

22341



23242

4 Hours / 70 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. Attempt any FIVE of the following :

10

- (a) Draw the conventional representation of the following :
 - (i) Semi-elliptical leaf spring
 - (ii) Cylindrical helical tension spring of wire of circular cross-section.
- (b) Draw the conventional representation of following machine components :
 - (i) Holes on circular pitch
 - (ii) Ball Bearing
- (c) Draw conventional representation of following common features :
 - (i) Serrated shaft
 - (ii) Diamond knurling

- (d) Draw the conventional representation of
- (i) Lead, Zinc, Tin etc.
 - (ii) I section
- (e) Draw the symbol for representing geometrical tolerances :
- (i) Flatness
 - (ii) Concentricity
- (f) Draw the sketch showing basic size, lower deviation, upper deviation and tolerance.
- (g) State the meaning of the symbol shown in fig. 1

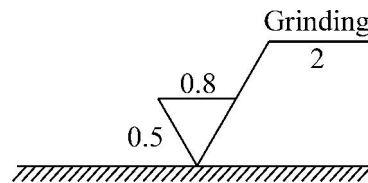


Fig. No. 1

2. Attempt any TWO of the following :

12

- (a) A square prism side of base 50 mm axis length 90 mm is resting on its base on HP with vertical rectangular faces equally inclined to V.P. A cylinder of dia. 40 mm and 90 mm axis length penetrates the vertical prism, the axis of which is parallel to V.P., H.P. and 10 mm in front of the axis of the prism. Draw the projection of solids showing curves of intersection.

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- (b) A vertical square prism of side 55 mm and height 100 mm is completely penetrated by a horizontal square prism of 50 mm side and 100 mm length. The axis of horizontal prism is 7 mm apart from the axis of vertical prism. All the faces of both prisms are equally inclined to V.P. Draw the projection of solids showing lines of intersection.
- (c) A vertical cylinder dia. 60 mm is drilled by square hole side of base 50 mm. Axis of hole is parallel to both H.P. & V.P. and 6 mm apart from axis of cylinder. All the faces of square hole are equally inclined to H.P. Assume suitable length of cylinder axis and draw lines of intersection.

3. (A) Attempt any ONE of the following :

4

- (i) The shaft size is given as $\phi 100^{+0.050}$ Hole size is $\phi 100^{+0.020}_{-0.000}$. Determine type of fit between them.
- (ii) State the meaning of symbol at X and Y.

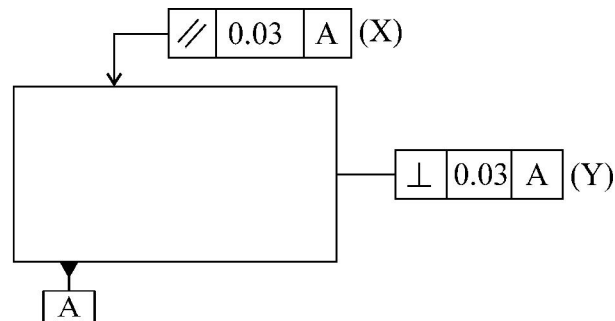


Fig. No. 2

P.T.O.

(B) Attempt any TWO of the following :

12

- (i) The vertical hexagonal prism side of base 30 mm, height 80 mm is kept on H.P. with one face perpendicular to V.P. It is cut by cutting plane, inclined at 30° with H.P. & bisecting axis of prism. Draw development of surfaces of hexagonal prism.
- (ii) A vertical cylinder diameter 60 mm axis 90 mm long resting in H.P. It is drilled by a circular hole of diameter 40 mm. Axis of hole is parallel to V.P. & 6 mm away from the axis of vertical cylinder. Draw the development of surface of cylinder with hole.
- (iii) Fig. shows F.V. of circular cone. Draw its top view and develop surface of cone.

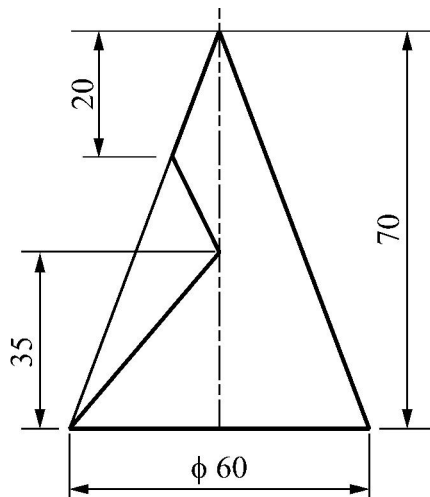


Fig. No. 3

4. Attempt the following :

Fig. No. 4 shows the assembly of Non-return valve. Attempt any two of the following :

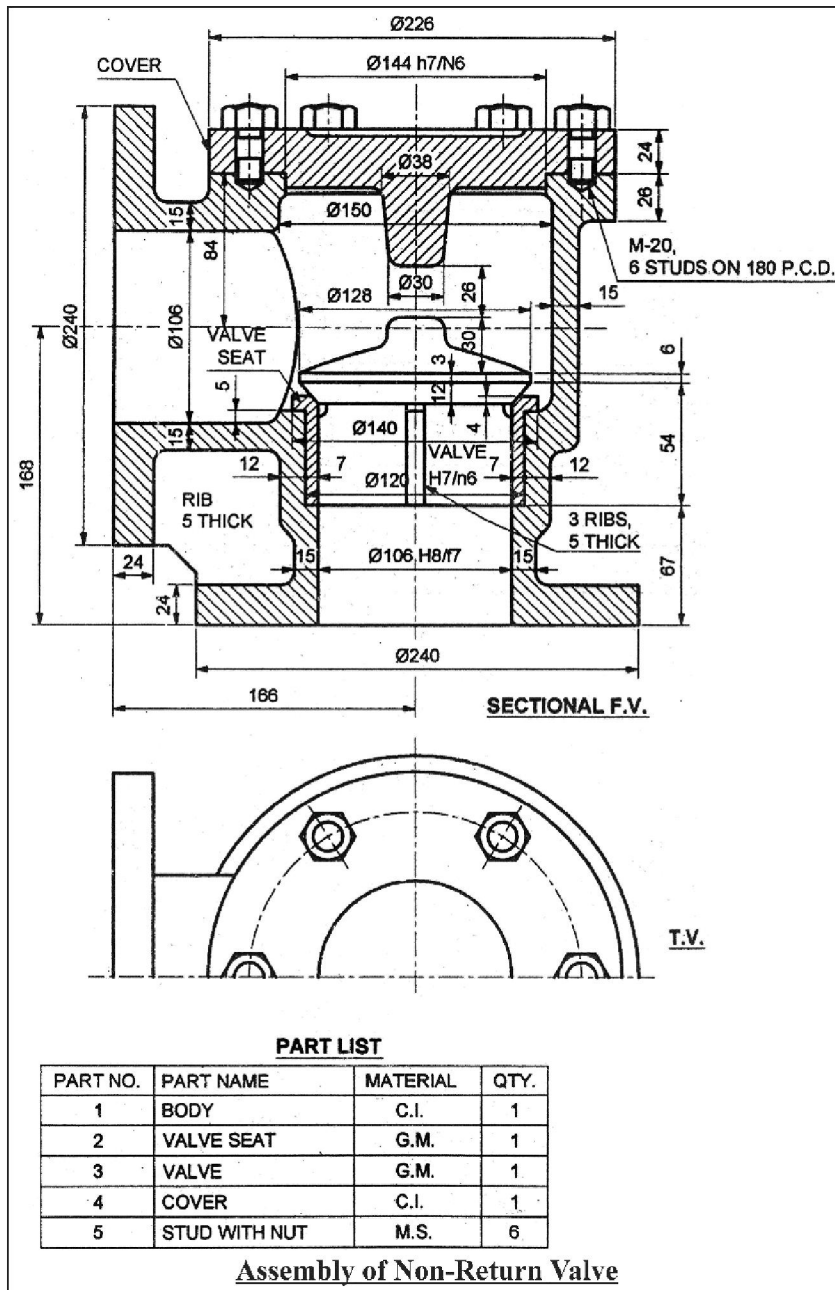


Fig. No. 4

- (a) Body : Sectional F.V. & T.V.
- (b) Cover : Sectional F.V. & T.V.
- (c) Draw two view of valve and valve seat.

5. Attempt any ONE :

(a) Fig. No. 5 shows details of screw jack. Draw following views of assembly.

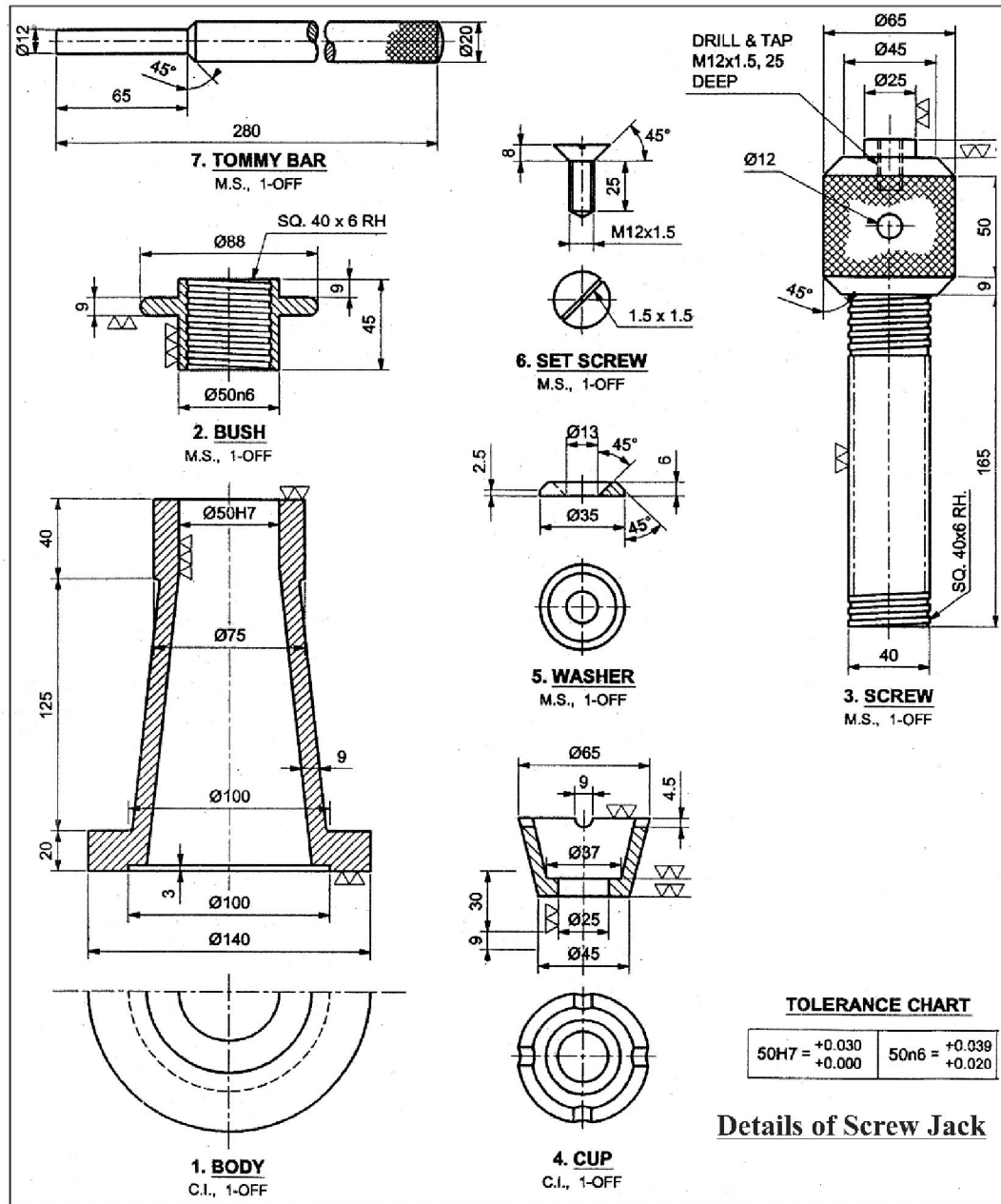


Fig. No. 5

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|--------------------------------|---|
| (i) Sectional F.V. | 8 |
| (ii) Top view | 4 |
| (iii) Prepare bill of material | 4 |

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

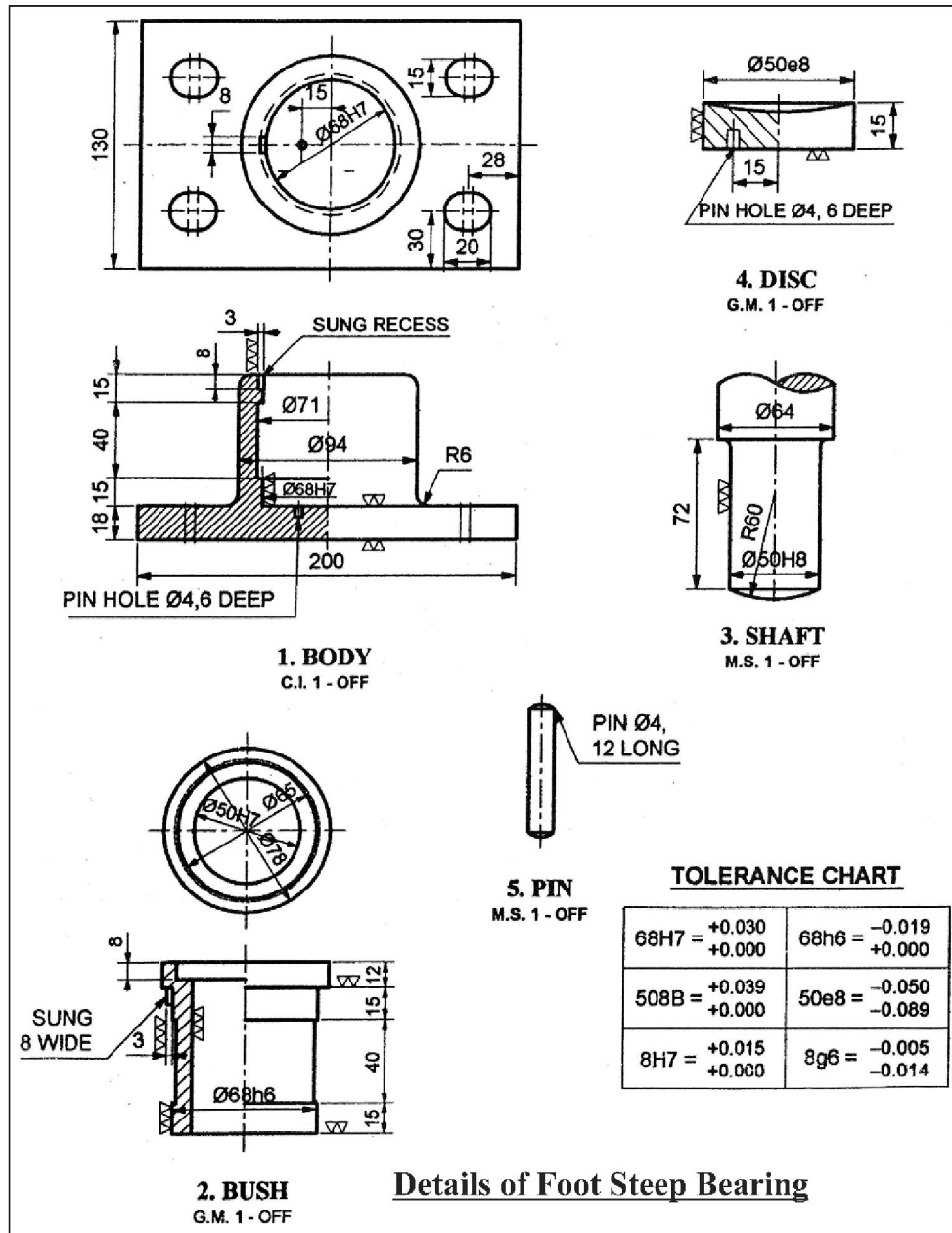


Fig. No. 6

Draw :

- (i) Sectional F.V. of the assembly 8
- (ii) Top view of the assembly 4
- (iii) Bill of material 4

