

313311

25226

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) Cylindrical helical compression spring of wire of circular cross-section.
 - ii) Semi-elliptical Leaf spring with eye hole.
 - b) Draw the conventional Representation of –
 - i) Spur gear
 - ii) Bevel gear
 - c) Draw the actual sketch of counter bore and counter sunk hole
 - d) Draw the conventional Representation for common feature
 - i) Radial Ribs
 - ii) Bearing

P.T.O.

- e) Draw a sketch with its representation
 - i) Cross
 - ii) Gate Valve
- f) Draw the conventional Representation for
 - i) Diamond knurling
 - ii) Splined shaft
- g) Draw the conventional Representation of
 - i) Pipe or tubing
 - ii) I-section

2. Attempt any ONE of the following :

8

- a) Fig. No. 1 shows front view, incomplete side view, auxiliary top view of an object. Redraw the given views and complete the side view.

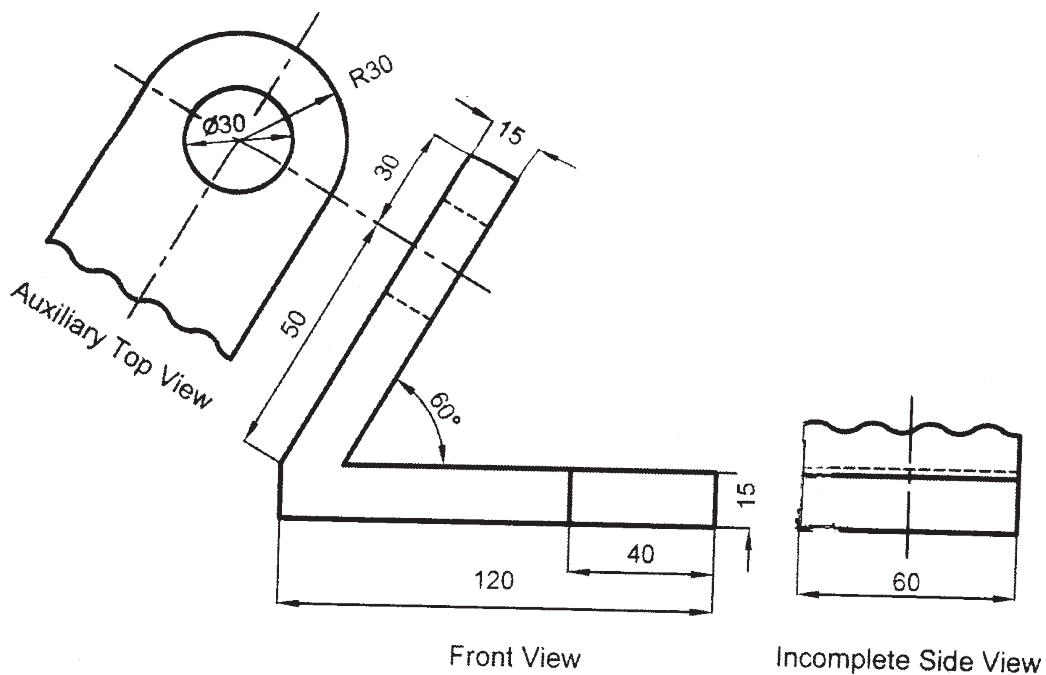


Fig. No. 1

- b) Figure No. 2 shows front view, incomplete top view and auxiliary view of an object. Redraw the given view and complete the top view.

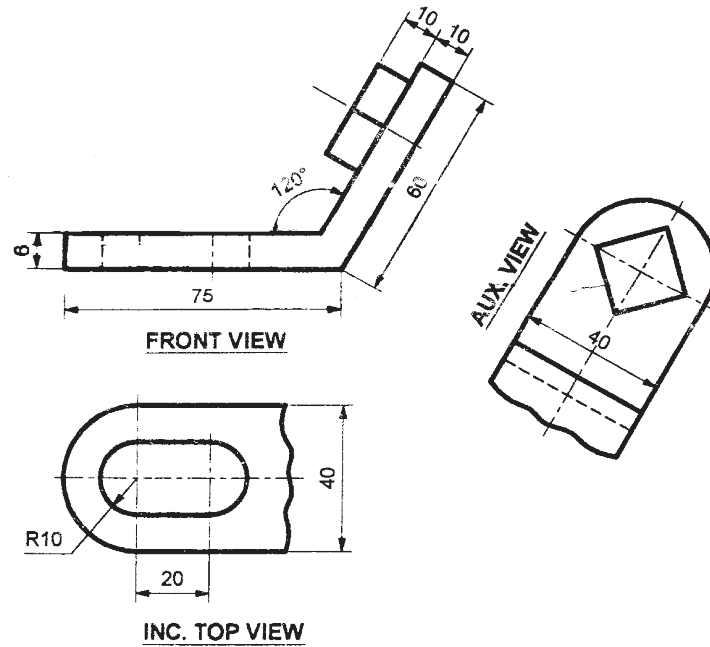


Fig. No. 2

3. Attempt any FIVE of the following :

20

- a) Draw the symbol for Representing the geometrical tolerance in case of the following
- Concentricity
 - Surface profile
 - Symmetry
 - Circularity
- b) What is the meaning of the symbol at X and Y.

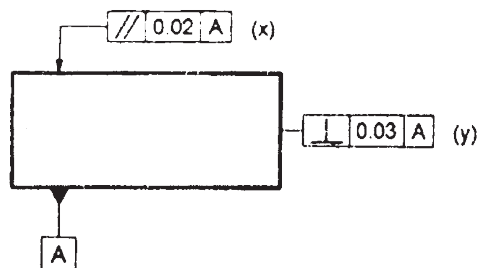


Fig. No. 3

P.T.O.

- c) A bush bearing has internal diameter $\text{Ø}25^{+0.025}_{+0.000}$ mm and the shaft diameter is $\text{Ø}25^{-0.020}_{-0.040}$ mm find minimum and maximum clearance and identify the type of fit between bush and shaft.
- d) A shell of 2 meter diameter is to be prepared from 28mm thick MS plates. The ends of plates are to be welded with double V-butt weld with broad root face, depth of weld is 12mm from outside and 8mm from inside of the shell and weld is flush finished in either side. Represent the joint with welding symbol on it with neat sketch.
- e) Define the following
- i) Allowance
 - ii) Clearance
 - iii) Interference
 - iv) Deviation
- f) Show the position of unilateral and bilateral tolerance with the help of diagram and zeroline.

4. Attempt the following :

16

- a) Fig. No. 4 shows assembly of a Drill Jig.
- Attempt any two of following.
- i) Draw sectional front view and top view of Base plate and stem.
 - ii) Draw sectional front view and Top view of Jig Plate and Washer.
 - iii) Draw front view and side view of stud, Nut, Bush, and screw.

Marks

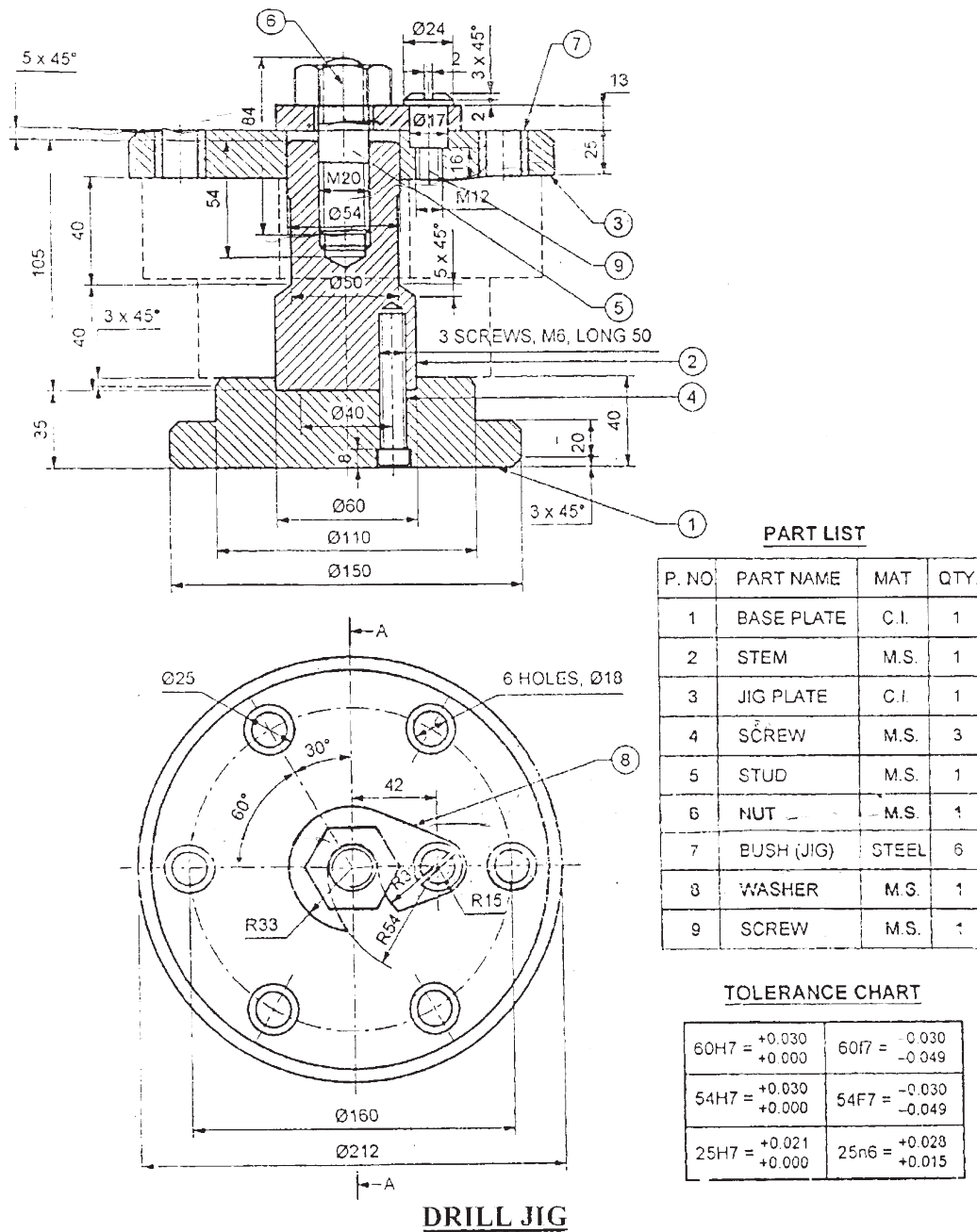


Fig. No. 4

P.T.O.

5. Attempt any ONE of the following :

16

a) Fig. No 5 shows the details of screw jack. Draw the following views of Assembly.

- i) Sectional Front View
- ii) Top view
- iii) Prepare bill of materials

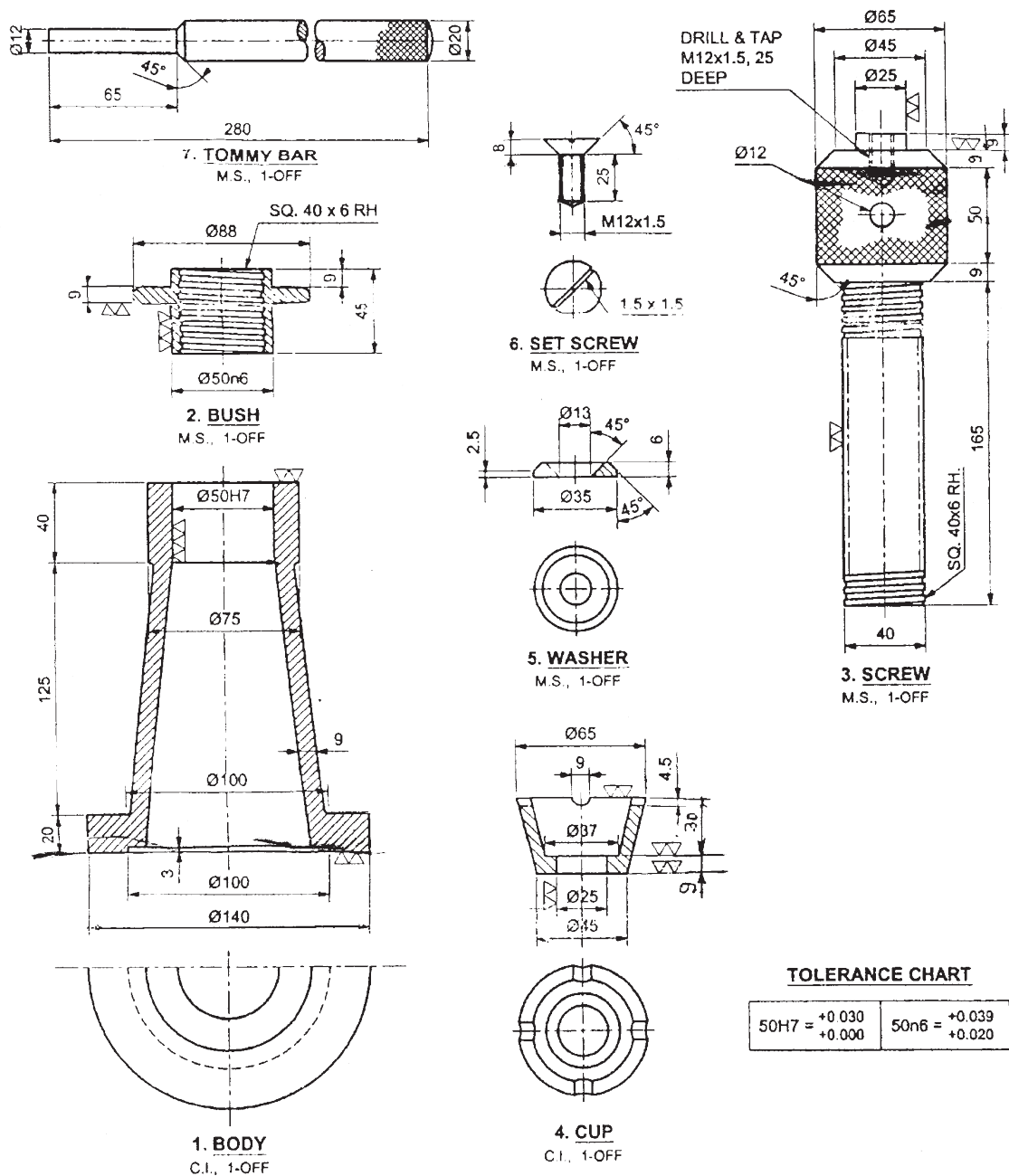


Fig. No. 5

b) Fig. No. 6 shows the details of foot step bearing.

Draw:

- i) Sectional F.V. of the assembly
- ii) Top view of the assembly
- iii) Bill of material

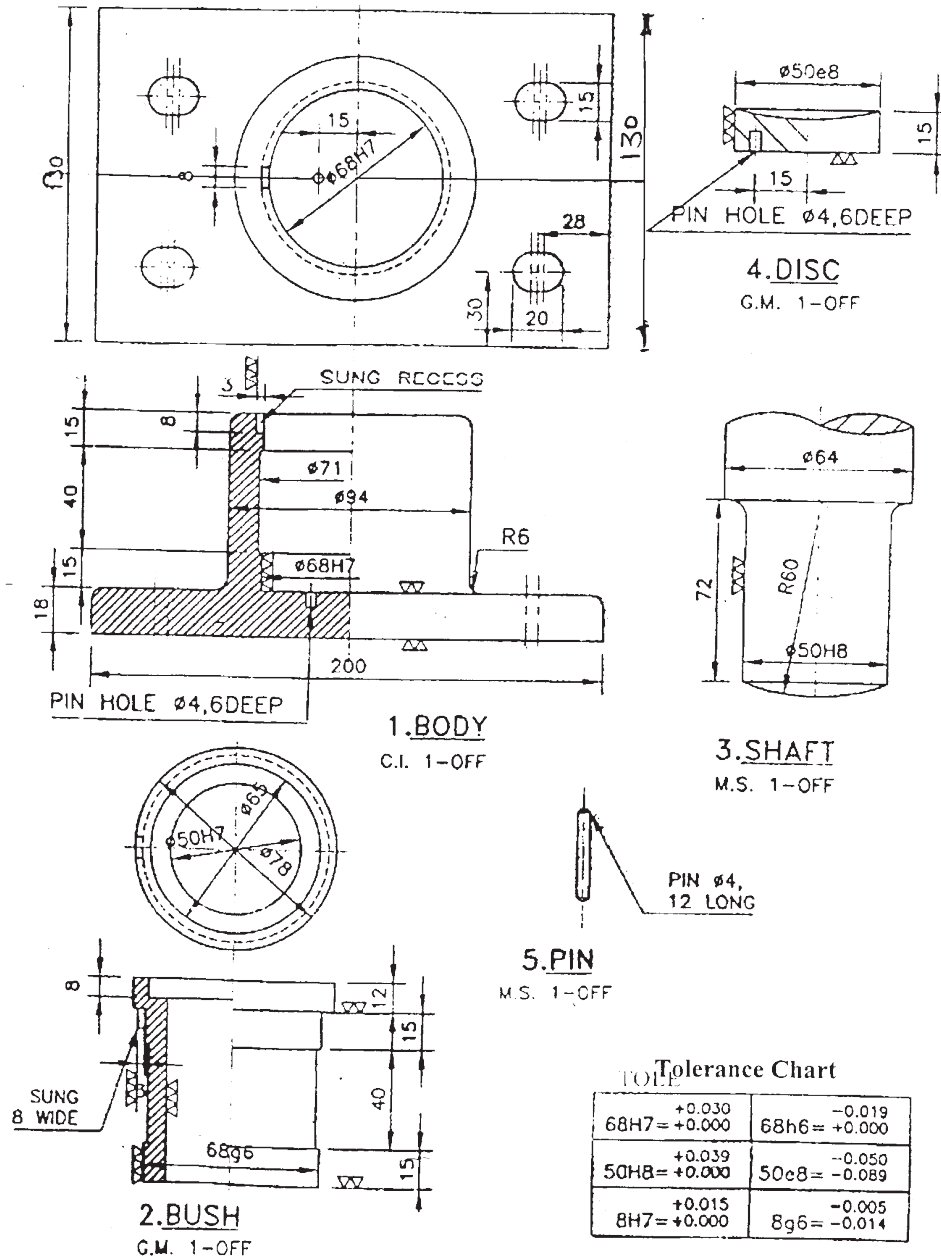


Fig. No. 6