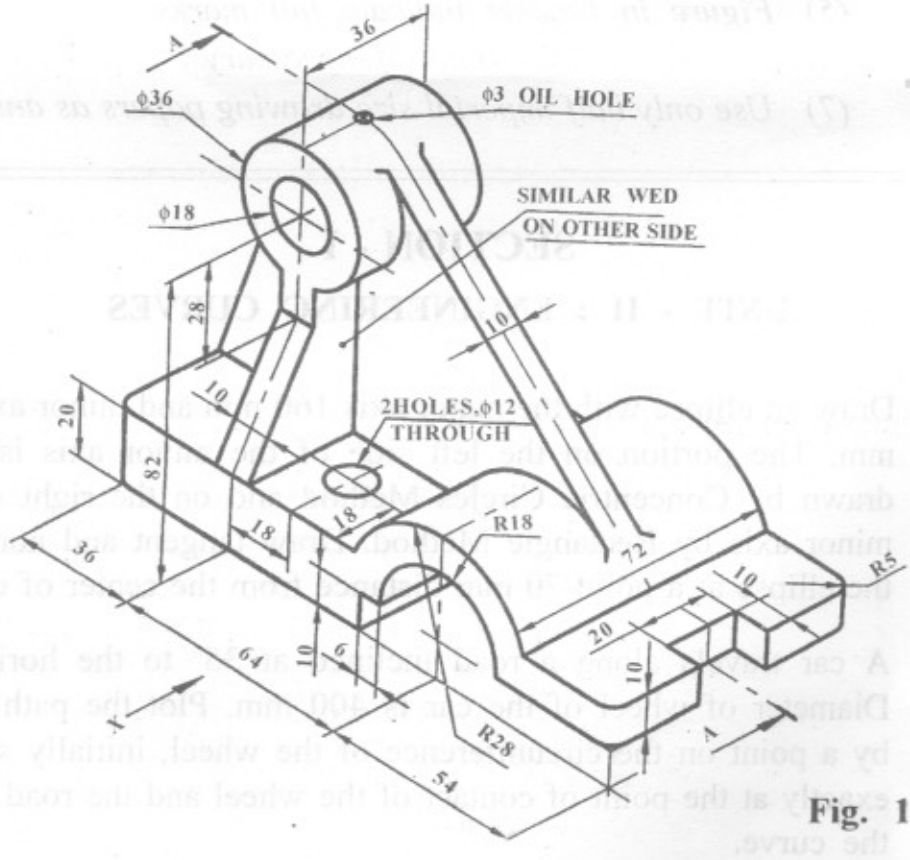

Fig. 1

OR

Q.4) For the object shown in fig. 2, draw the following views, using First Angle Method of Projection :

(a) Sectional Elevation looking in the direction of arrow 'X' (Section along A-A) **[07]**

(b) Plan **[05]**

(c) End View from the Left Hand Side **[05]**

Give all dimensions. **[03]**

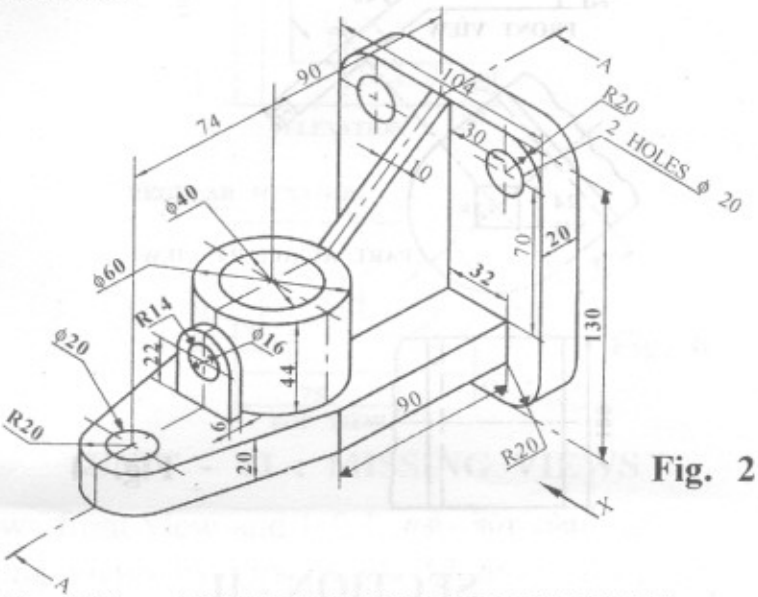

Fig. 2

UNIT - IV : AUXILIARY PROJECTIONS

Q.5) (A) Fig. 3 shows front view, incomplete side view and partial auxiliary view of a machine element :

(1) Redraw the given views **[05]**

(2) Complete the Side View **[08]**

Show all the dimensions. **[02]**

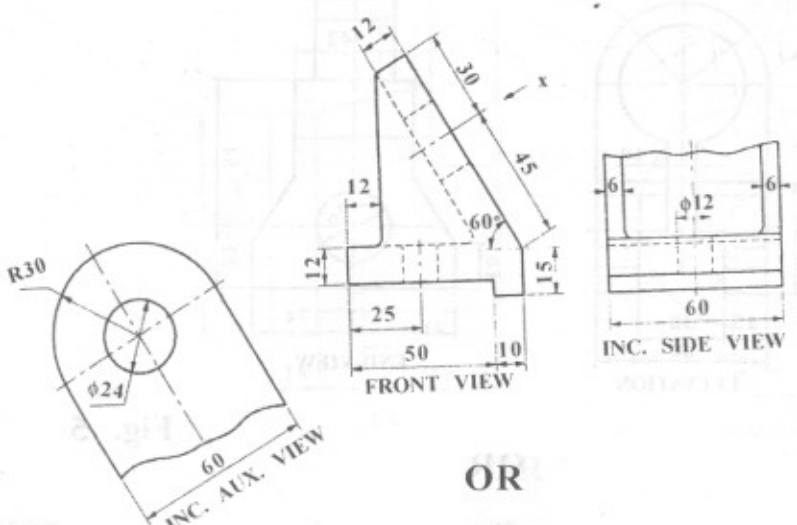

Fig. 3

OR

Q.6) Fig. 4 shows front view, incomplete top view and partial auxiliary view of an object :

(a) Redraw the given views **[05]**

(b) Complete the Top View **[08]**

Show all dimensions. **[02]**

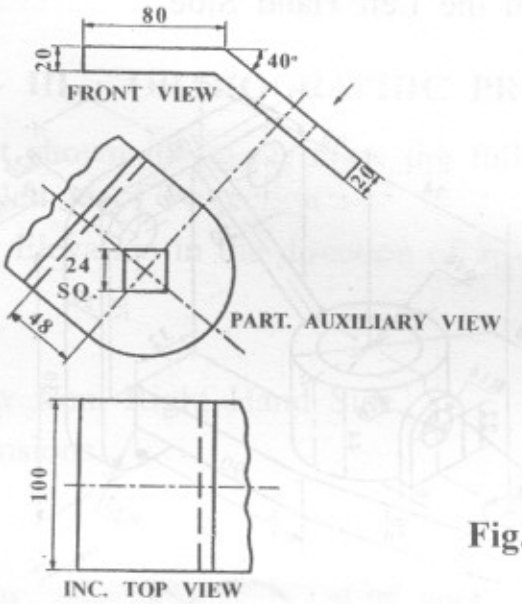

Fig. 4

SECTION - II

UNIT - V : ISOMETRIC

Q.7) Fig. 5 shows the elevation and end view of an object by First Angle Method of Projection. Draw an isometric view taking origin at 'O' and give all dimensions : **[17+3]**

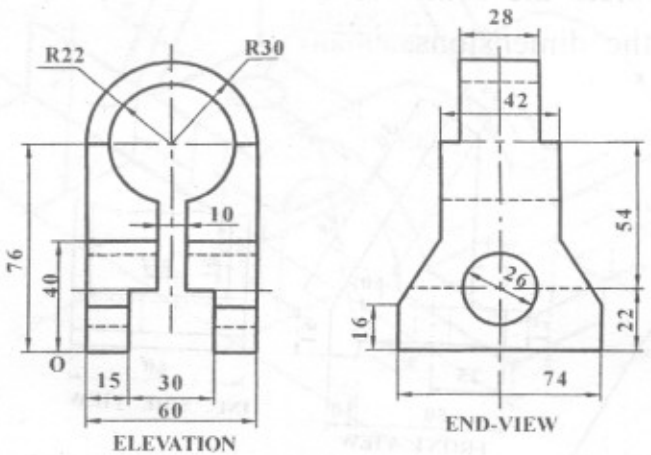

Fig. 5

OR

Q.8) Fig. 6 shows the elevation and plan of an object by First Angle Method of projection. Draw its isometric projection taking origin at 'O'. Construct isometric scale to read 110 mm length.
Give all dimensions. **[15+2+3]**

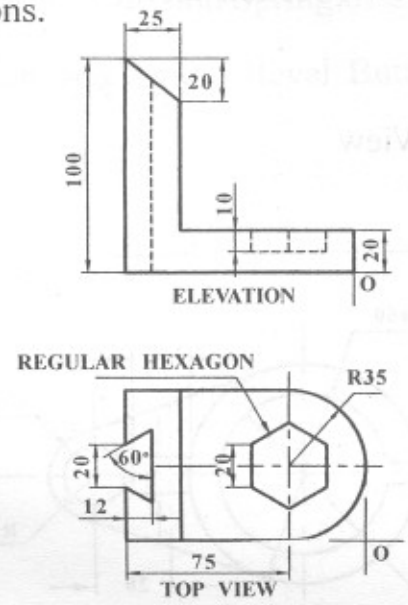

Fig. 6

UNIT - VI : MISSING VIEWS

Q.9) Fig. 7 shows front view and left hand side view of an object. Draw the following views by First Angle Method of Projection :

(a) Sectional Front View (Section along A-A) **[07]**

(b) Top View **[08]**

(c) Left Hand Side View **[03]**

Give all dimensions. **[02]**

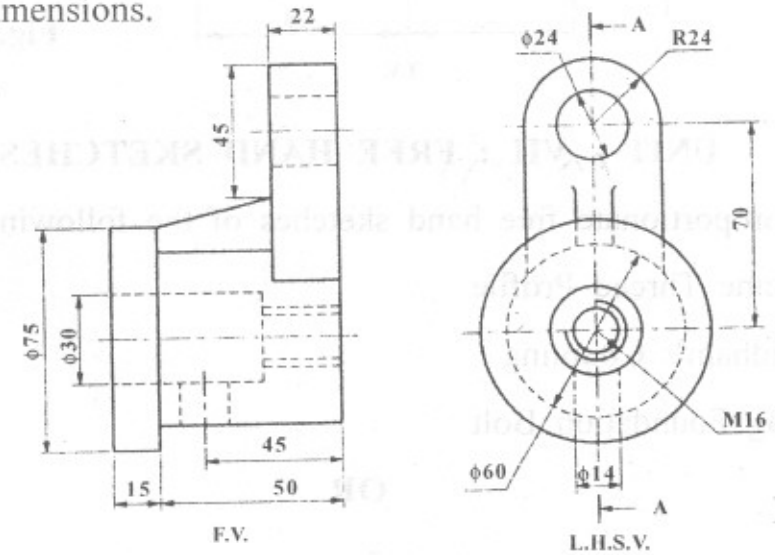

Fig. 7

OR

Q.10) Fig. 8 shows front view and top view of an object. Draw the following views by First Angle Method of Projection :

(a) Sectional Front View (Section along AA) **[07]**

(b) Top View **[03]**

(c) Right Hand Side View **[08]**

Give all dimensions. **[02]**

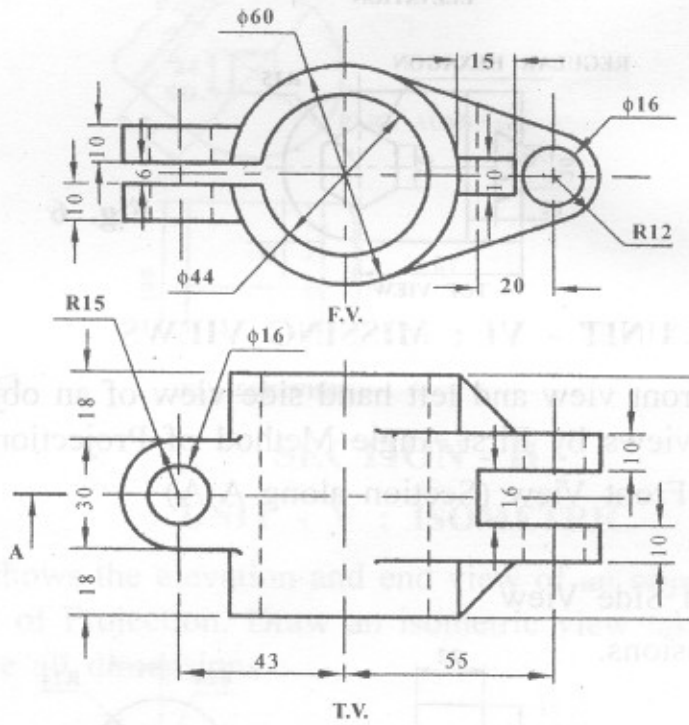

Fig. 8

UNIT - VII : FREE HAND SKETCHES

Q.11) Draw proportionate free hand sketches of the following :

(a) Acme Thread Profile **[03]**

(b) Oldham's Coupling **[03]**

(c) Rag Foundation Bolt **[04]**

OR

Q.12) Draw proportionate free hand sketches of the following :

(a) Woodruff Key **[03]**

(b) Cylindrical Helical Torsion Spring of Circular Cross-section Wire **[03]**

(c) Double V-Butt and Single Bevel Butt Welded joints. **[04]**
