17305

21718

4 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (a) Draw conventional representation for any SIX of the following : **12**

(i) Steel

(ii) Diamond knurling

(iii) Helical spring with flat end

(iv) Bevel gear

(v) I-section

(vi) Ball and Roller bearing

(vii) Gate valve

(viii) Internal screw thread

(b) Attempt any two of the following : **8**

(i) Draw the symbols for the following :

(1) Square butt weld

(2) Fillet weld

(3) Single U-butt weld

(4) Seam weld

(ii) The shaft and hole sizes are as below :

SHAFT : ø $50^{+0.023}_{-0.012}$

HOLE : ø $50^{+0.018}_{-0.000}$

Determine the type of fit between them.

(iii) State the meaning of the symbol shown in figure 1.

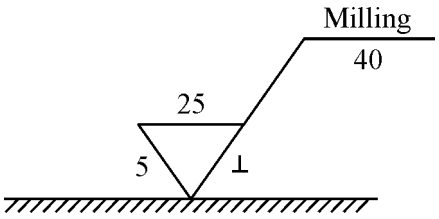


Figure No. 1.

2. (a) Fig. 2 shows front view and left hand side view of an object. Redraw the given views. Draw the auxiliary view of complete object looking in the x-direction. **12**

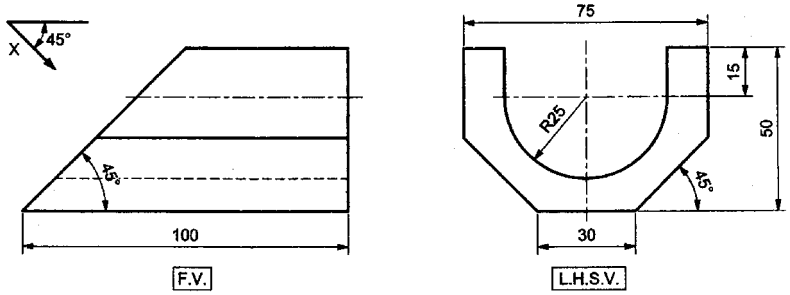


Figure No. 2.

(b) Attempt any TWO of the following : **8**

(i) Refer Fig. 3. What is the meaning of symbols at 'X' and 'Y' ?

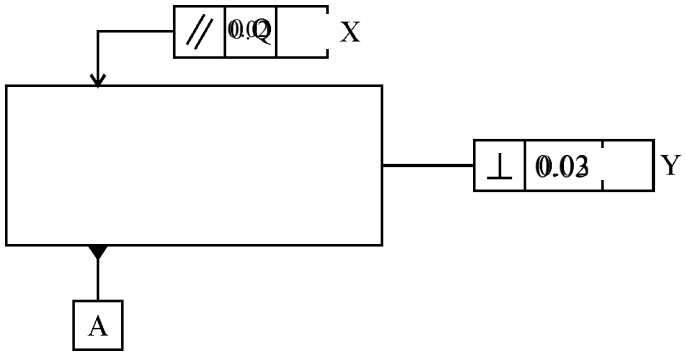


Figure No. 3.

(ii) Two rectangular plates are to be welded with each other along the length. The thickness and length of both the plates is 12 mm and 60 mm respectively. The plates are to be double V-butt weld. Prepare welding drawing.

(iii) Draw the symbols for following features used in geometrical tolerances.

(a) Concentricity

(b) Parallelism

(c) Perpendicularity

(d) Profile of any surface

3. Attempt any TWO of the following : 20

(a) A vertical square prism 60 mm sides of base and height 100 mm has it's base on H.P. and rectangular faces equally inclined to V.P. It is penetrated by a horizontal square prism 45 mm sides and axis 100 mm such that the axes bisect each other. The faces of the horizontal prism are equally inclined to H.P. Draw the three views of solids showing the lines of intersection.

(b) A right cone of base diameter 90 mm and height 85 mm rests on H.P. with it's axis vertical. It is penetrated by a horizontal cylinder of diameter 46 mm. The axis of the horizontal cylinder is parallel to V.P. and intersects the axis of the vertical cone 26 mm above it's base. Draw the three views of solids showing the curves of intersection.

(c) A vertical cylinder of base diameter 75 mm and height 100 mm has it's base on H.P. It is penetrated by a horizontal square prism 40 mm sides & 100 mm axis. The axis of horizontal prism is parallel to V.P. & 6 mm infront of the axis of the cylinder. Prism faces are equally inclined to H.P. Draw the three views of the solids showing the curves of intersection.

4. Attempt any ONE of the following : **20**

(a) Fig. No. 4 shows the details of tool post. Draw sectional F.V. and T.V. of the assembly. Prepare bill of material.

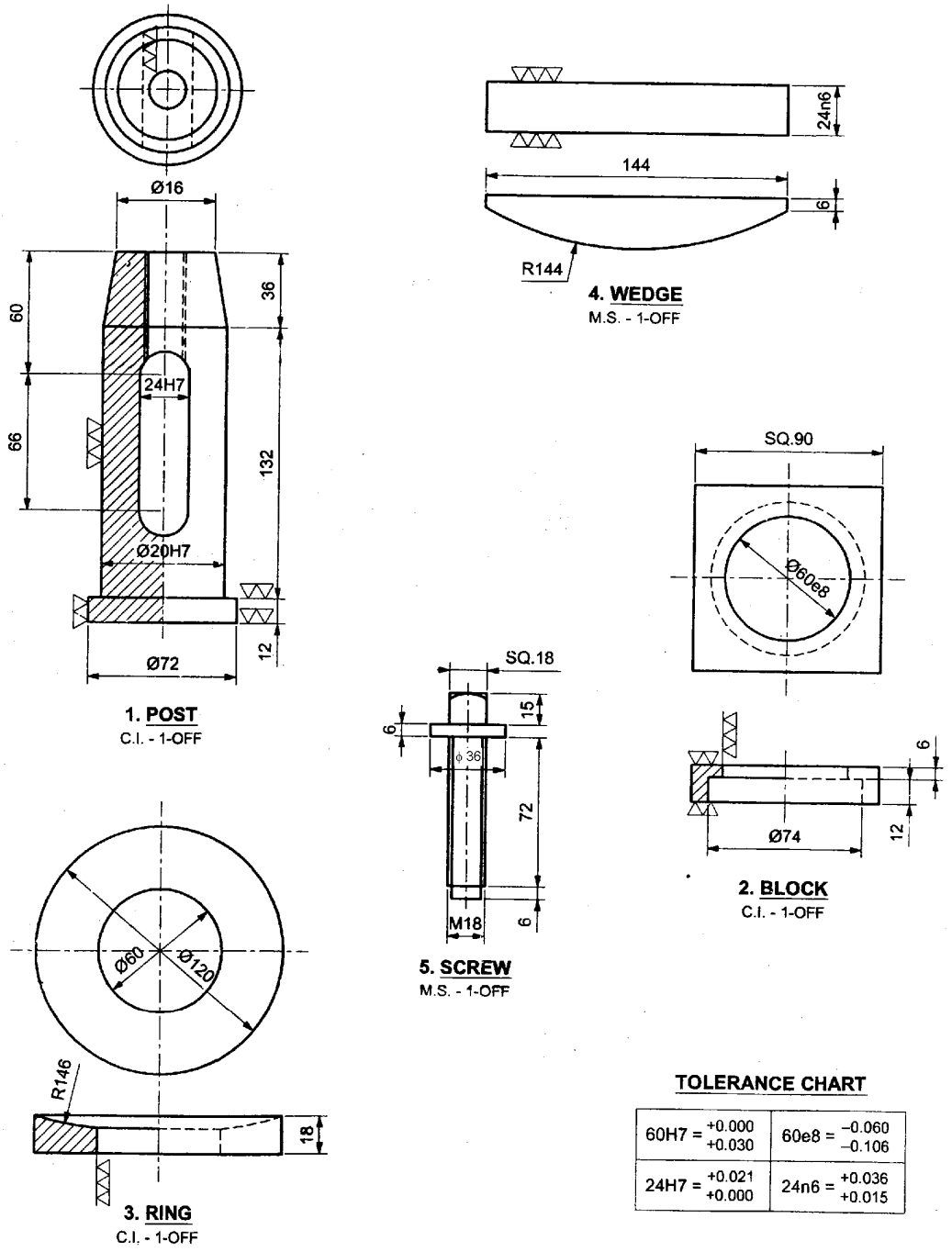


Figure No. 4.

(b) Fig. No. 5 shows the details of Oldham's coupling. Draw sectional F.V. and LHSV of assembly. Prepare bill of material.

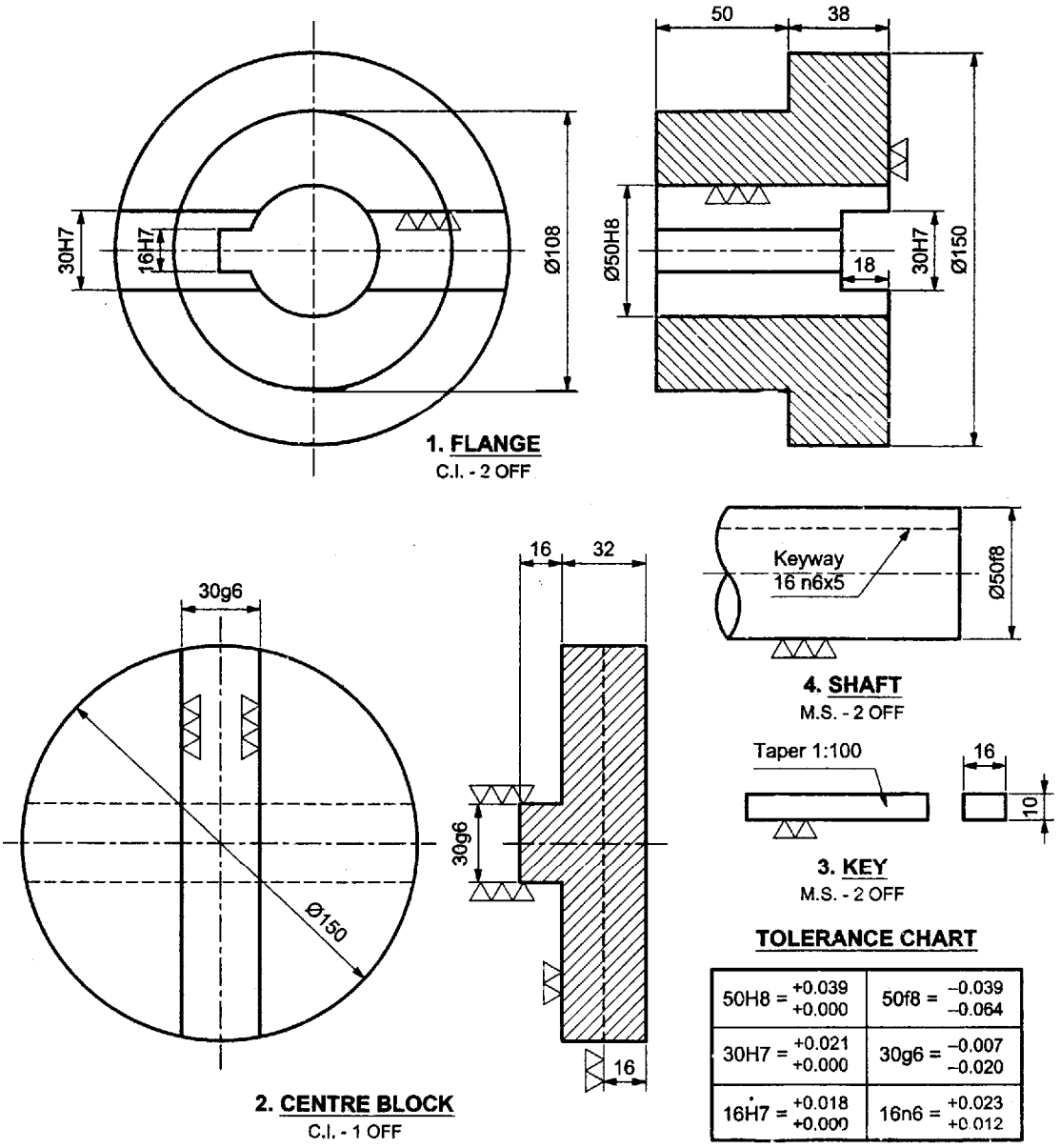


Figure No. 5.

P.T.O.

5. Attempt any ONE of the following : **20**

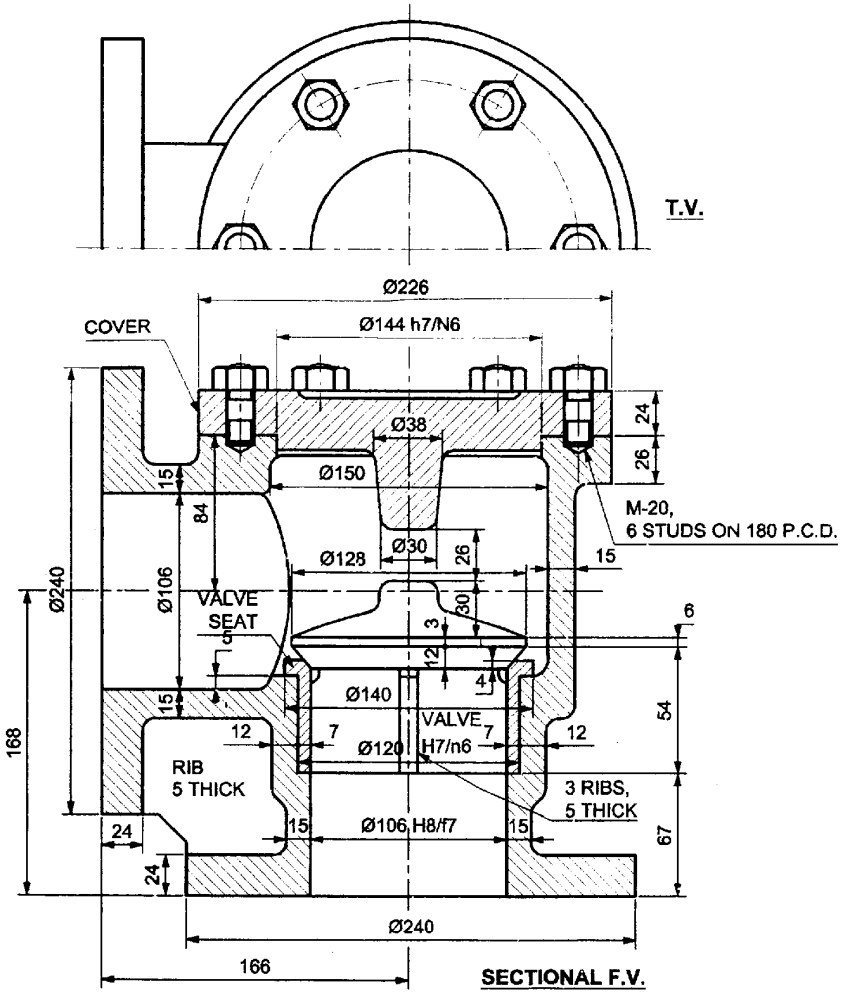
(a) Figure No. 6 shows assembly of non-return valve. Draw the following details.

(i) Body (Sectional F.V.) & half T.V.

(ii) Cover (sect F.V.) & half T.V.

(iii) Valve seat sect F.V. & T.V.

(iv) Valve F.V. and T.V.



PART LIST

PART NO.	PART NAME	MATERIAL	QTY.
1	BODY	C.I.	1
2	VALVE SEAT	G.M.	1
3	VALVE	G.M.	1
4	COVER	C.I.	1
5	STUD WITH NUT	M.S.	6

Figure No. 6.

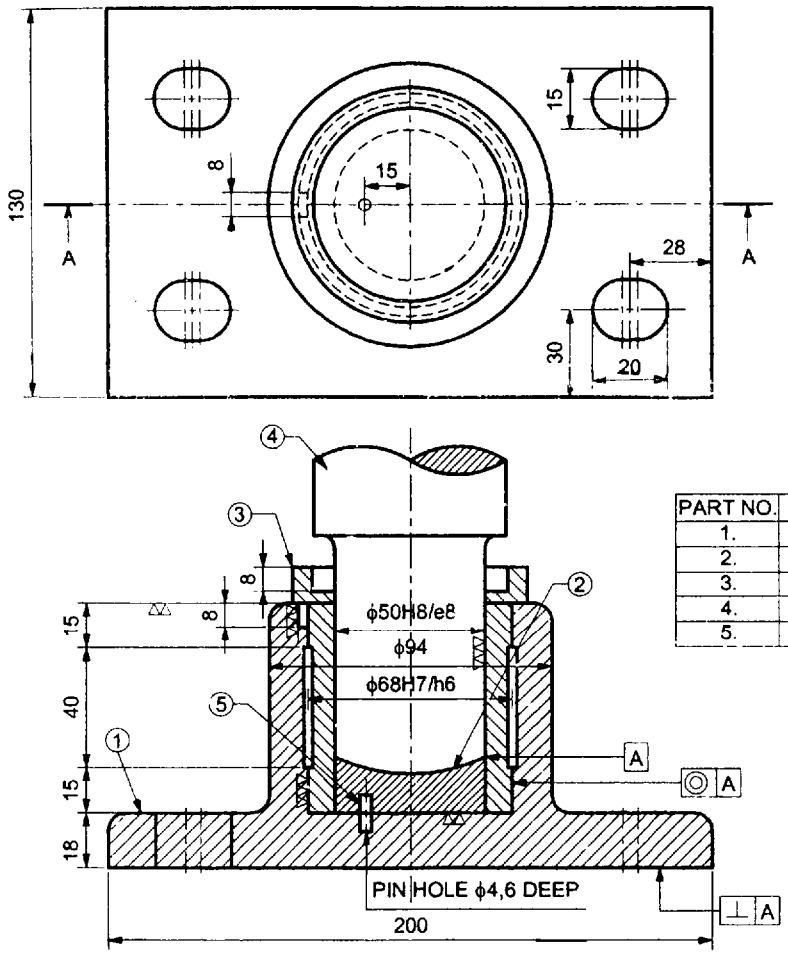
(b) Figure 7 shows assembly of Foot Step Bearing. Draw the following details :

(i) Body sect F.V. and T.V.

(ii) Bush sect F.V. and T.V.

(iii) Disc sect F.V. and T.V.

(iv) Shaft



PART LIST

PART NO.	PART NAME	MATL	QTY.
1.	BODY	C.I.	1
2.	DISC	G.M.	1
3.	BUSH	G.M.	1
4.	SHAFT	M.S.	1
5.	PIN	M.S.	1

Figure No. 7.