17305

13141

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

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

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

(4) Figures to the right indicate full marks.

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

i) Removed section

ii) Diamond Knurling

iii) Rack and Pinion gear

iv) External thread

v) Helical compression spring with square end

vi) Sprocket wheel

vii) Ball bearing

viii) Gate valve

Marks

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

i) Draw the symbol of the following

1) Single V butt weld

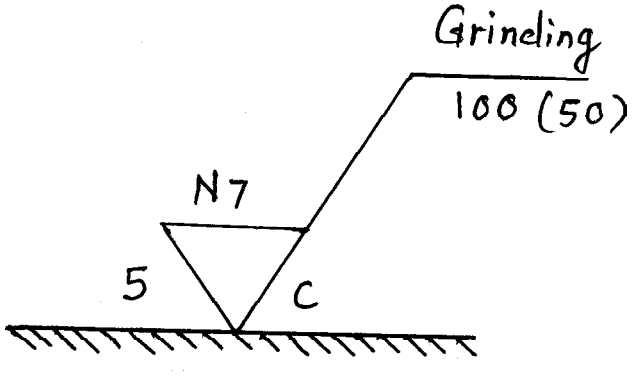
2) Concave fillet weld

3) Square butt weld

4) Spot weld

ii) The shaft has size $\phi 30^{-0.02}_{-0.04}$ and hole size is $\phi 30^{+0.02}_{-0.04}$. Determine the type of fit between them.

iii) State the meaning of the figure shown in Figure No.1.



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

Marks

2. a) Figure No.2 shows front view, partial auxilliary view and incomplete top view of the object. Draw the given views and complete the top view. **12**

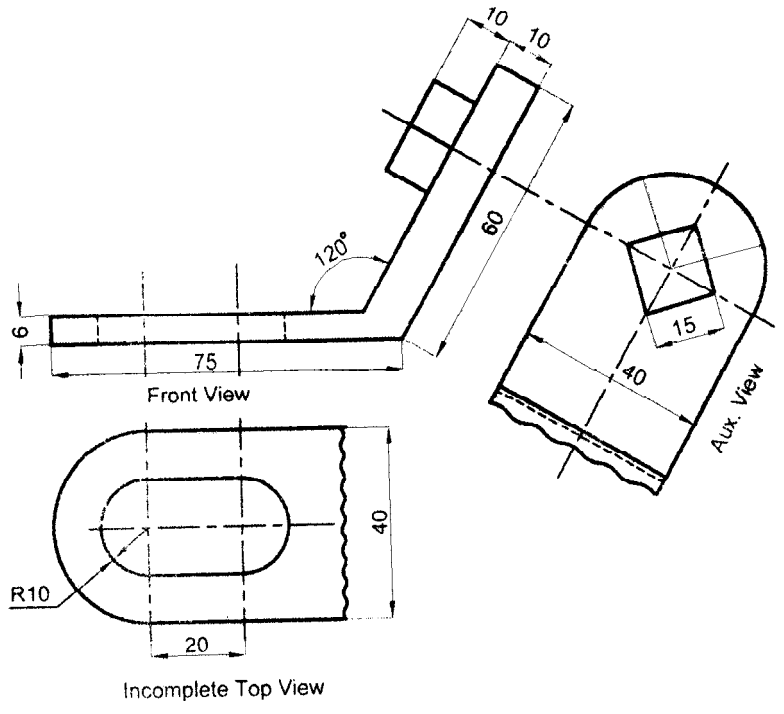
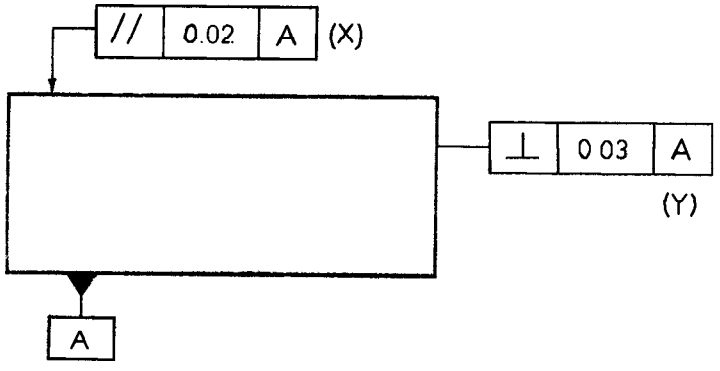


Fig. No. 2

Marks

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

i) Refer Figure No.3. What is the meaning of symbol at X and Y.



<u>Fig. No. 3</u>

ii) Two mild steel plates of 8mm thickness are to be welded to have a lap joint by a fillet weld of leg length 8mm. Represent the weld on drawing with proper symbols.

Marks

iii) Figure No.4 shows the working drawing of a flange. From the drawing answers the following questions.

1) What is the meaning of symbol at a

2) What is the meaning of symbol at d

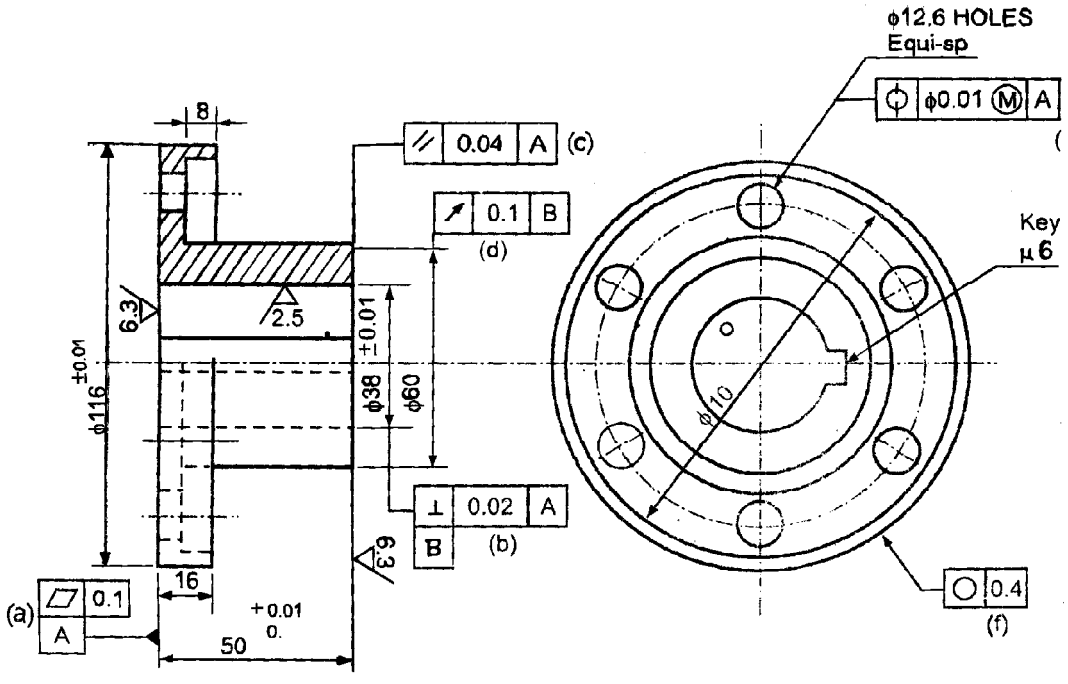


Fig. No. 4

3 Attempt any TWO of the following: **20**

a) A vertical cone of base diameter 100mm and axis length 90mm is penetrated by a horizontal cylinder of base diameter 50mm, axis length 120mm. The axis of the cylinder is 12mm away from the axis of the cone. Draw the projections of the solids showing curves of intersection.

Marks

b) Figure No.5 shows the top view of a cylinder penetrated by an isosceles triangular prism. The axis of the cylinder is parallel to H.P. and V.P. and the axis of the prism is vertical. The height of the prism is 100mm and prism projects equally on either side of the cylinder. Draw the given top view and project front view and side view representing the penetration curve.

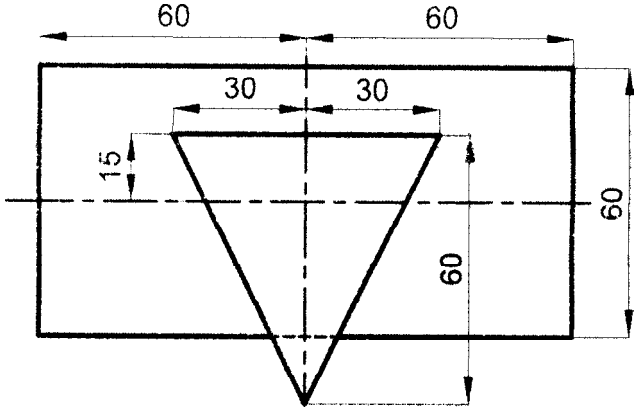


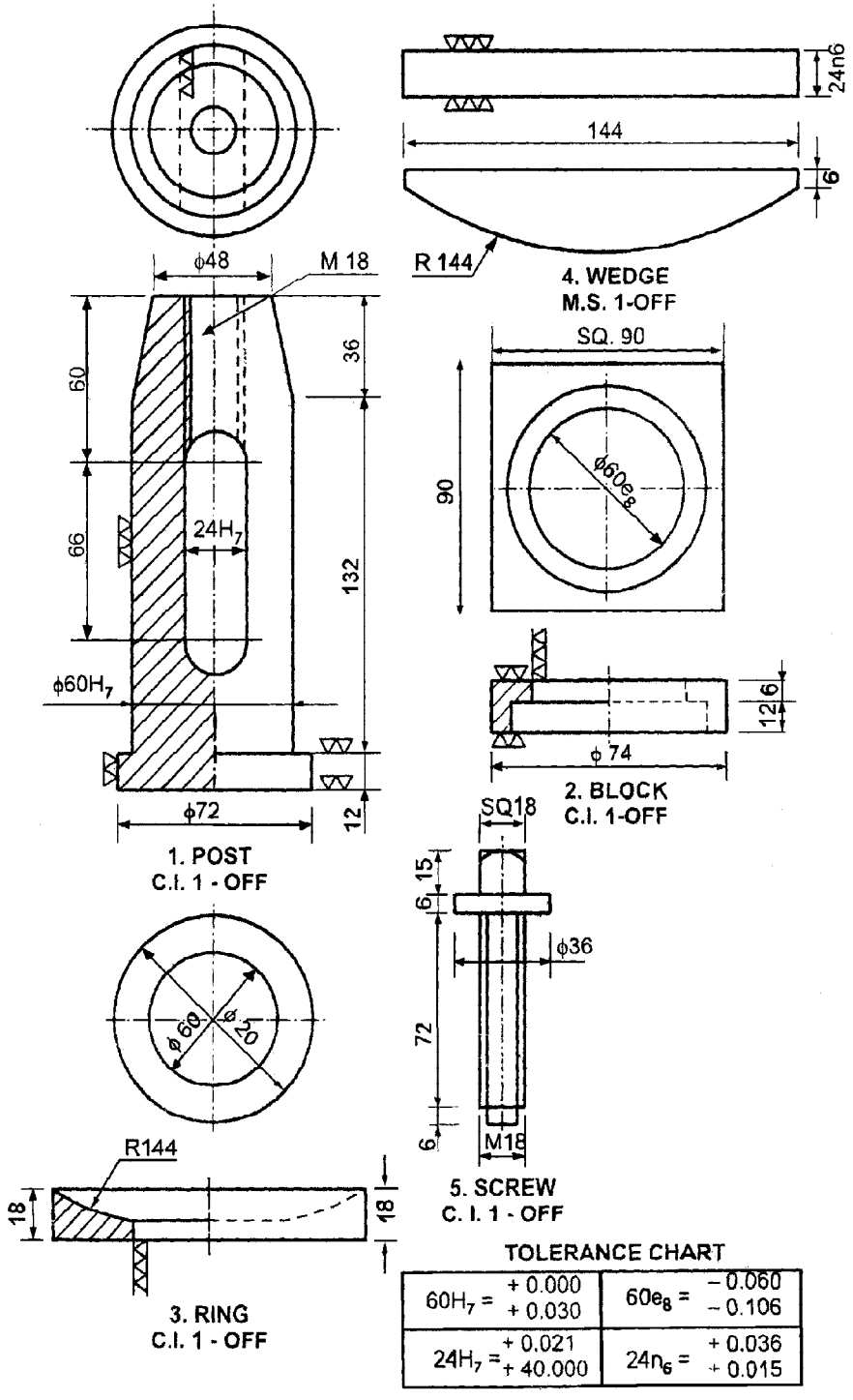
Fig. No. 5

c) A vertical square prism, base 50mm side has its faces equally inclined to V.P. It is completely penetrated by another square prism base 30mm side, the axis of which is parallel to both the planes and 6mm away from the axis of vertical prism. The faces of horizontal prism are also equally inclined to V.P. Draw the projections of the solid showing lines of intersection. Assume suitable length of the axis.

Marks

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

a) Figure No. 6 shows the details of Lathe Tool Post. Draw sectional front view and top view of the assembly. Prepare bill of material.



TOLERANCE CHART

$60H_7 = {}^{+\ 0.000}_{+\ 0.030}$	$60e_8 = {}^{-\ 0.060}_{-\ 0.106}$
$24H_7 = {}^{+\ 0.021}_{+\ 40.000}$	$24n_6 = {}^{+\ 0.036}_{+\ 0.015}$

Fig. No. 6

P.T.O.

Marks

b) Figure No. 7 show the details of universal coupling. Draw the following views of the assembly.

i) Sectional Front View

ii) Top View

Prepare bill of material.

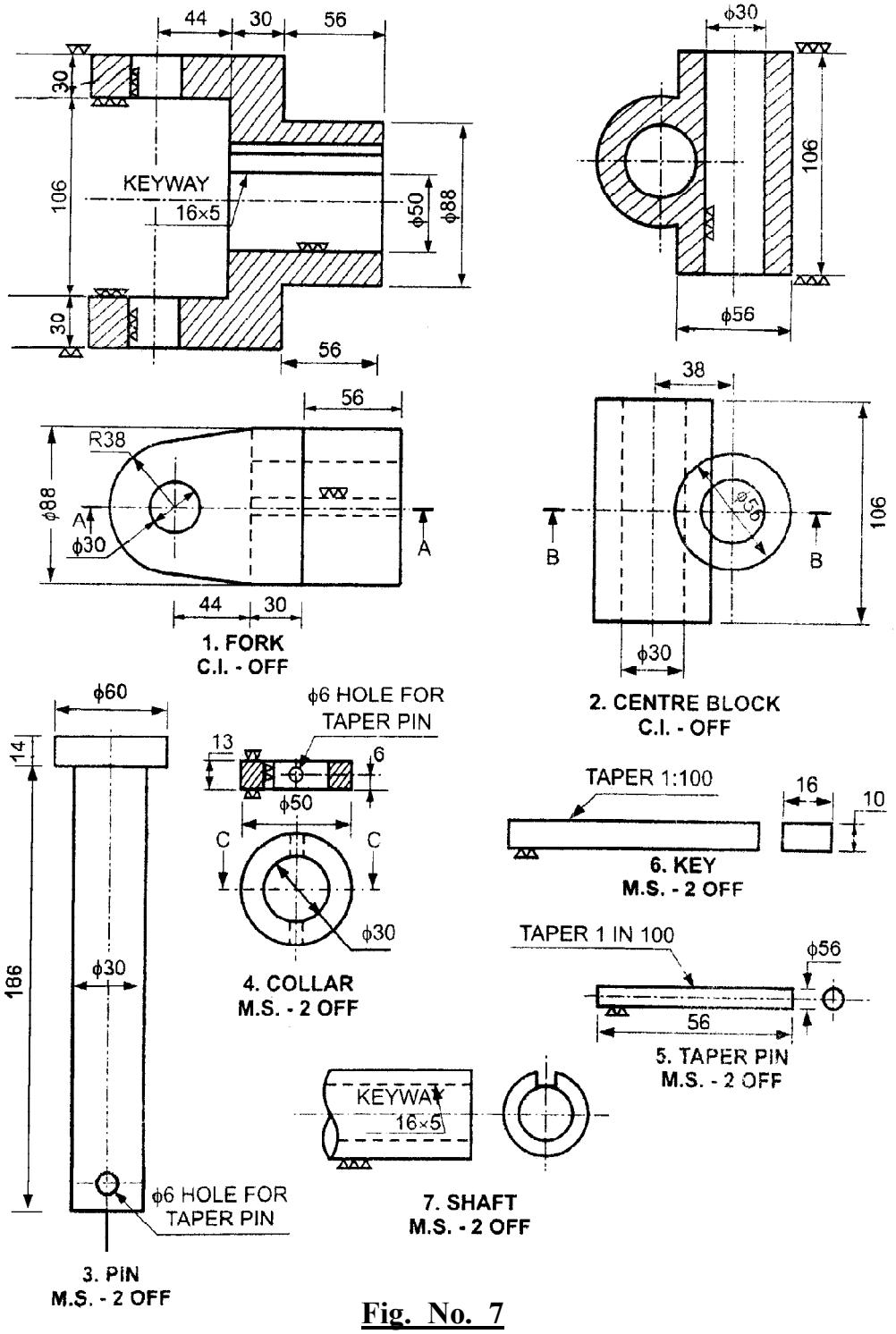


Fig. No. 7

Marks

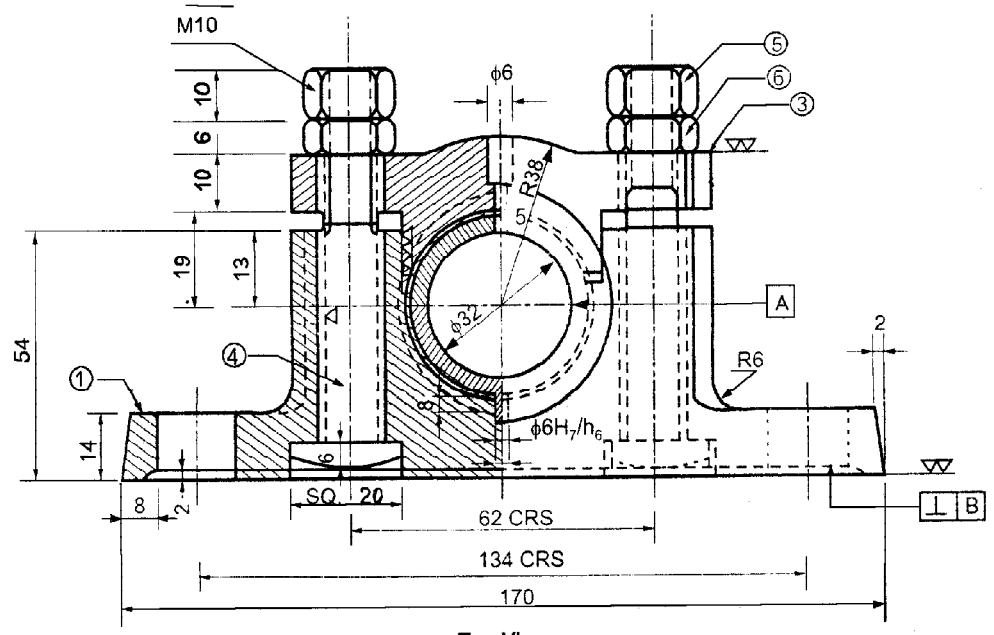
5 Attempt any ONE of the following: **20**

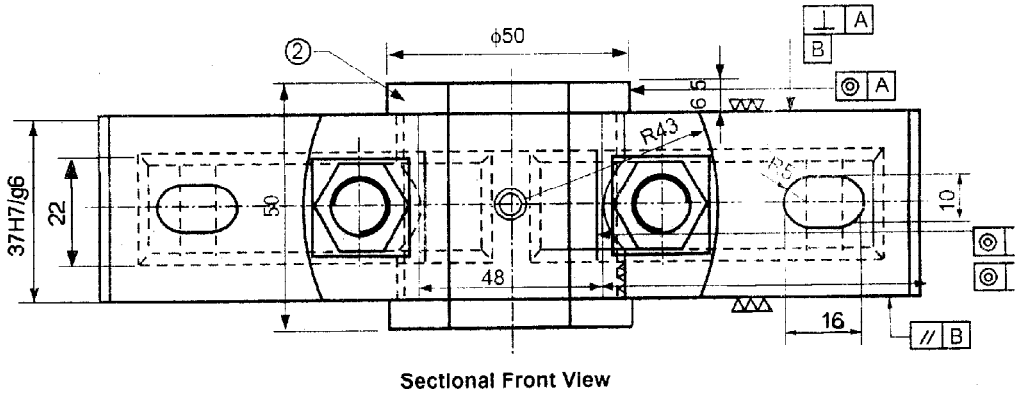
a) Figure No.8 shows assembly of Pedestal Bearing. Draw the half sectional orthographic views of the following parts.

i) Body - Front view and Top view

ii) Brass - Front view and Top view

iii) Cap - Front view and Top view





PART LIST

PART NO.	PART NAME	MATERIAL	QUANTITY
1.	BODY	C.I.	1
2.	BRASS	G.M.	1
3.	CAP	C.I.	1
4.	BOLT	M.S.	2
5.	NUT	M.S.	2
6	LOCK NUT	M.S.	2

FIT CHART

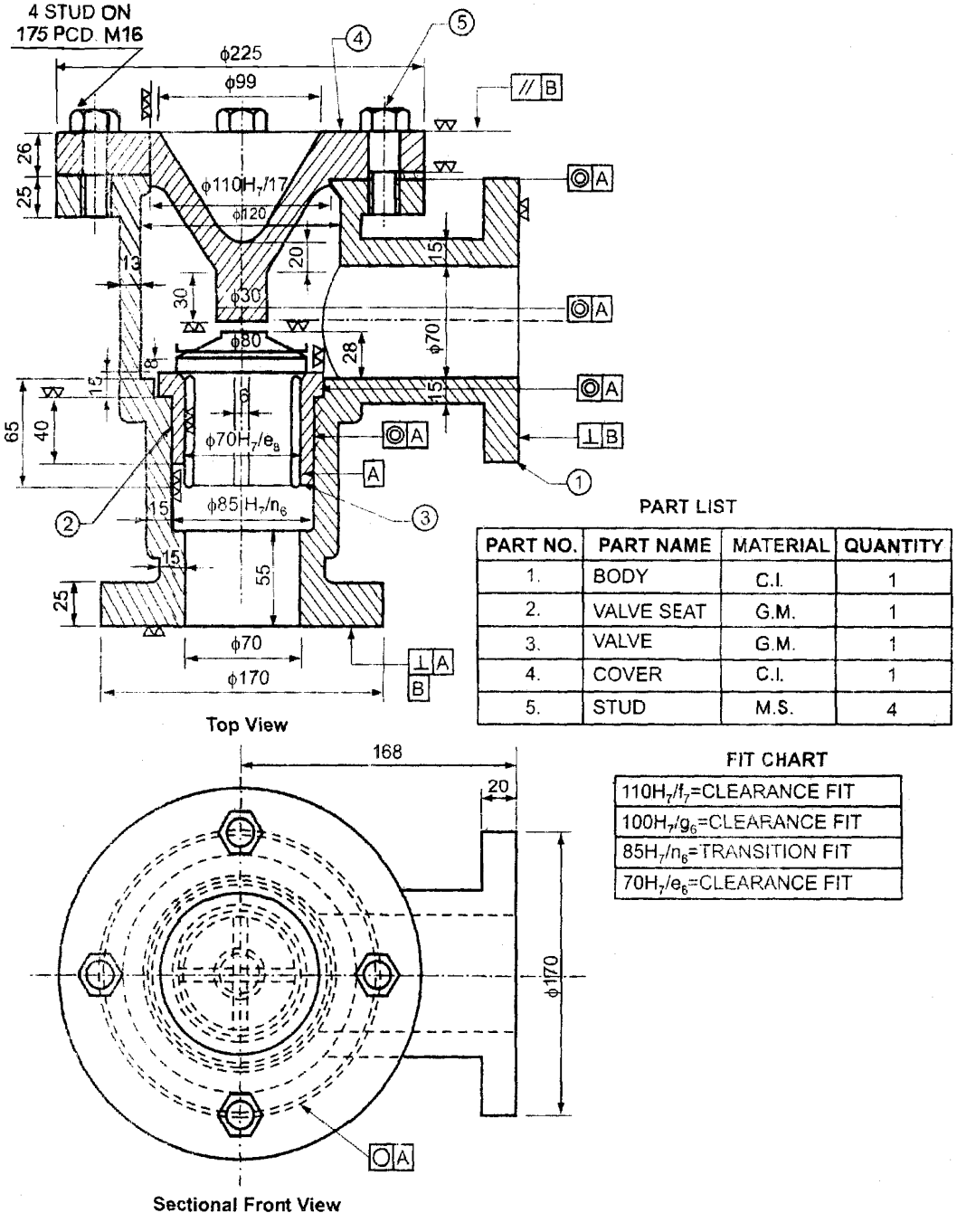
$6H_7/h_6$ = CLEARENCE FIT
$44H_7/g_6$ = CLEARENCE FIT
$37H_7/g_6$ = CLEARENCE FIT

Fig. No. 8

P.T.O.

Marks

b) Figure No.9 shows assembly of Non-Return Valve. Draw details of valve, Valve seat and cover. Mention appropriate dimensional tolerances, tolerance grade, geometrical tolerances on each detail if required.



PART LIST

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

FIT CHART

$110H_7/f_7$=CLEARANCE FIT
$100H_7/g_6$=CLEARANCE FIT
$85H_7/n_6$=TRANSITION FIT
$70H_7/e_6$=CLEARANCE FIT

Fig. No. 9

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4 Hours / 100 Marks