

12042

21314

4 Hours / 100 Marks

Seat No.

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
|--|--|--|--|--|--|--|--|

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

Marks

1. a) **Draw conventional representation for the following: (any four)** **08**
- i) Concrete
 - ii) Slotted head
 - iii) Counter sunk
 - iv) Partial or broken section.
 - v) Square on shaft
 - vi) Elbow

P.T.O.

b) Attempt any **THREE** of the following:

12

- i) Draw the symbols for the following features which are controlled in geometrical tolerancing.
 - 1) Flatness
 - 2) Run-out
 - 3) Symmetry
 - 4) Angularity
- ii) Calculate the upper limit size and lower limit size of $50H_7n_6$.
- iii) 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 6mm leg length.
- iv) The shaft has size $\phi 40^{0.05}$ and hole is $\phi 40^{0.00}$. Determine the types of fit between them.

12042

[3]

Marks

2. a) Figure No. 1 shows partial top view, front view and partial auxillary view, draw the given views and complete the top view.

12

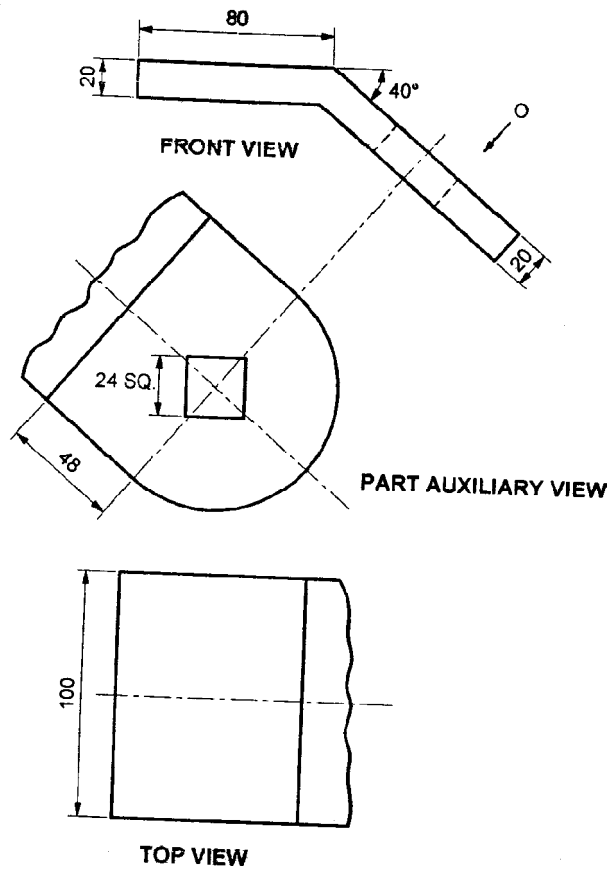


Fig. No. 1

P.T.O.

b) Attempt any ONE of the following:

08

- i) A line AB, 75 mm long is inclined at an angle of 35° to the H.P. and 55° to the V.P. Its end 'A' is on the H.P. and 15mm in front of V.P. Draw the projections of the line AB assuming it to be in the first quadrant.
- ii) A pentagonal plate of 50 mm side is resting on H.P. on one of its sides. The plane makes 30° with H.P. and the side in H.P. makes 45° with V.P. Draw the projections.

3. Attempt any TWO of the following:

20

- a) A square prism side of base 40 mm, height 75 is kept on the H.P. on its base with its rectangular faces equally inclined to V.P. It is penetrated by horizontal square prism of side of base 30 mm, axis length 75 mm such that the axis of the two prisms bisects each other at right angles. The two rectangular faces of the horizontal square prism are equally inclined to H.P. and axis is parallel to both HP and V.P. Draw the projections of solids showing the lines of intersection.
- b) A vertical cylinder of 75mm diameter is penetrated by another cylinder of 50 mm diameter, the axis of which is parallel to both HP and V.P. The two axis are 9 mm apart. Draw the projections of two cylinders showing curves of intersection. Assume suitable axis lengths for both the cylinders.
- c) A cone with base diameter of 70 mm and axis length 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 20mm above the base of the cone. Draw the projections of solids showing curves of intersection.

4. Attempt any ONE of the following:

20

- a) Figure No. 2 shows the details of universal coupling. Draw the following views of assembly.
 - i) Sectional front view
 - ii) Top view
 - iii) Prepare bill of material.

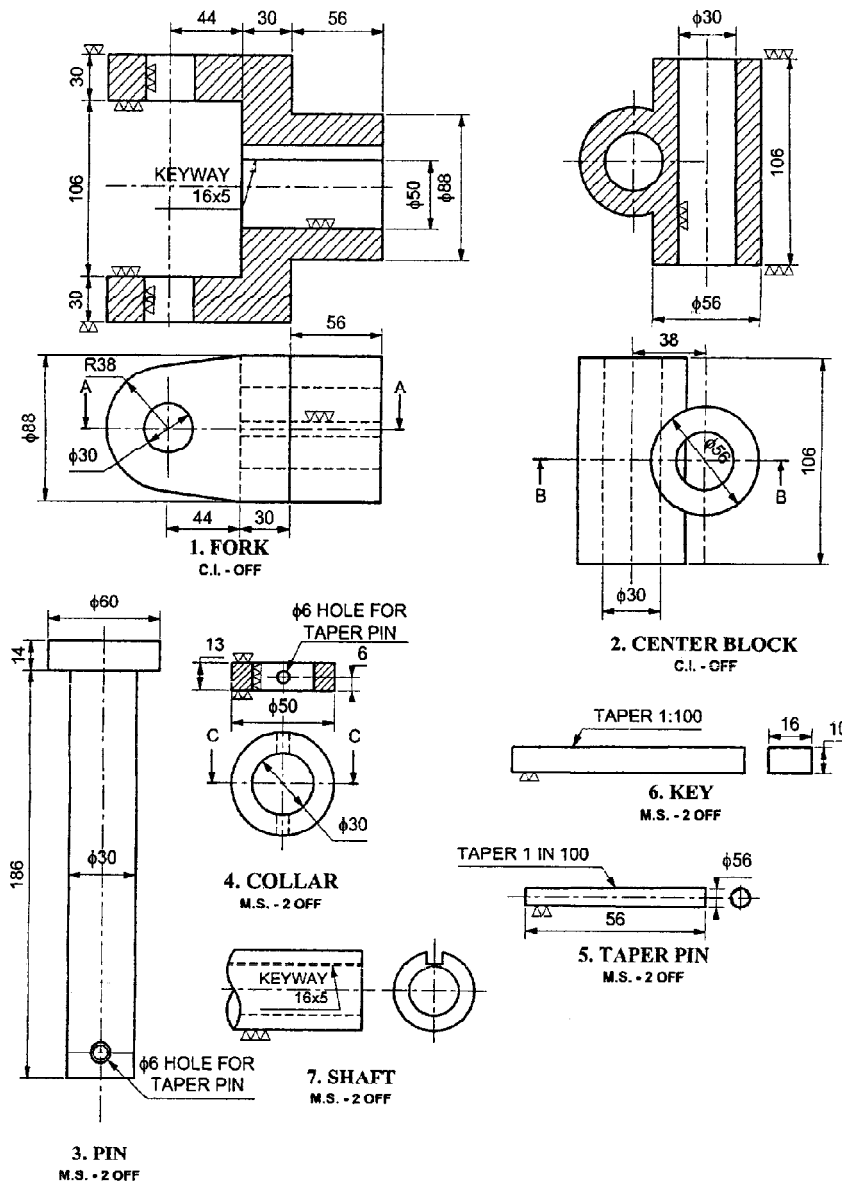


Fig. No. 2 (Universal Coupling details)

- b) Figure No. 3 shows the details of foot step bearing. Draw the following views of the assembly.
- i) Front elevation right half in section.
 - ii) Top view
 - iii) Prepare bill of material.

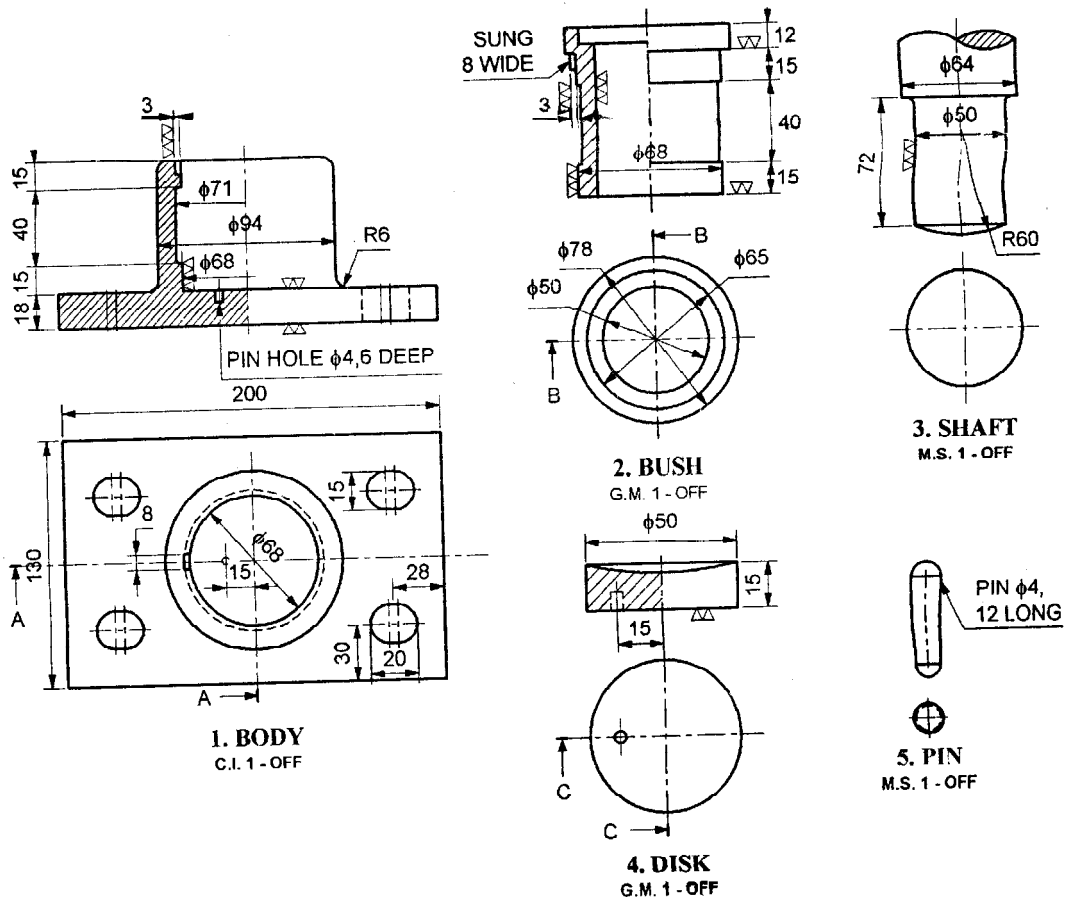


Fig. No. 3 Details of foot step bearing

5. Attempt any ONE of the following:

20

a) Figure No. 4 shows assembly of gland and stuffing box. Draw details of

- i) Gland - F.V. and T.V.
- ii) Nut - F.V. and T.V.
- iii) Stud - F.V.
- iv) Body - F.V. and T.V.
- v) Bush - F.V.
- vi) Shaft - F.V.

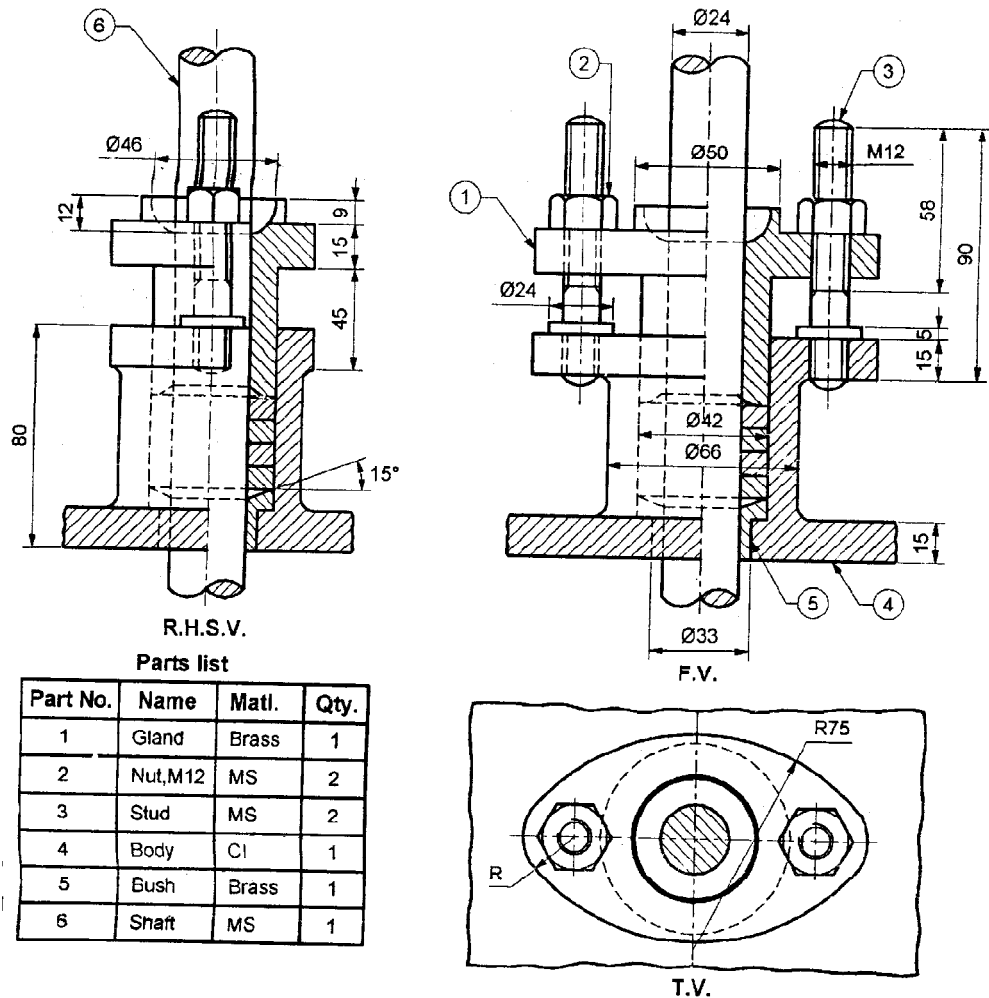
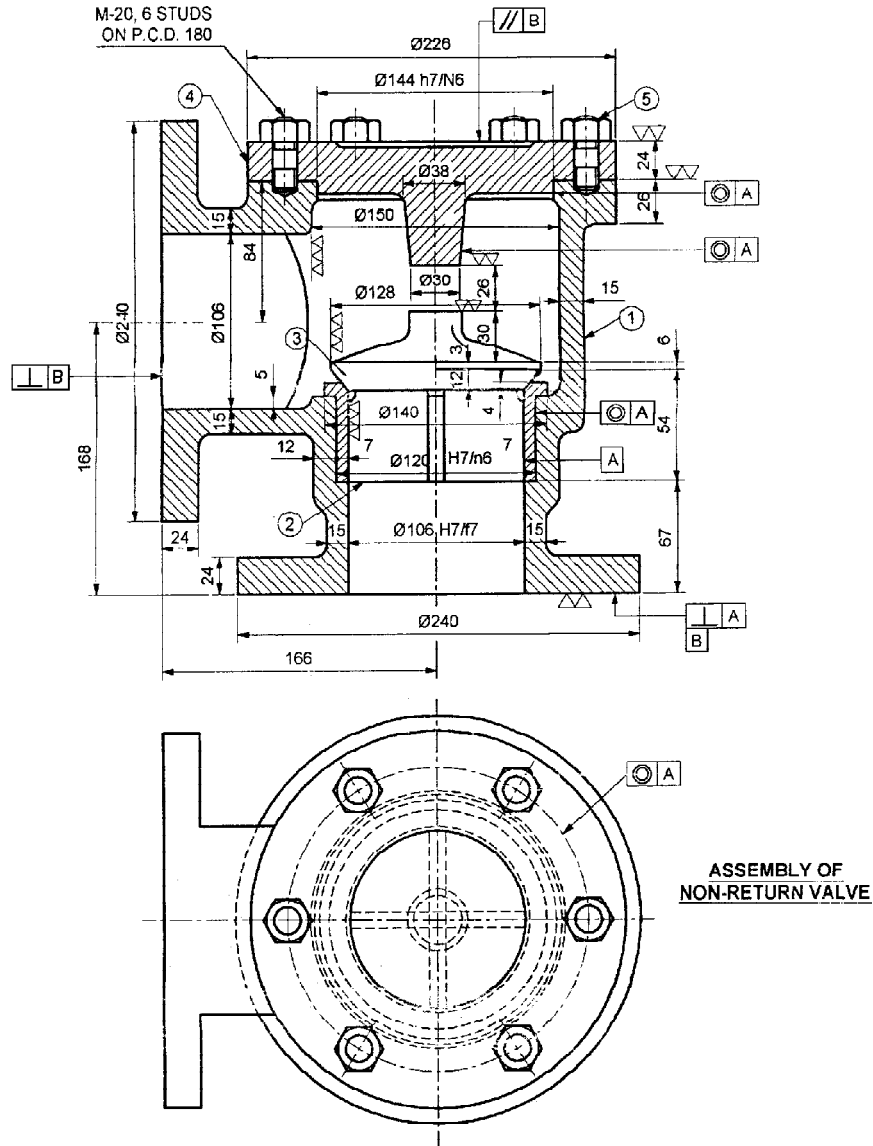


Fig. No. 4 (Assembly of gland and stuffing box)

- b) Figure No. 5 shows assembly of non return valve. Draw the following details.
- i) Body (sectional F.V.) and T.V.
 - ii) Cover - F.V. and T.V.
 - iii) Valve seat - Sectional F.V. and T.V.
 - iv) Valve - F.V.



FIT CHART

| |
|---------------------------|
| 106H7/f7 = CLEARANCE FIT |
| 144H7/n6 = CLEARANCE FIT |
| 120H7/k6 = TRANSITION FIT |

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. | 4 |

Fig. No. 5 (Assembly of Non return Valve)

12042

21314

4 Hours / 100 Marks
