

17305

11819

4 Hours / 100 Marks

Seat No.

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- 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
- (a) Spur gear
 - (b) Round section
 - (c) Slotted head
 - (d) Diamond knurling
 - (e) Counter sunk
 - (f) Union
 - (g) Square-on-shaft
 - (h) Semi-elliptic leaf spring with eyelets and centre band.
 - (i) Roller bearing

[1 of 8]

P.T.O.

(B) Attempt any TWO of the following :

(a) Draw the symbol of the following :

- (i) spot weld
- (ii) seam weld
- (iii) concave fillet weld
- (iv) convex double V-butt weld

(b) A shaft and hole are given as

$$\text{Shaft } 50^{+0.280}_{+0.120} \quad \text{Hole } \begin{matrix} +0.090 \\ +0.000 \end{matrix}$$

Determine :

- (i) maximum allowance
- (ii) minimum allowance
- (iii) type of fit

(c) State the meaning of the symbol shown in Fig. 1.

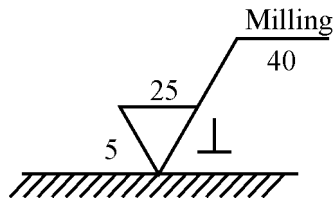


Fig. 1

2. (A) Fig. 2 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.

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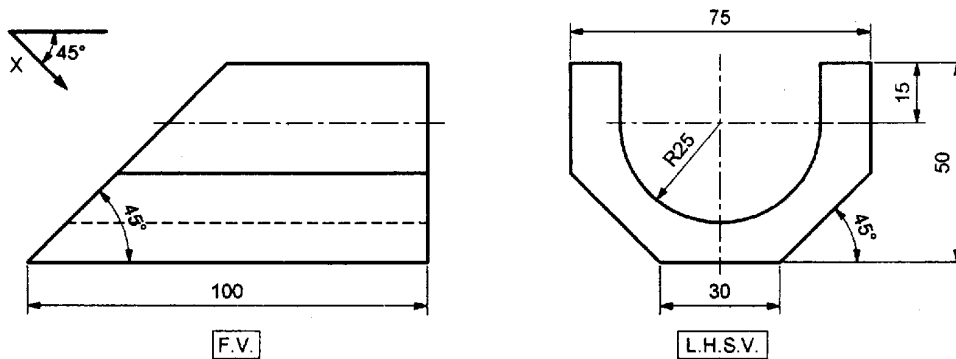
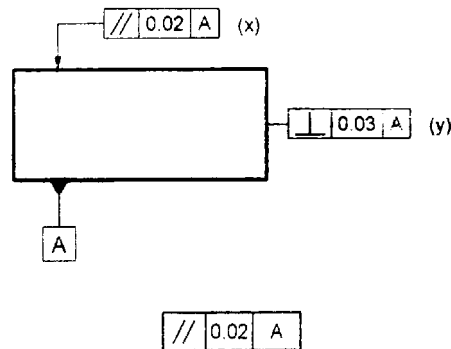


Fig. 2

(B) Attempt any TWO of the following :

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- (a) Refer Fig. 3 and state the meaning of the symbol at x and y.

**Fig. 3**

- (b) Represent a welding drawing of A right circular cylinder is to be welded to a steel plate at right angles to it, with all round fillet weld of 6 mm leg length.
- (c) Draw the symbols of the following :
- coaxiality
 - cylindricity
 - profile of any surface
 - concentricity

3. Attempt any TWO of the following :

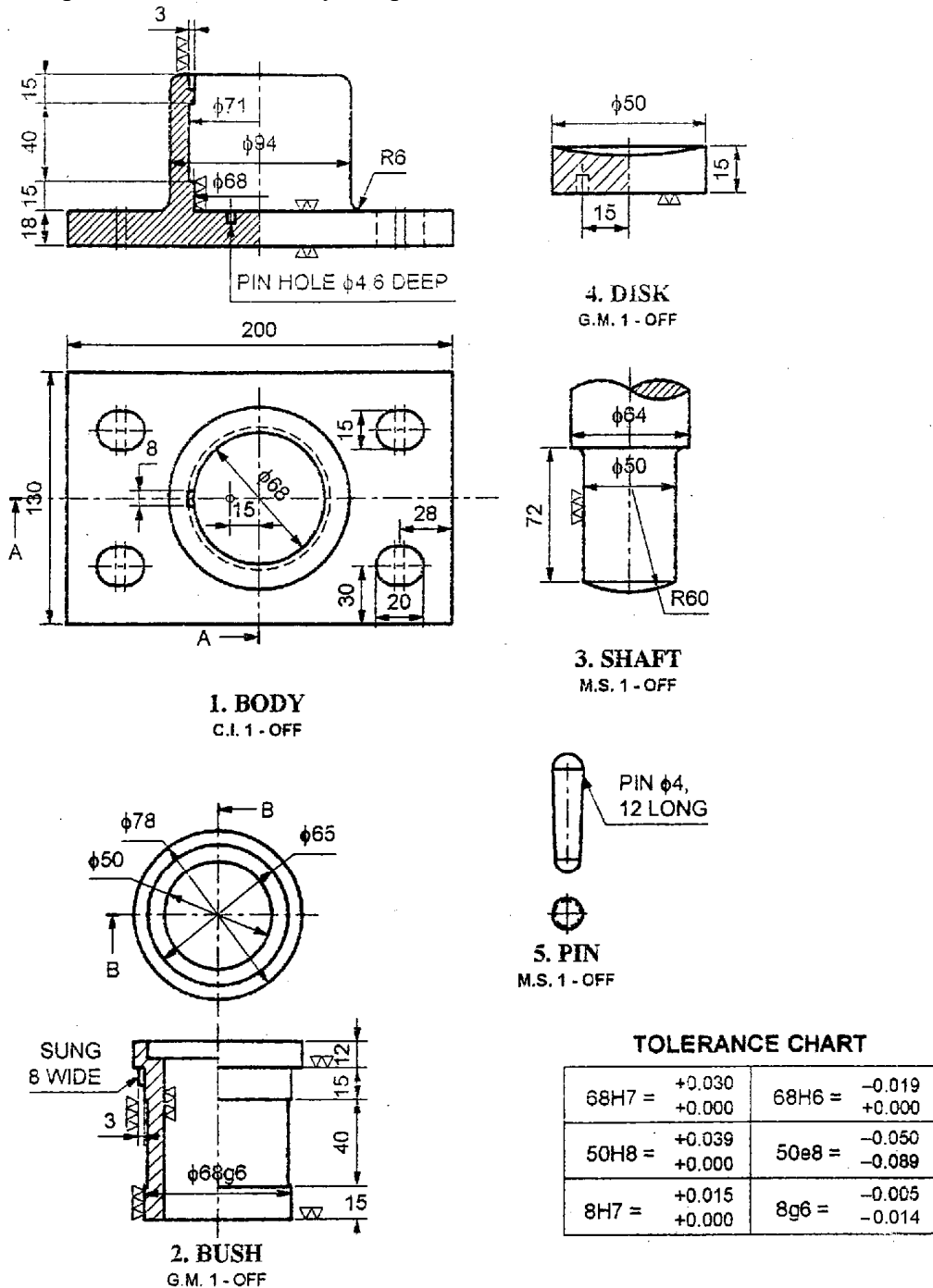
20

- (a) A vertical square prism (side of base 50 mm and axis length 100 mm) has its vertical faces equally inclined to the V.P. It is penetrated by another square prism (side of base 50 mm and axis length 100 mm) so that its axis is parallel to the H.P. and V.P. and is 12 mm in front of the axis of the vertical prism. The faces of the penetrating prism are equally inclined to the H.P. Draw the projections of the prism showing the lines of intersection.
- (b) A vertical square prism of side of base 40 mm axis height 75 mm has its faces equally inclined with V.P. A cylinder of diameter 40 mm and length 75 mm intersects the prism horizontally such that its axis is perpendicular bisector to the axis of vertical square prism. The plane containing both the axis is parallel to V.P. Draw the projections of solids showing curve of intersection.
- (c) A cone with base diameter 70 mm and axis height 65 mm is kept on the H.P. on its base. It is penetrated by a horizontal cylinder of diameter 35 mm with its axis parallel to V.P. and intersecting the axis of the cone at a distance of 20 mm above the base of the cone. Draw the projections of solids showing curves of intersection.

P.T.O.

4. Attempt any ONE of the following :

(a) Fig. 4 shows the details of foot-step bearing. Draw sectional front view and top view of the assembly. Prepare bill of material.



Details of Foot-Step Bearing

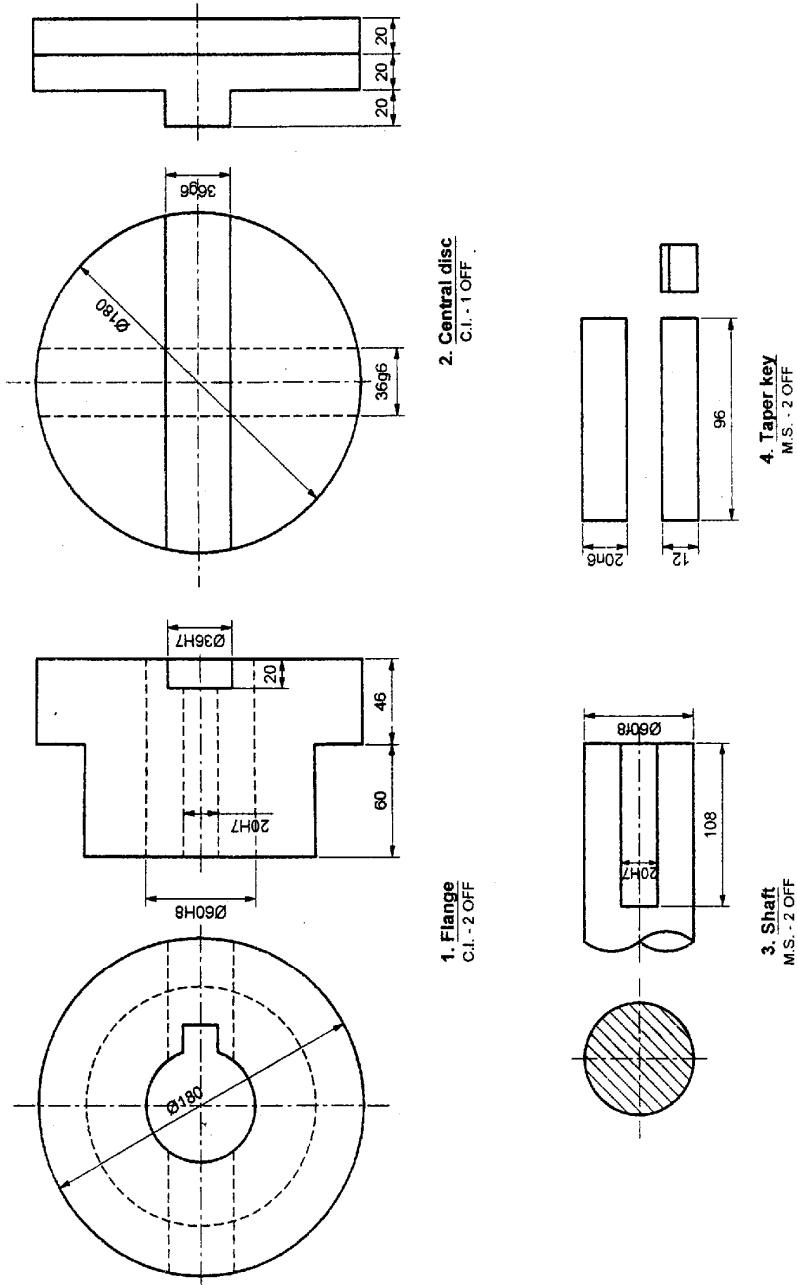
Fig. 4

(b) Fig. 5 shows details of Oldham's coupling. Draw the following views of the assembly.

(i) Sectional front view

(ii) L.H.S. view

Give overall dimensions. Indicate parts on assembly. Prepare bill of material. Indicate assembly fits on the drawing. The axis of the shaft are parallel to each other and 24 mm apart.

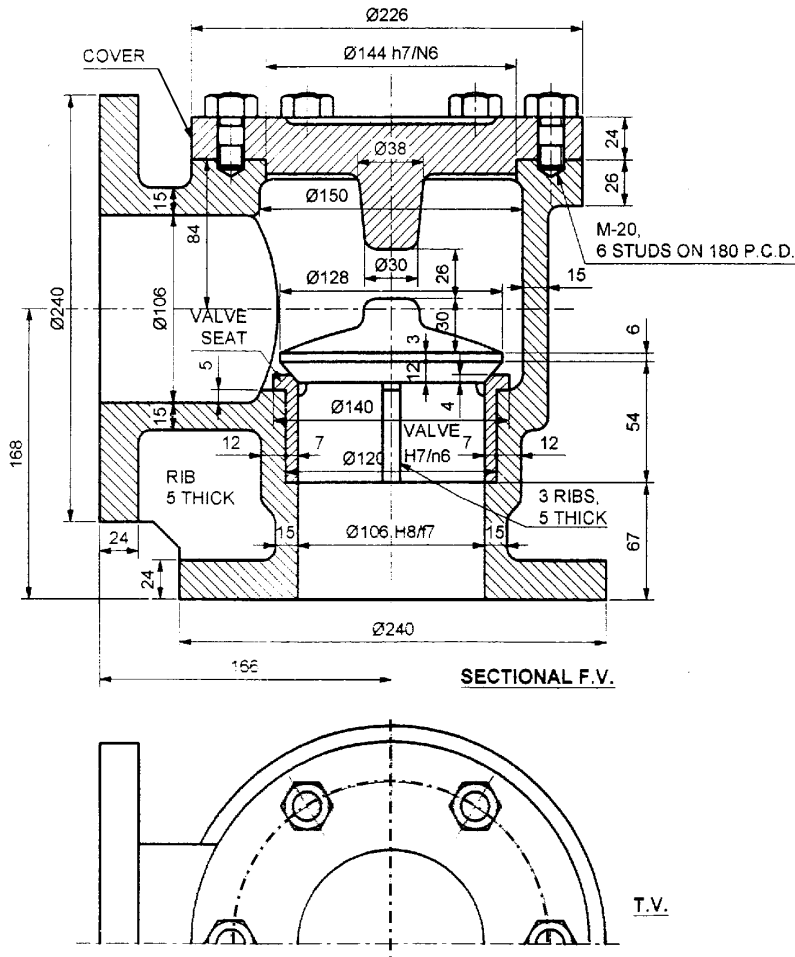


Details of Oldham's Coupling.

Fig. 5

5. Attempt any ONE of the following :

- (a) Fig. 6 shows assembly of non-return valve. Draw the detailed drawings of the following :
 - (i) Body – sectional F.V. and T.V.
 - (ii) Valve – F.V. and T.V.
 - (iii) Valve seat – F.V. and Top view
 - (iv) Indication of tolerance, geometrical tolerance, etc.



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

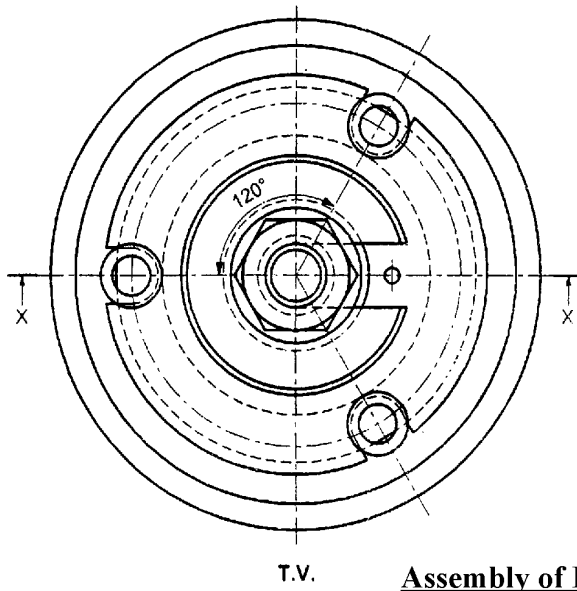
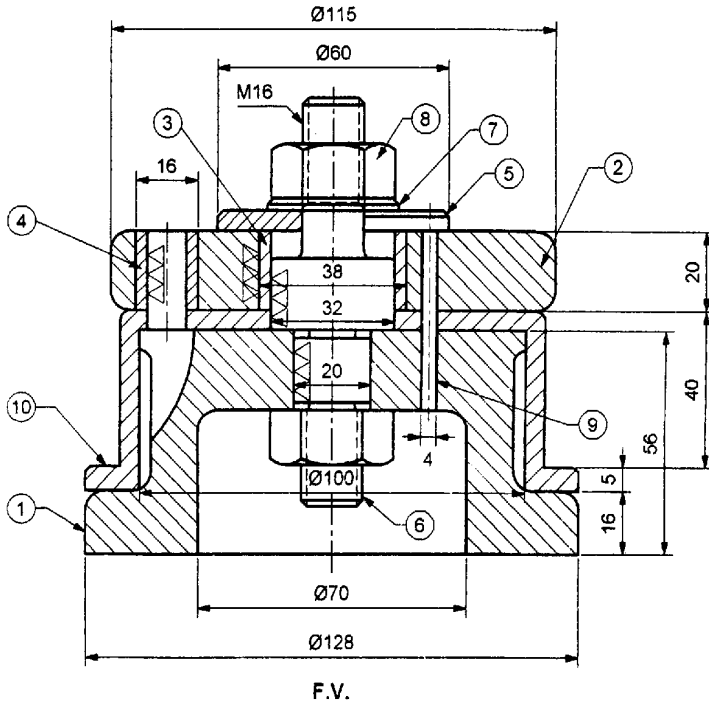
Assembly of Non-Return Valve

Fig. 6

(b) Fig. 7 shows assembly of drill jig.

Draw details :

- (i) Body (two views)
- (ii) Component (two views)
- (iii) Plate
- (iv) Also show type of fit used



Part No.	Part Name	Matl.	Qty.
1	Body	C.I.	1
2	Plate	C.I.	1
3	Bush	G.M.	1
4	Bush	G.M	3
5	Washer	M.S.	1
6	Stud	M.S.	1
7	Washer	M.S.	1
8	Nut	M.S	1
9	Pin	Steel	1
10	Workpiece	C.I.	1

Assembly of Drilling Jig

Fig. 7

