

Total No. of Questions : 12]

[Total No. of Printed Pages : 10

[3861]-156

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

ENGINEERING GRAPHICS - I

(2008 Pattern)

Time : 4 Hours]

[Max. Marks : 100

Instructions :

- (1) Answer **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) Figures to the right indicate full marks.
- (4) Retain all construction lines.
- (5) Use of electronic pocket calculator is allowed.
- (6) Use only half imperial size drawing papers as answer sheets.
- (7) Assume suitable data, if necessary.

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## SECTION - I

### UNIT - II : ENGINEERING CURVES

Q.1) (A) Draw an Involute of a square of side 30mm. Also draw a tangent and normal to it at a point 60mm from the center of square. [07]

(B) A point 'N' moves radially outwards from the centre of a circular disc to the periphery when disc completes one revolution. Radial Movement of the point 'N' and the angular motion of the disc are assumed to be uniform. Take diameter of disc as 120mm. Trace locus of the point 'N' and name curve. [08]

OR

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1

P.T.O.

- Q.2) (A)** A circle of 0.04 meter diameter rolls on another circle of 0.160m diameter with internal contact. Draw locus of point 'J' on the circumference of the rolling circle, situated at the point of contact of both the circles, for one revolution. Draw tangent and normal to the curve at any point. [08]
- (B)** A motor car head lamp is having an aperture (opening) of 0.16 meter and a depth 0.115 meter. If the shape of the reflector is parabolic, draw shape of the parabola. [07]

### UNIT - III : ORTHOGRAPHIC PROJECTIONS

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

- (a) Elevation in the direction of arrow [06]
- (b) Plan [06]
- (c) End View from Right Hand Side [06]
- (d) Give all dimensions [02]

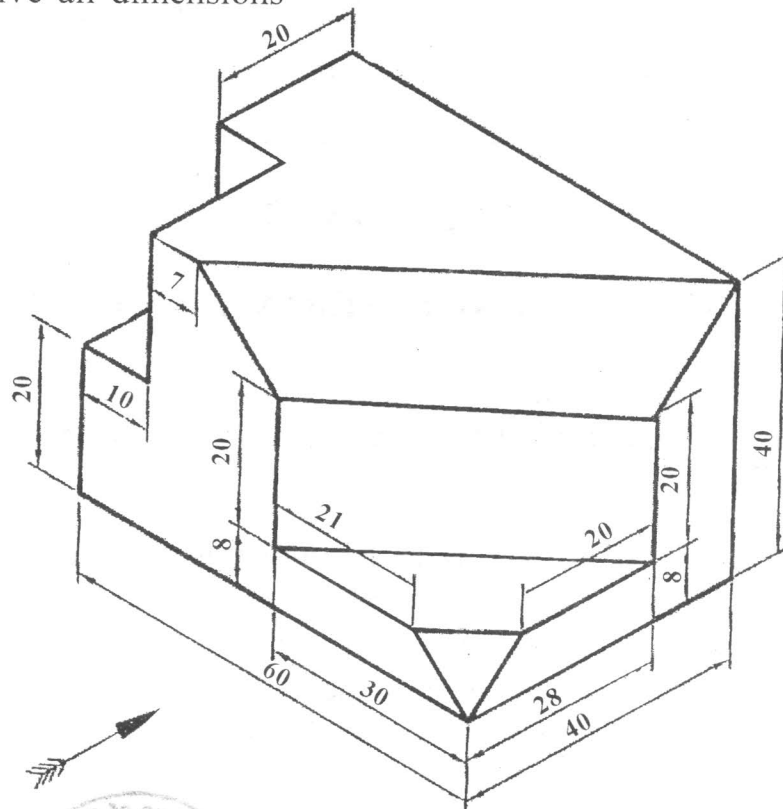
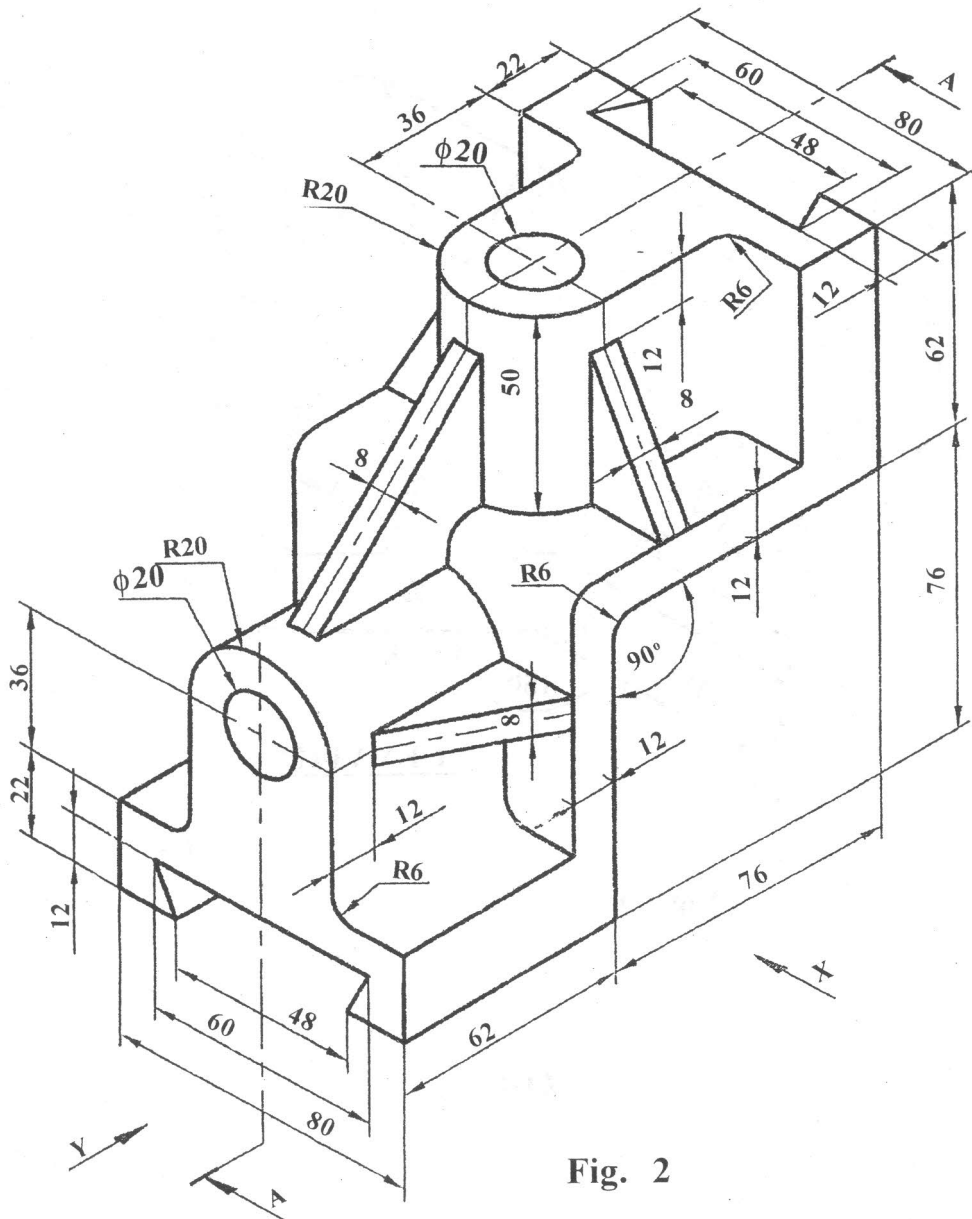


Fig. 1

OR  
2

**Q.4)**

- (a) Sectional Elevation from the direction of arrow 'X' (Section along AA)
- (b) Plan
- (c) End View from the direction of arrow 'Y'
- (d) Give all the dimensions.

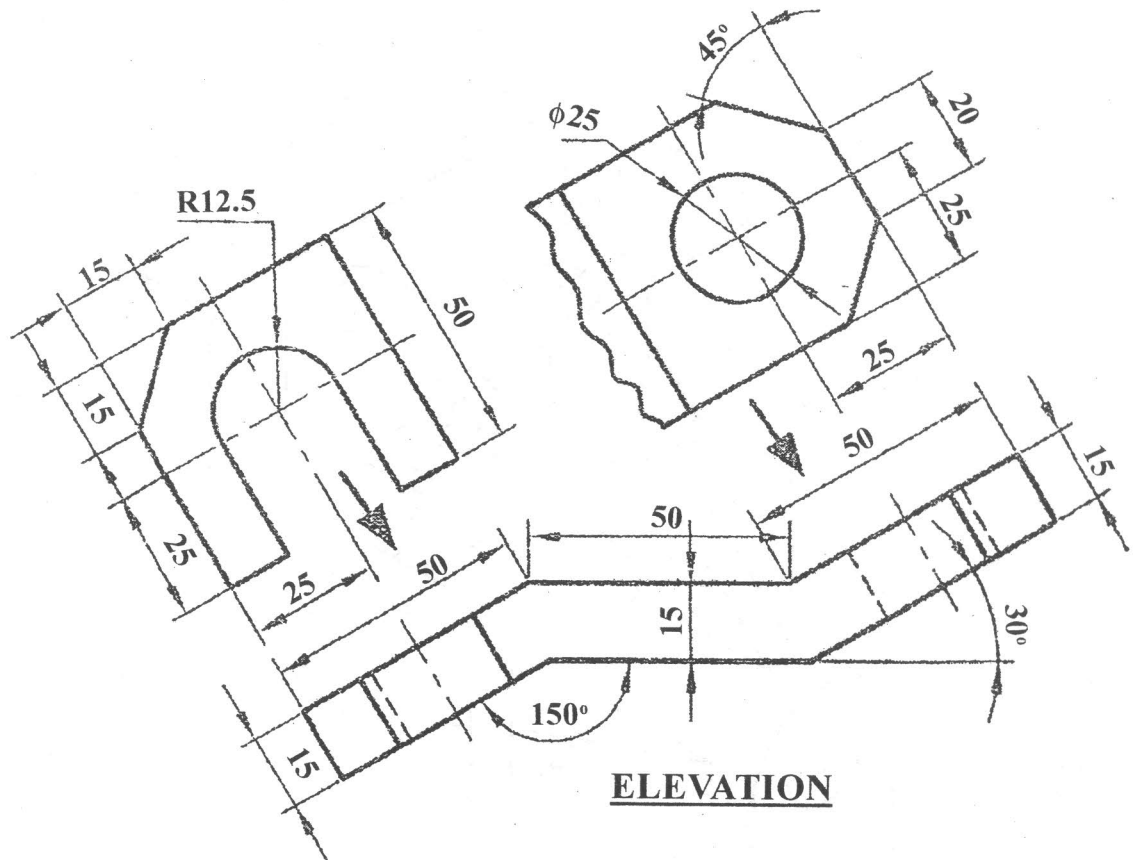


**Fig. 2**

## UNIT - IV : AUXILIARY PROJECTIONS

**Q.5)** Fig. 3 shows elevation and auxiliary views of a bent plate. By using First Angle Method of Projections :

- (a) Redraw the given views [05]
- (b) Add the plan [08]
- (c) Give all dimensions. [02]

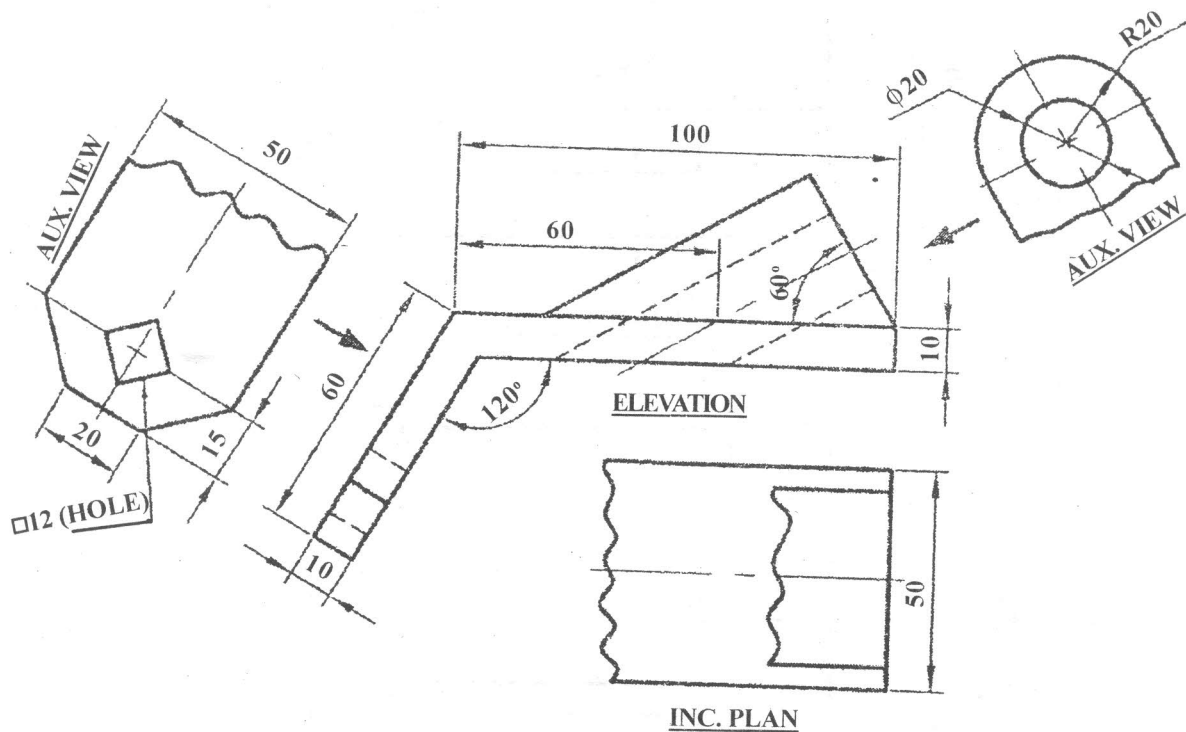


**Fig. 3**

**OR**

**Q.6)** Fig. 4 shows elevation, incomplete plan and auxiliary views of a Cast Iron Bracket. Draw the following views :

- |     |  |      |
|-----|--|------|
| (a) | Given Elevation                                | [05] |
| (b) | Add plan using the same method of projections. | [08] |
| (c) | Give all dimensions.                           | [02] |



**Fig. 4**

## UNIT - V : ISOMETRIC

- Q.7) Fig. 5 shows orthographic views of an object by First Angle Method of Projection. Draw its Isometric Projection taking origin at 'O' and give all dimensions.

[18+2]

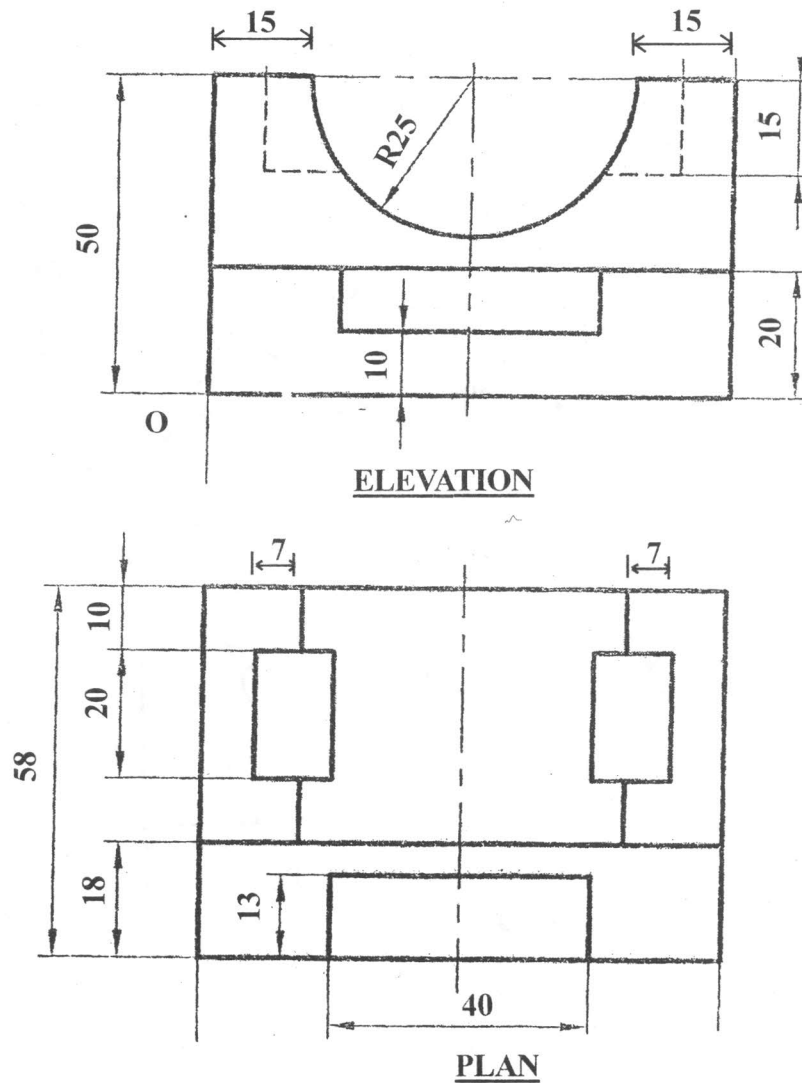
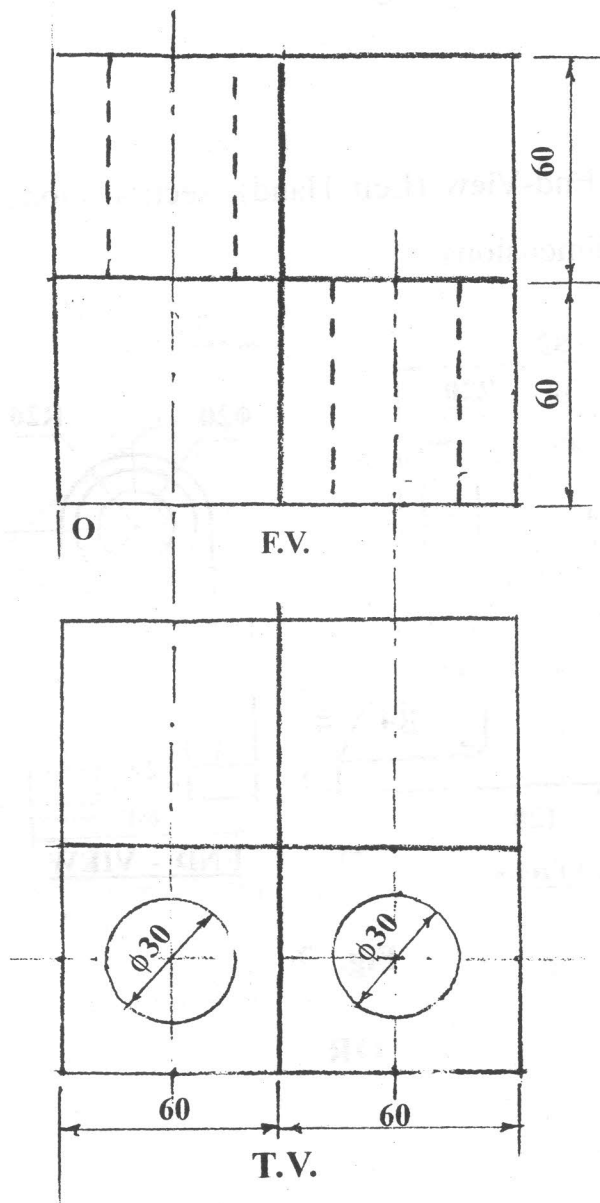


Fig. 5

OR

- Q.8)** Fig. 6 shows orthographic views of an object by First Angle Method of Projection. Draw its Isometric View taking origin at 'O' and give all dimensions : [18+2]

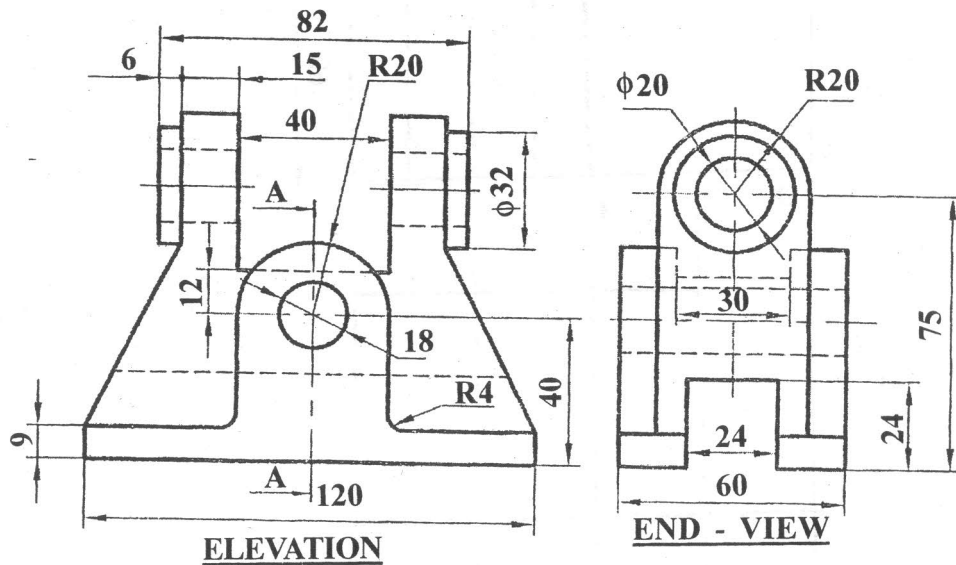


**Fig. 6**

## UNIT - VI : MISSING VIEWS

**Q.9)** Two Orthographic Views of an object, drawn by First Angle Method of Projection are given in fig. 7. Using First Angle Method of Projection, draw the following :

- (a) Elevation [03]
- (b) Plan [09]
- (c) Sectional End-View (Left Hand), section along A-A [06]
- (d) Give all dimensions. [02]



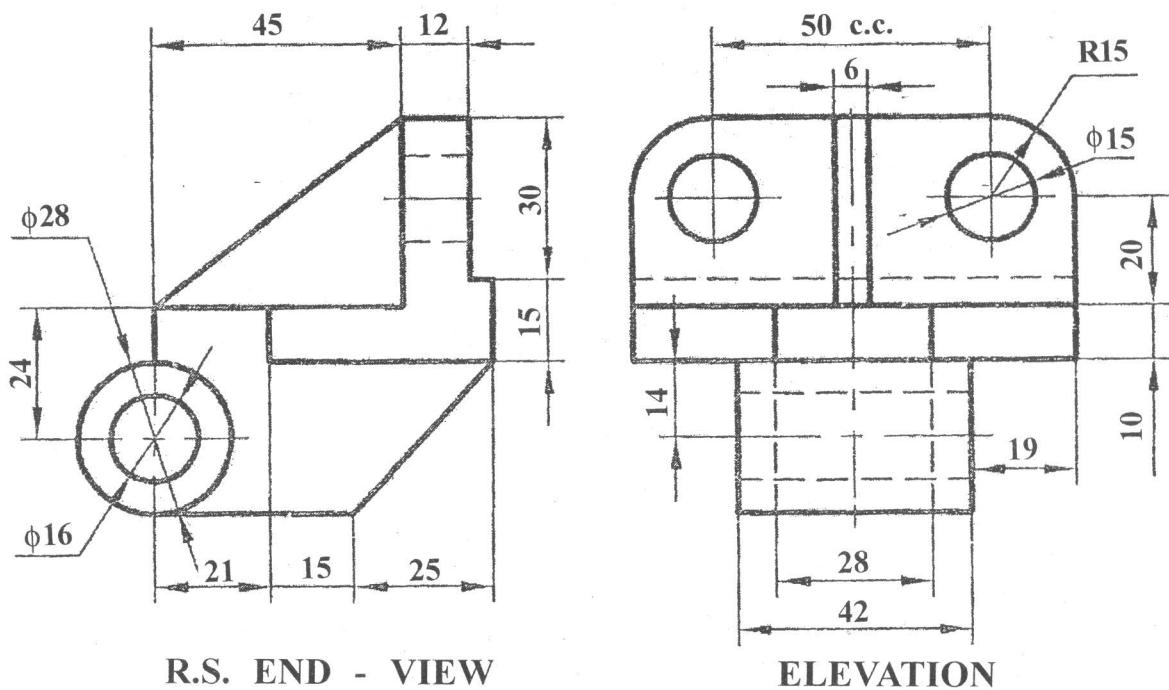
**Fig. 7**

**OR**



**Q.10)** Two Orthographic Views of an object, drawn by First Angle Method of Projection are given in fig. 8. Using First Angle Method of Projection, draw the following :

- |     |                          |      |
|-----|--------------------------|------|
| (a) | Elevation                | [04] |
| (b) | Plan                     | [10] |
| (c) | End-View from Right Hand | [04] |
| (d) | Give all dimensions.     | [02] |



**Fig. 8**

**UNIT - VII : FREE HAND SKETCHES**

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

- |     |                        |      |
|-----|------------------------|------|
| (a) | Hexagonal Headed Bolt  | [04] |
| (b) | Conical Helical Spring | [03] |
| (c) | Metric Thread Profile  | [03] |

**OR**

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

- |     |                          |      |
|-----|--------------------------|------|
| (a) | Splined Shaft            | [03] |
| (b) | Single Riveted Lap Joint | [03] |
| (c) | Flanged Coupling         | [04] |