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24225

4 Hours / 70 Marks

Seat No. 

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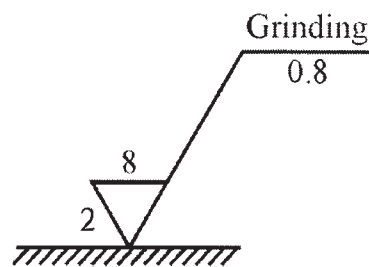
- Instructions* –
- (1) All Questions are *Compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any FIVE of the following: 10
- a) Draw the conventional representation of the following:
    - i) Long Break in pipe
    - ii) I-section pipe.
  - b) Draw the conventional representations of following:
    - i) Bearings
    - ii) Holes on circular pitch.
  - c) Draw the conventional representations of following machine components:
    - i) Bevel Gear
    - ii) Spur Gear
  - d) Define “Taper”. Draw its standard convention.

P.T.O.

- e) Draw the actual view and conventional representation of:
- Internal Screw thread
  - Semi-elliptic leaf spring.
- f) Draw a sketch showing basic size, lower deviation, upper deviation and tolerance.
- g) State the meaning of the symbol shown in Figure No. 1.

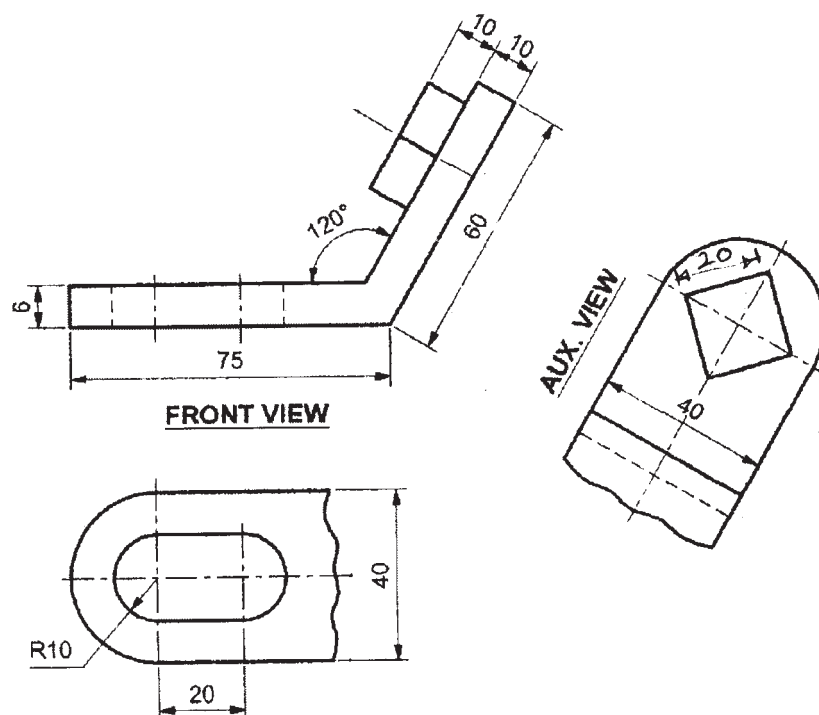


**Fig. No. 1**

**2. Attempt any ONE of the following:**

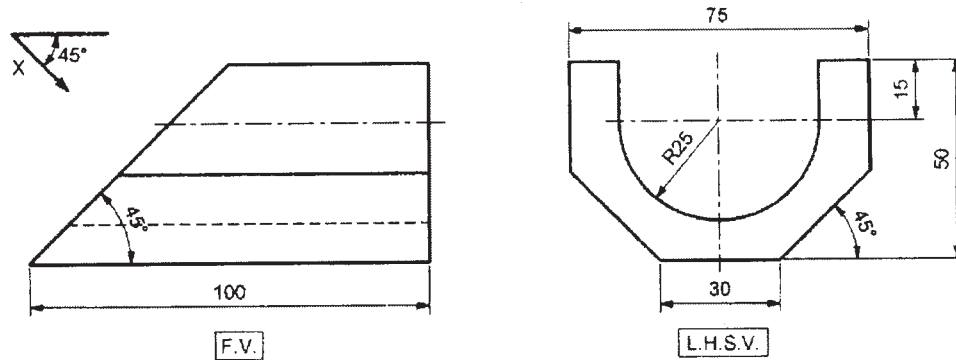
**8**

- a) Figure No. 2 shows front view, incomplete top view and partial auxiliary view of an object. Redraw the given views and complete the top view (use first angle method of projection.)



**Fig. No. 2**

- b) Figure No. 3 shows front view and left hand side view of an object. Draw the given views and project an auxiliary top view looking in the direction of X.



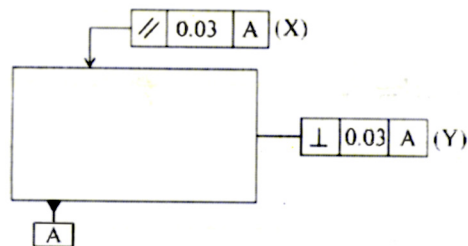
**Fig. No. 3**

**3. Attempt any FIVE of the following:**

**20**

- a) Draw conventional representation of any four of the following:
  - i) Glass
  - ii) Pipe or tubing
  - iii) Cast iron
  - iv) Splined shaft
  - v) Globe valve
  - vi) Counter sunk
- b) Draw a sketch to represent taper 1:20 on a shaft of  $\phi 40\text{mm}$  and length 120mm.
- c) Draw the symbols for the any two of following:
  - i) Single V butt weld
  - ii) Seam weld
  - iii) Spot weld
  - iv) Fillet weld with convex finish.

- d) Draw the symbols of following features which are controlled in geometrical tolerance.
- Symmetry
  - Angularity
  - Concentricity
  - Flatness.
- e) Two mild steel plates of 8 mm thickness are to be welded to have a lap joint by a fillet weld of leg length 8 mm. Represent the weld on drawing with proper symbol.
- f) What is the meaning of symbol at  $x$  and  $y$  as shown in Figure No. 4.



**Fig. No. 4**

- g) The shaft is given as  $\phi 20 \begin{smallmatrix} +0.023 \\ +0.012 \end{smallmatrix}$  and hole size is  $\phi 20 \begin{smallmatrix} +0.018 \\ +0.000 \end{smallmatrix}$ . Determine the types of fit between them.

**4. Attempt the following:**

**16**

Figure No. 5 shows sectional F.V. and S.V. of the assembly of 'OLDHAM'S COUPLING'. Draw the following details by using first angle method:

- Flange: Front view and S.V.
- Central disc: Front view and S.V.
- Shaft: Front view and S.V.
- Key: F.V., T.V and S.V.



5. Attempt any ONE of the following:

16

- a) Figure No. 6 shows the details of 'FOOT STEP BEARING'.  
Draw the following views of the assembly:

i) Section Front view

ii) Top view

Use suitable scale

Give overall dimension. Show assembly fits.

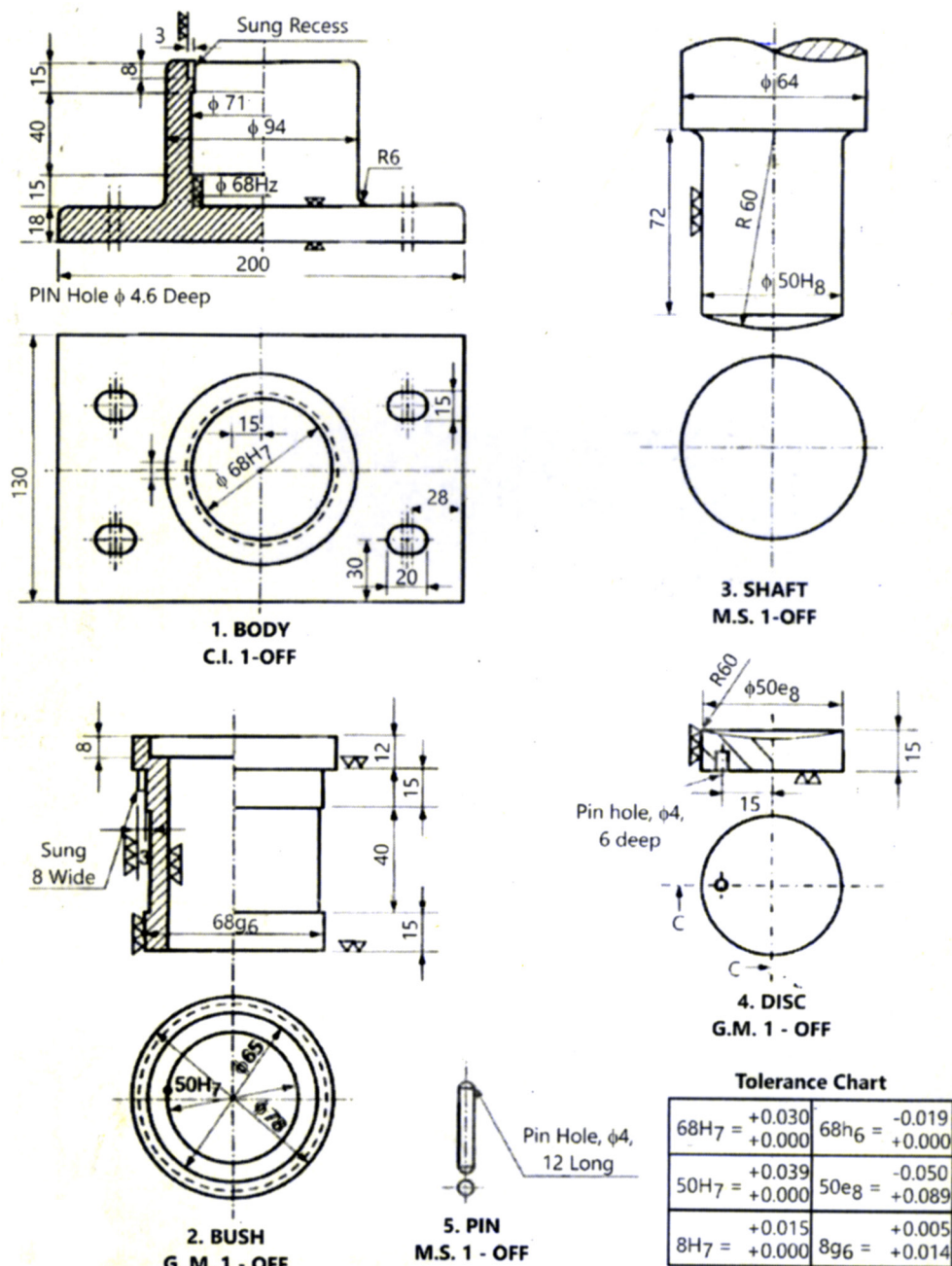


Fig. No. 6: Details of foot step bearing

b) Figure No. 7 shows the details of 'LATHE TOOL POST'. Draw the following views of the assembly:

- i) Sectional front view
- ii) Top view
- iii) Prepare bill of material. Indicate types of fit.

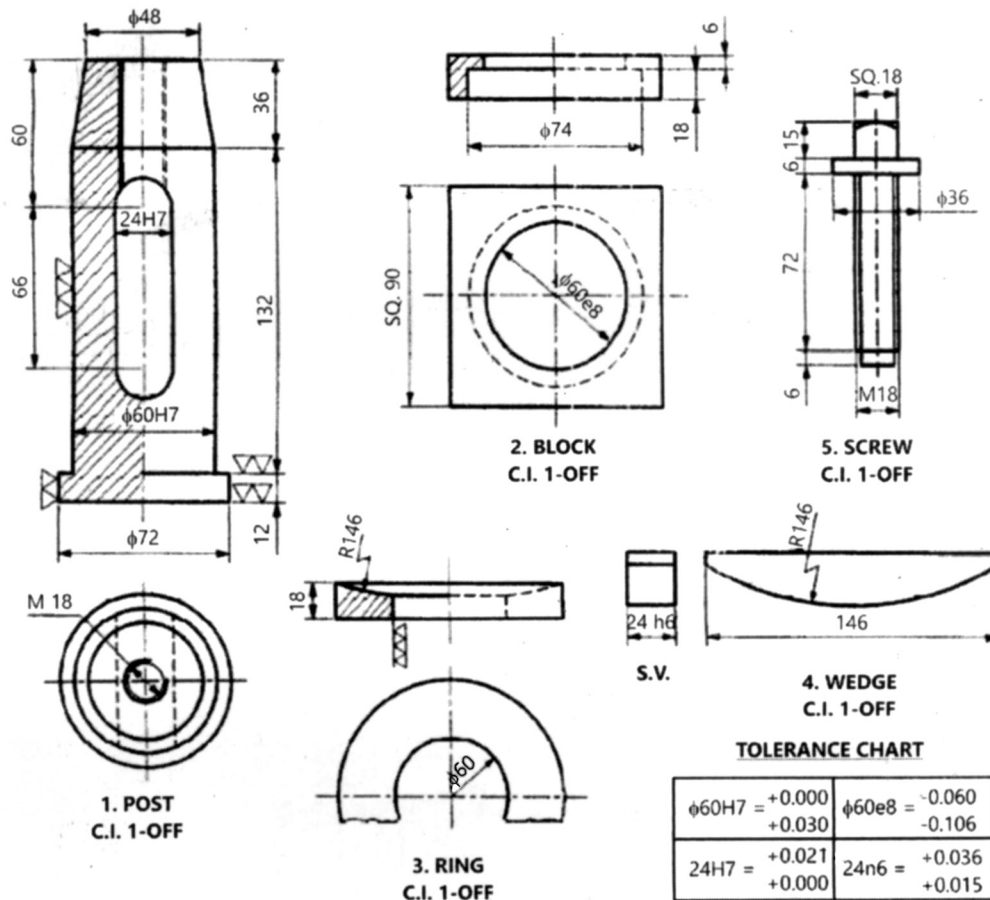


Fig. No. 7: Lathe tool post