

**Subject: ENGINEERING DRAWING**

**December 2005**

**Time: 3 Hours**

**Max. Marks: 100**

**NOTE:**

1. (a) There are SEVEN questions in all and these are arranged in three Sections A, B and C.  
(b) Sections A and B are compulsory and carry 20 marks and 32 marks respectively.  
(c) Out of remaining 5 questions (of 16 marks each) in Section C students are required to answer any 3 questions.
2. Detach this sheet from the question paper and write answers on this sheet only on Pages 1 & 2. Attach it to the main drawing sheet. Remaining questions are to be answered on the main drawing sheet.
3. All dimensions given are in mm. Use suitable values of any missing and mismatching dimensions.
4. Use BIS Code: SP: 46-1988 for all drawings and do not rub off construction lines.

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**SECTION A (Compulsory)**

- Note :**
1. Attach this sheet to the main drawing sheet.
  2. Write Answers To Question No. 1 In This Sheet Only.

**Q.1 Write the correct or best alternative in the following : (10 × 2=20)**

- a. If an object lies behind V.P and above H.P, the object is in

- (A) I – Quadrant.                      (B) II - Quadrant.

(C) III - Quadrant.      (D) IV - Quadrant.

b. The diagonal scales are constructed for reading lengths to the accuracy of

- (A) 1 consecutive unit.
- (B) 2 consecutive units.
- (C) 3 consecutive units.
- (D) 4 consecutive units.

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used for lines showing axis of symmetry is

(A)

- Thick continuous line.
- (B) Thin continuous line.
- (C) Thin long and short line.
- (D) Thick dashed line.

d. When only the front view of a point lies on X-Y line, the point is in

- (A) in H.P.
- (B) in V.P.
- (C) in P.P.
- (D) in both H.P. and V.P.

e. The point at which the conic cuts the axis is known as

- (A) Loci.
- (B) Directrix.
- (C) Focus.
- (D) Vertex.

f. If the development of a cone of radius 20 mm is a quarter circle, then the length of the slant generator will be

- (A) 20 mm.
- (B) 40 mm.
- (C) 60 mm.
- (D) 80 mm.

g.

Interference is the difference between the size of the hole and the shaft, before assembly, when this difference is

- (A) Positive.
- (B) Negative.
- (C) Zero.
- (D) None of these.

h. The size across flats for a square nut in terms of the diameter of the bolt of diameter (D), for bolt more than 12 mm in diameter is given by

- (A)  $1.5 D + 3 \text{ mm}$ .
- (B)  $1.5 D + 6 \text{ mm}$ .
- (C)  $1.5 D + 9 \text{ mm}$ .
- (D)  $1.5 D$ .

i. For connecting cast iron pipes in underground installations, where there is low pressure and little vibrations, the joints used are

(A)

Flange joint.

- (B) Spigot and Socket joint.

- (C) Union joint.
- (D) Socket joint.

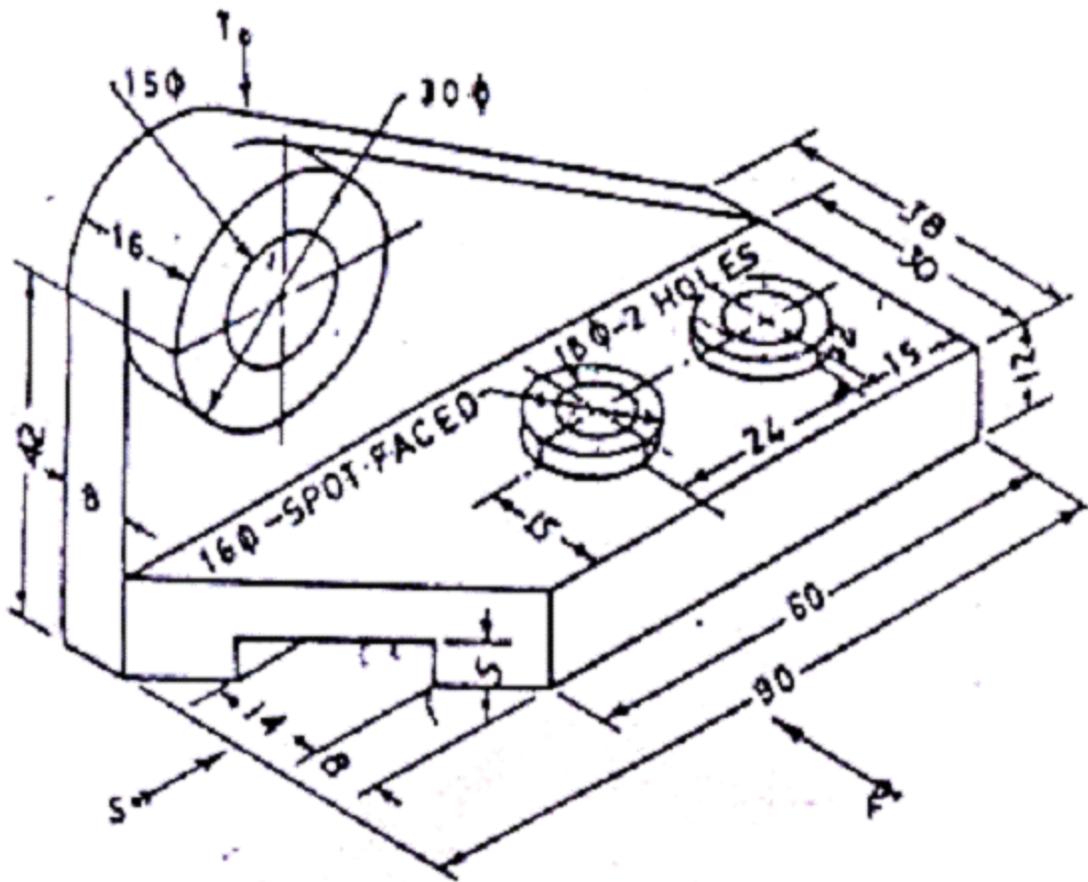
j. For supporting a shaft when the load is perpendicular to the axis of the shaft, the bearing preferred is



- (A) Journal bearing.
- (B) Pivot bearing.
- (C) Thrust bearing.
- (D) Footstep bearing.

### SECTION B (Compulsory)

- Q.2** Fig. 1 shows the details of a machine component. Draw the following views to full scale size:
- (i) Front view looking from the direction of 'F'.
  - (ii) Side view looking from the direction of 'S'.
  - (iii) Top view looking from the direction of 'T'.
- (12+8+12 = 32)**



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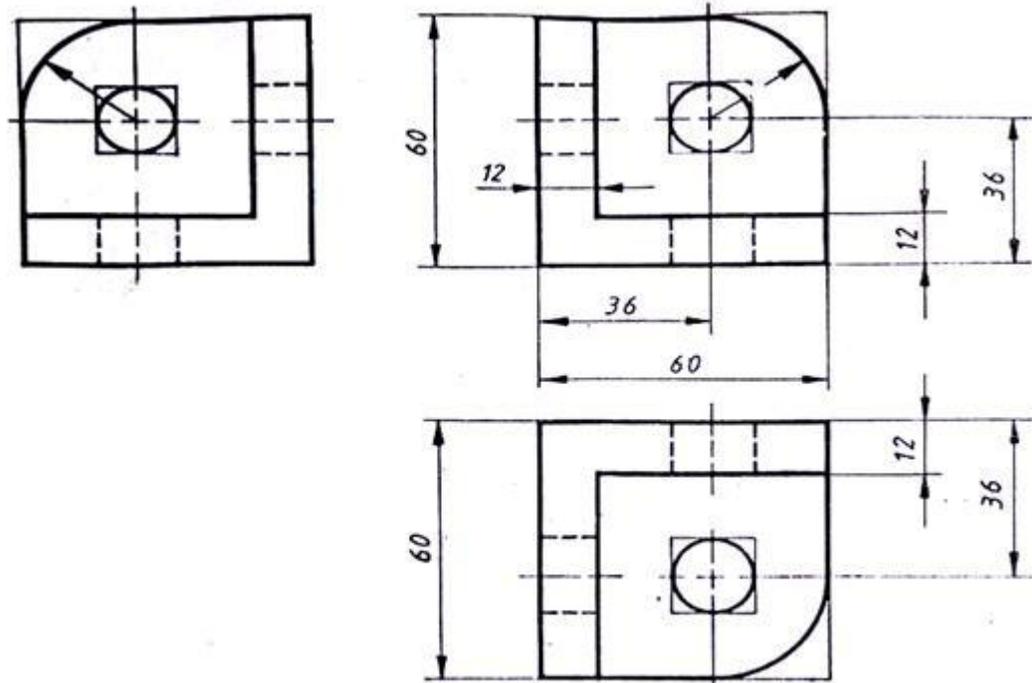
**Fig.1**

**SECTION C**

**Answer any THREE Questions. Each question carries 16 marks.**

**Q.3** A pentagonal pyramid of 40 mm base sides and 70 mm altitude rests with one of its corners of the base on H.P such that the two base edges passing through the corner on which it rests make equal inclinations with H.P. The axis leans to the left and is inclined at  $45^\circ$  to V.P and  $30^\circ$  to H.P. The base of the pyramid is visible to the observer. Draw the top and front views of the pyramid. **(16)**

**Q.4** Draw the isometric projection from the given orthographic projections of the object shown in Fig. 2. **(16)**



**Fig.2**

**Q.5** A frustum of a cone has 60 mm top diameter, 120 mm bottom diameter, and 75 mm high. Draw the development of the frustum. **(16)**

**Q.6** a. Draw the top and front views of a double rivet lap joint (chain riveting) for two plates of thickness 16 mm. Show other dimensions on the drawing. **(10)**

b. Draw the thread profile of a Knuckle thread taking the enlarged pitch to be 40 mm. **(6)**

**Q.7** a. Draw the projections of a straight line AB, 100 mm long, inclined at  $45^\circ$  to H.P and  $30^\circ$  to V.P. The end A is in H.P and the end B is in V.P. Find the shortest distance between the straight line AB and the line of intersection of planes of projection. **(8)**

b. Construct a diagonal scale of R.F. =  $1/2$  to show millimetre and centimetre to measure up to 35 centimetre. Show on the scale a distance of 23.6 centimetre. **(8)**