17305

14115

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 <u>SIX</u> of the following:** **12**

(i) Conventional break for round section.

(ii) Cast iron.

(iii) Bevel gear.

(iv) Splined shaft.

(v) Semi-elliptic leaf spring with eyelets.

(vi) Rack and pinion.

(vii) Gate valve.

(viii) External screw thread.

Marks

b) **Attempt any <u>TWO</u> of the following:** **08**

(i) Draw the symbols for the following:

1) concave fillet weld

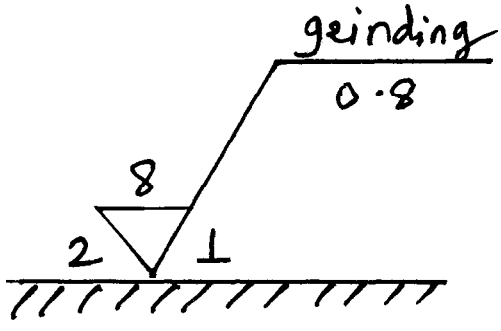
2) spot weld

3) single - V butt weld

4) seam weld.

(ii) The shaft has size $\phi 40^{0.04}$ and hole size is $\phi 40^{0.00}$. Determine the type of fit between them.

(iii) State the meaning of the symbol shown in Fig. No. 1.



<u>Fig. No. 1</u>

Marks

2. a) Fig. No. 2 shows front view, incomplete top views and auxiliary view of an object. Redraw the given views and complete the top view (use first angle method of projection). **12**

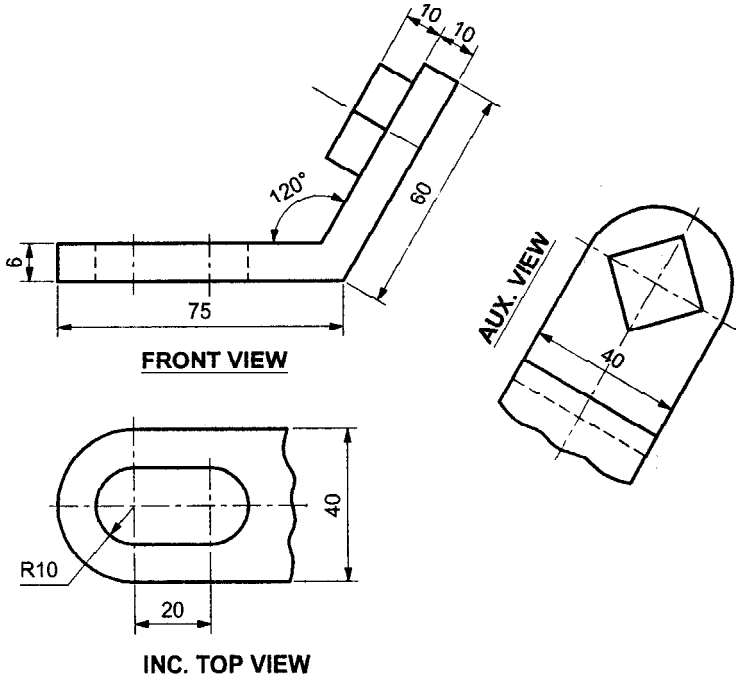


Fig. No. 2

b) **Attempt any TWO of the following:** **08**

(i) Refer Fig. No. 3. What is the meaning of at 'x' and 'y'?

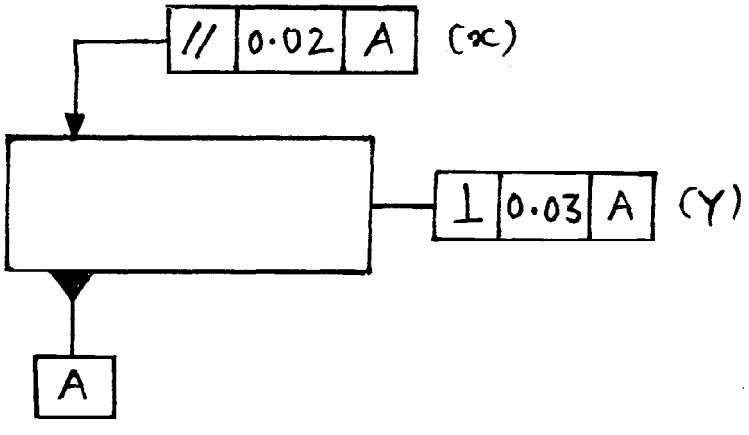


Fig. No. 3

Marks

(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 'U' butt welded with convex counter. Prepare welding drawings.

(iii) Draw the symbols for following features which are controlled in geometrical tolerancing.

1) flatness

2) cylindricity

3) angularity

4) profile of any surface.

3. Attempt any <u>TWO</u> of the following: **20**

a) A cone with base diameter 80 mm and axis height 75 mm is kept on the H.P. on its base. It is penetrated by a horizontal cylinder of diameter 40 mm with its axis parallel to V.P. and intersecting the axis of the cone at a distance of 25 mm above the base of the cone. Draw the projections of solids showing curves of intersection.

b) A vertical cylinder of 60 mm diameter is penetrated by another cylinder of the same size. The axis of penetrating cylinder is parallel to both H.P. and V.P. and is 10 mm away from the axis of the vertical cylinder. Draw the projections of two cylinders showing curves of intersection. Assume the length of vertical cylinder as 90 mm and horizontal cylinder with length 100 mm.

c) A vertical square prism having it faces equally inclined to the V.P. is completely penetrated by a horizontal cylinder, the axis of which is parallel to the V.P. and 6 mm away from that of the prism. Draw the projections of the solids showing curves of intersection. The length of the sides of the base of the prism is 50 mm and the diameter of the cylinder is 40 mm. The length of the axis of prism and cylinder is 100 mm.

Marks

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

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

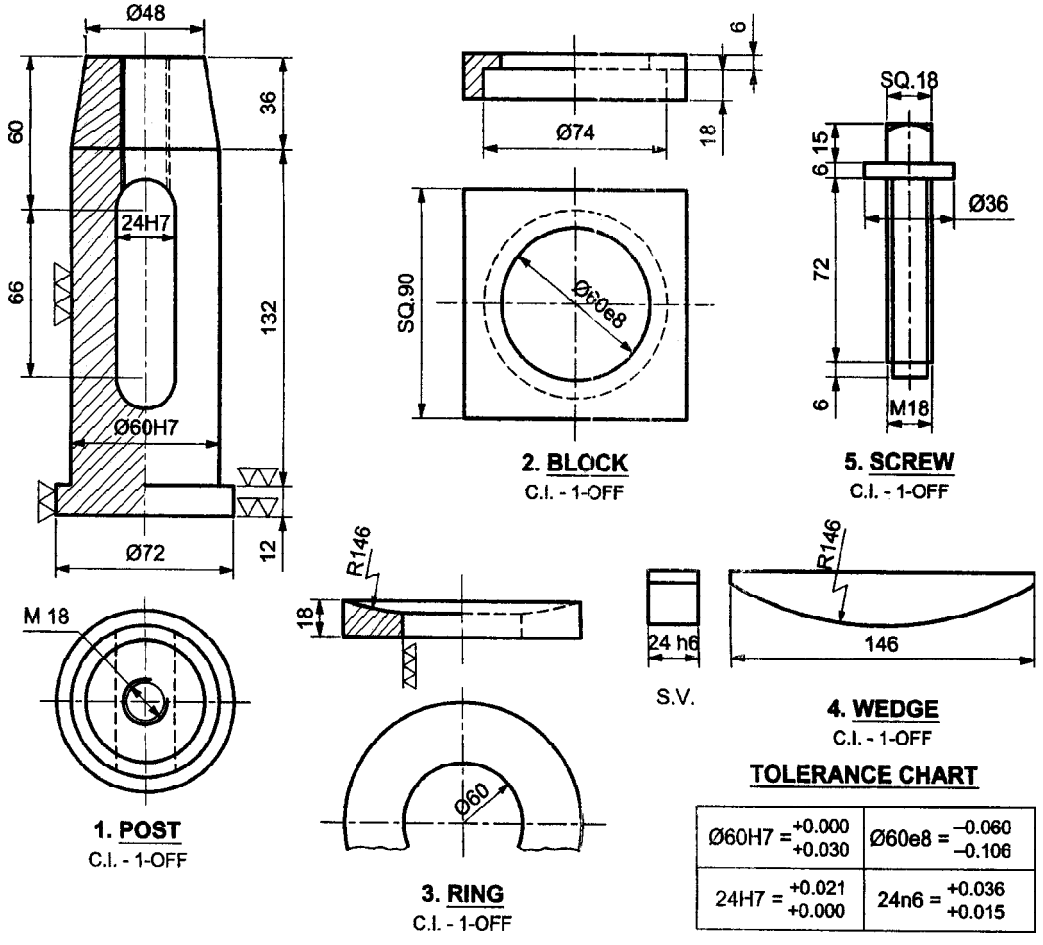


Fig. No. 4

Marks

b) Fig. No. 5 shows the details of pedestal bearing. Draw sectional front view and top view of the assembly.

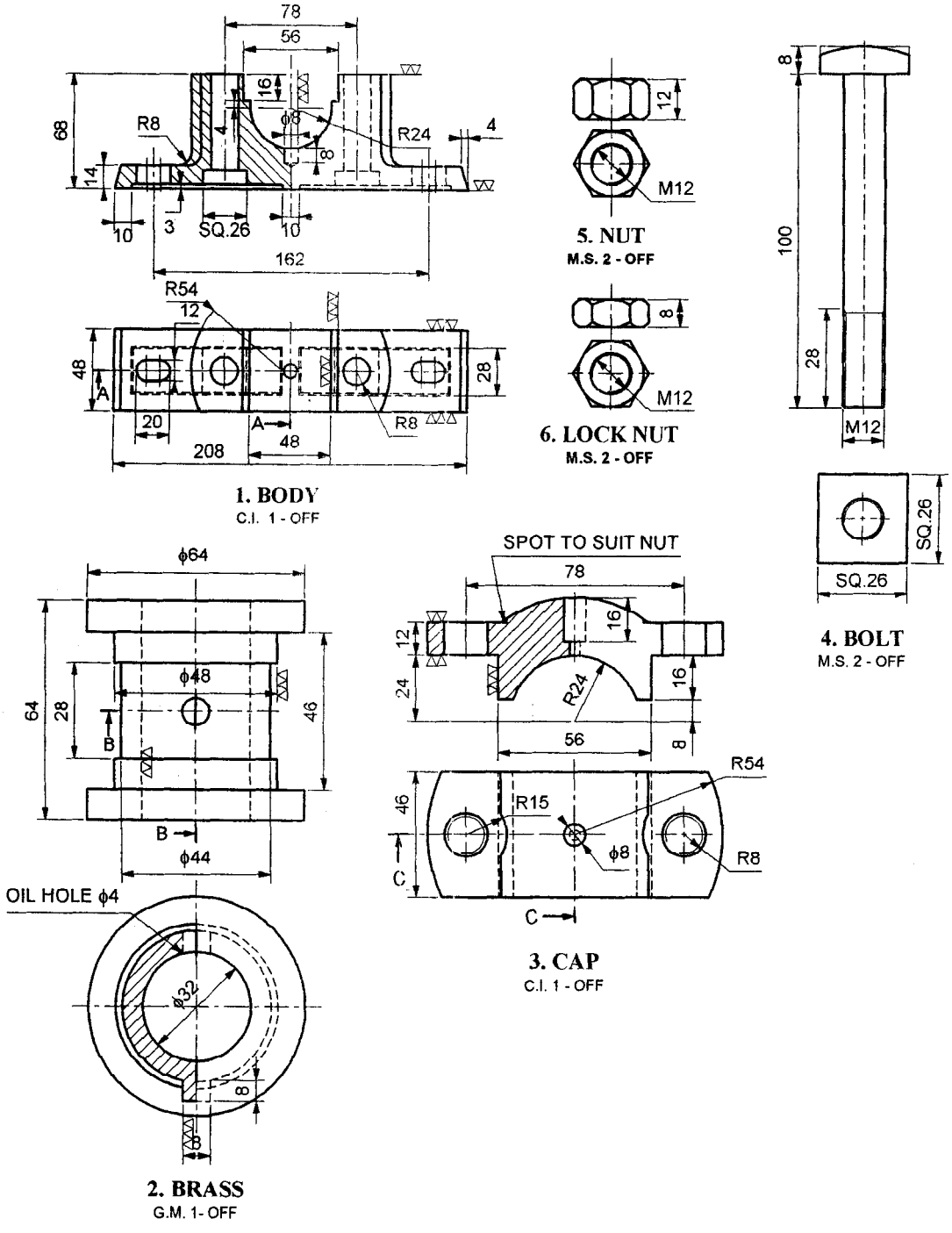


Fig. No. 5

Marks

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

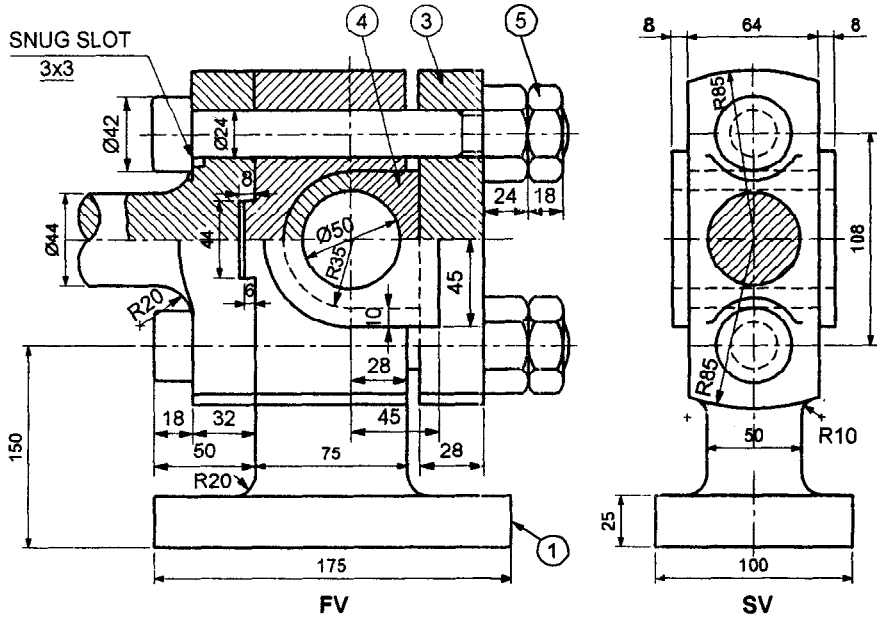
a) Fig. No. 6 shows the assembly of steam engine crosshead. Draw the half sectional orthographic views of the following parts:

(i) Cross body - elevation and end view

(ii) Piston rod end - elevation and end view

(iii) CAP - elevation and end view

(iv) Brass - elevation.



PART LIST

PART NO.	PART NAME	MATL.	QTY.
1	CROSS BODY	C.I.	1
2	PISTON ROD END	C.I.	1
3	CAP	C.I.	1
4	BRASS (TWO HALVES)	G.M.	1
5	ROUND HEAD NUT & BOLT	M.S.	2

Fig. No. 6

Marks

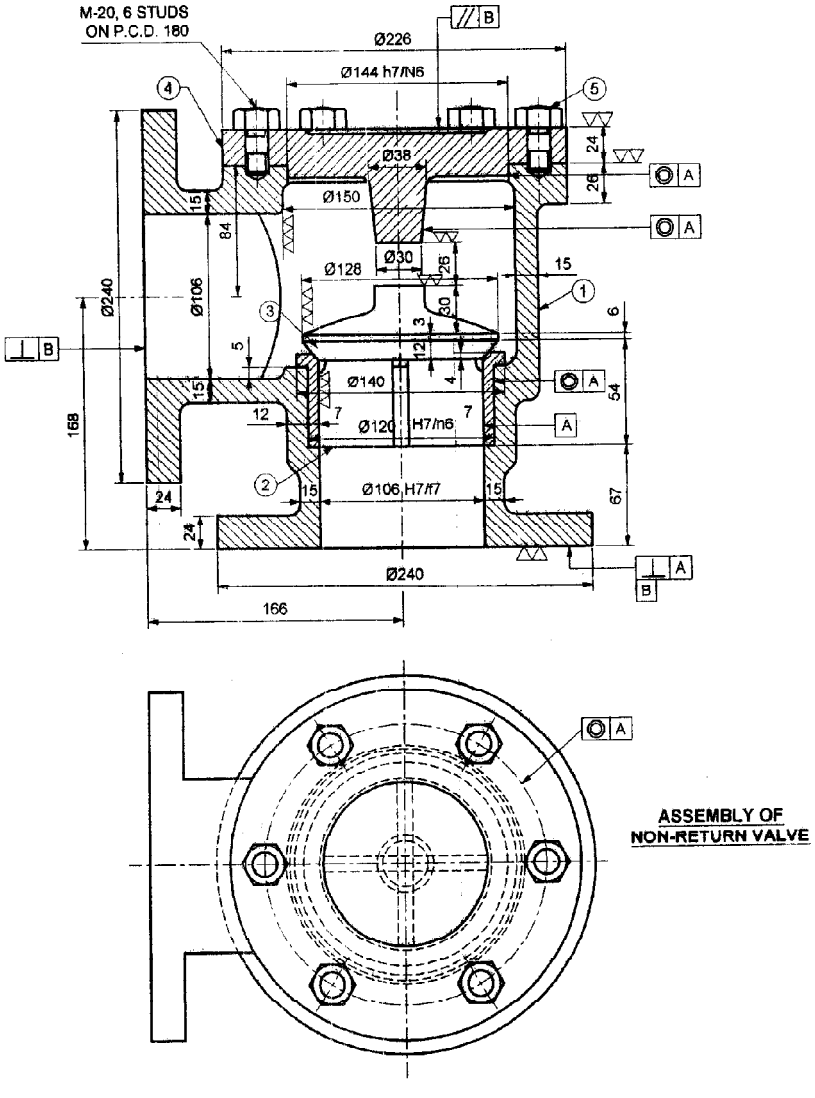
b) Fig. No. 7 shows the assembly of non-return valve. Draw the detailed drawing of following parts:

(i) Body - sectional F.V. and T.V.

(ii) Valve - F.V. and T.V.

(iii) Valve seat - F.V. and T.V.

(iv) Indication of tolerance, geometrical tolerance etc.



FIT CHART

106H7/f7 = CLEARANCE FIT
144H7/h6 = CLEARANCE FIT
120H7/k6 = TANSINTION 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.	6

Fig. No. 7