

12042

21112

4 Hours / 100 Marks

Seat No.

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Instructions : (1) All Questions are *compulsory*.

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

(3) Assume suitable data, if necessary.

(4) 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) Bevel gear
- (b) Conventional Break for Round Section
- (c) Diamond Knurling
- (d) Aluminium
- (e) Revolved Section
- (f) Compression spring with square section
- (g) Cross
- (h) Fillet weld

(B) Attempt any **three** of the following : **12**

- (a) The shaft has $\phi 9^{-0.025}$ and hole size is $\phi 9^{+0.022}$. Determine the type of fit between them.
- (b) Two rectangular plates are to be welded with each other along the length. The thickness and length of both the plates is 10 mm and 50 mm respectively. The plates are to be double V-butt weld. Prepare welding drawing.

P.T.O.

(c) What is the meaning of symbol 'x' & 'y' ?

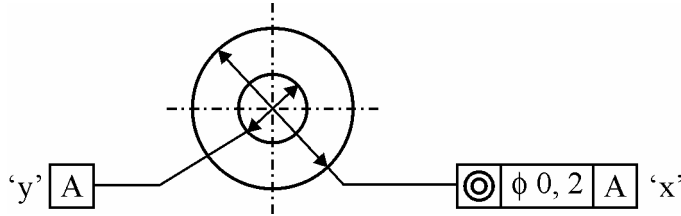


Fig. 1

(d) Explain the symbol and specification shown in Fig.

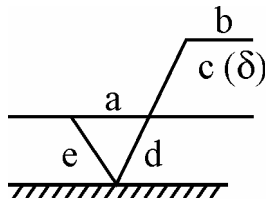


Fig. 2

2. (a) Fig. shows front view, incomplete side view, auxiliary top view of an object. Redraw the given views and complete the side view. 12

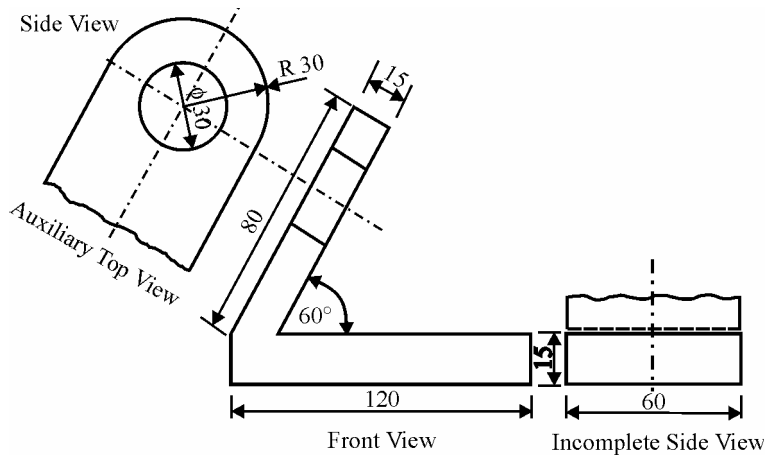


Fig. 3

(b) One end of the straight line of length 50 mm is 10 mm above the H.P and 20 mm in front of the V.P. The view from above measures 40 mm and the view from the left 35 mm. Draw the projection. 08

OR

A circular plate 60 mm diameter has a square hole 30 mm by 30 mm with a diagonal parallel to the V.P. The plate is inclined to the ground such that the parallel measures 20 mm in the view from above. Draw the views from the front and from above. Find the inclination of the plane to the ground.

3. Attempt any TWO of the following :

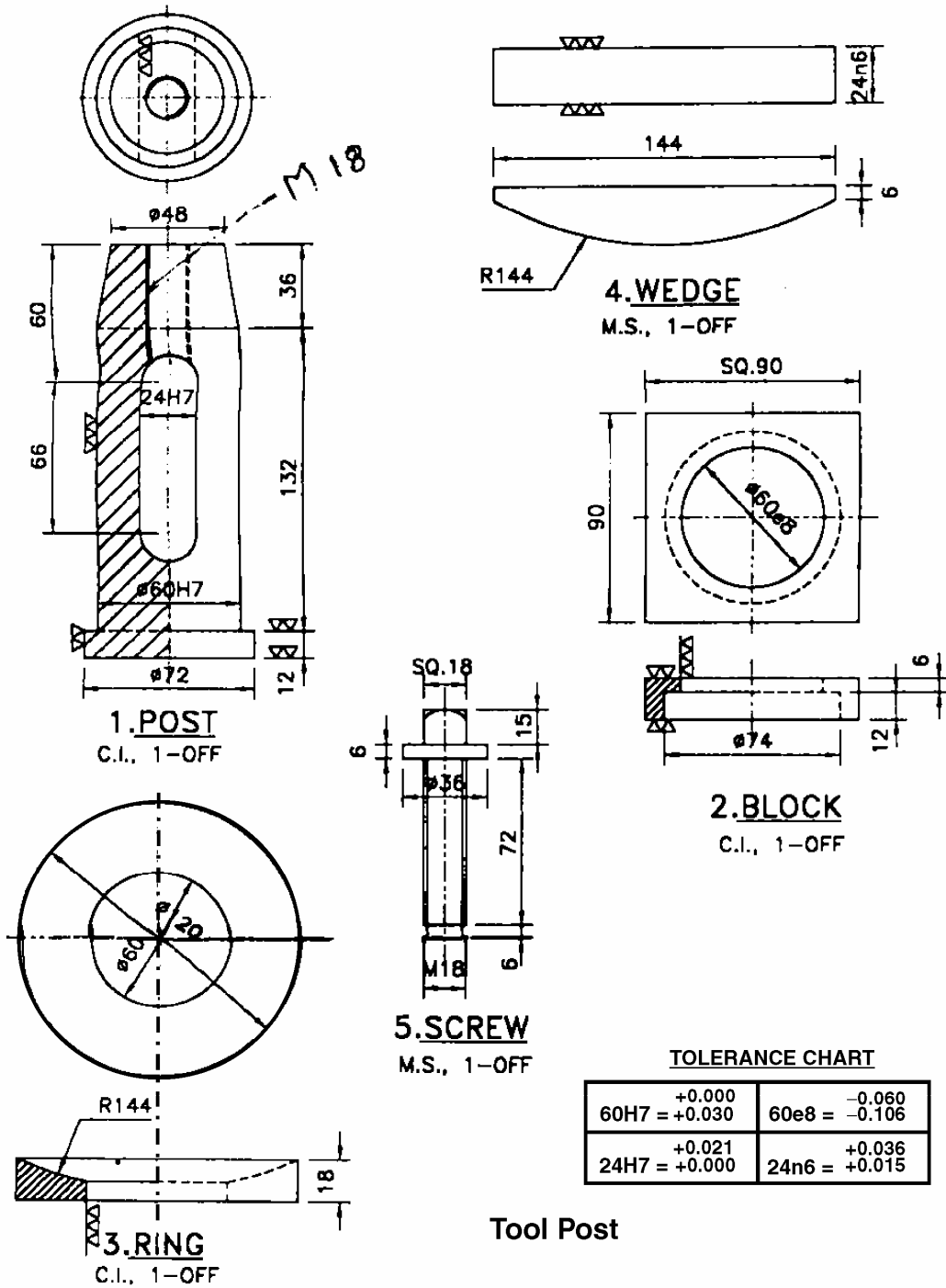
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- (a) A cone, diameter of base 80 mm and height 90 mm is resting on H.P. on its base. A hole of 50 mm dia. is drilled through the cone. The axis of the hole is 28 mm above and parallel to the base of cone. The axis of the hole is parallel to the V.P. Draw three views of cone showing lines of intersections of hole with cone.
- (b) A vertical cylinder of 70 mm dia. and 90 mm long is penetrated by another cylinder of same diameter and length. The axis of the penetrating cylinder is parallel to both H.P. & V.P. and 9 mm away from the axis of the vertical cylinder. Draw the projections showing curve of interpenetration.
- (c) A vertical square prism base 50 mm, side and height 100 mm has a face inclined at 30° to V.P. It is completely penetrated by another horizontal square prism of base 35 mm size and axis 100 mm long. The face of this prism are equally inclined to V.P. The axis of two prism are parallel to V.P. and bisect each other at right angle. Draw projection of prism showing lines of intersection.

P.T.O.

4. Attempt any ONE :

- (a) Fig. shows details of tool post. Draw sectional F.V., T.V. of assembly. Prepare bill of material.



Tool Post

Fig. 4

(b) Fig. shows the details of foot step bearing. Draw sectional F.V. & T.V. of the assembly. Prepare bill of material.

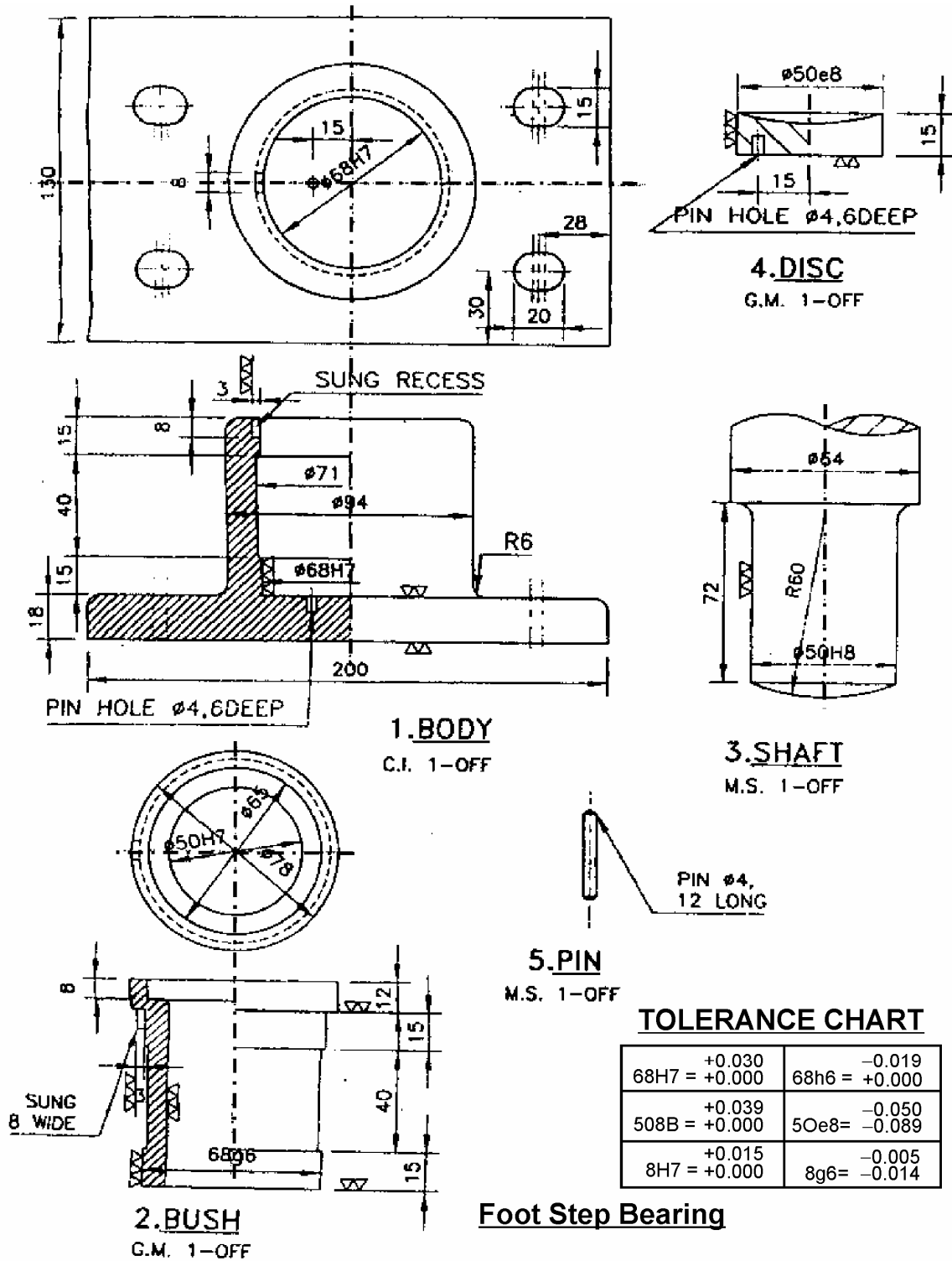


Fig. 5

5. Attempt any ONE :

(a) Fig. shows the assembly of Tail Stock. Draw details of it mentioning appropriate dimensional tolerances, tolerance grade etc. on part if required.

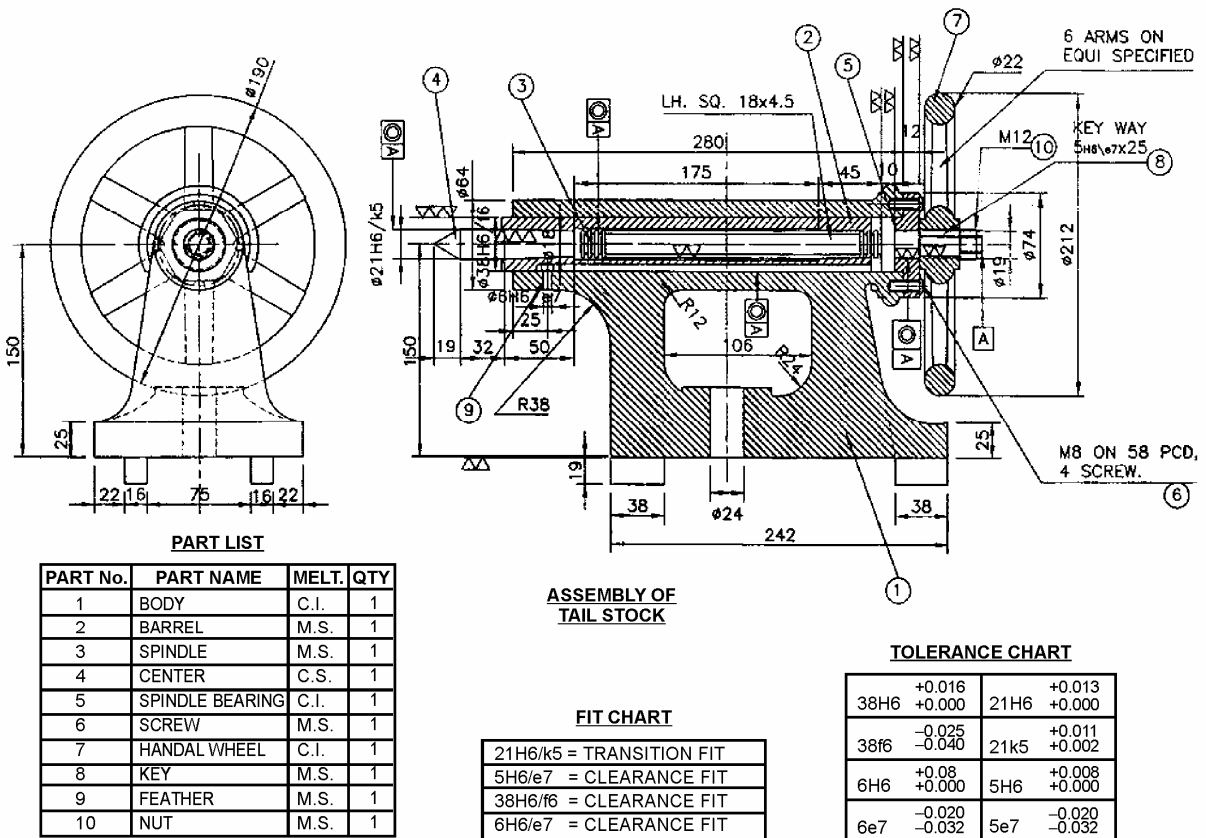


Fig. 6

(b) Fig. shows assembly of steam stop valve. Draw details of it mentioning appropriate dimensional tolerances, tolerance grade etc. on part if required.

TOLERANCE CHART

10H7 = +0.018 = +0.000	30H7 = +0.011 = +0.000
10e8 = -0.032 = -0.059	30n6 = +0.033 = +0.017
82H7 = +0.035 = +0.000	82e8 = -0.072 = -0.126
20H7 = +0.021 = +0.000	20g6 = -0.007 = -0.020

FIT CHART

10H7/e8 = CLEARANCE FIT
82H7/e8 = CLEARANCE FIT
30H7/n6 = TRANSITION FIT
20H7/g6 = CLEARANCE FIT

PART LIST

PART No.	PART NAME	METL.	QTY.
1	BODY	C.I.	1
2	VALVE SEAT	G.M.	1
3	VALVE	G.M.	1
4	COVER	C.I.	1
5	SPINDLE	M.S.	1
6	GLAND	G.M.	1
7	NUT	M.S.	1
8	HAND WHEEL	C.I.	1

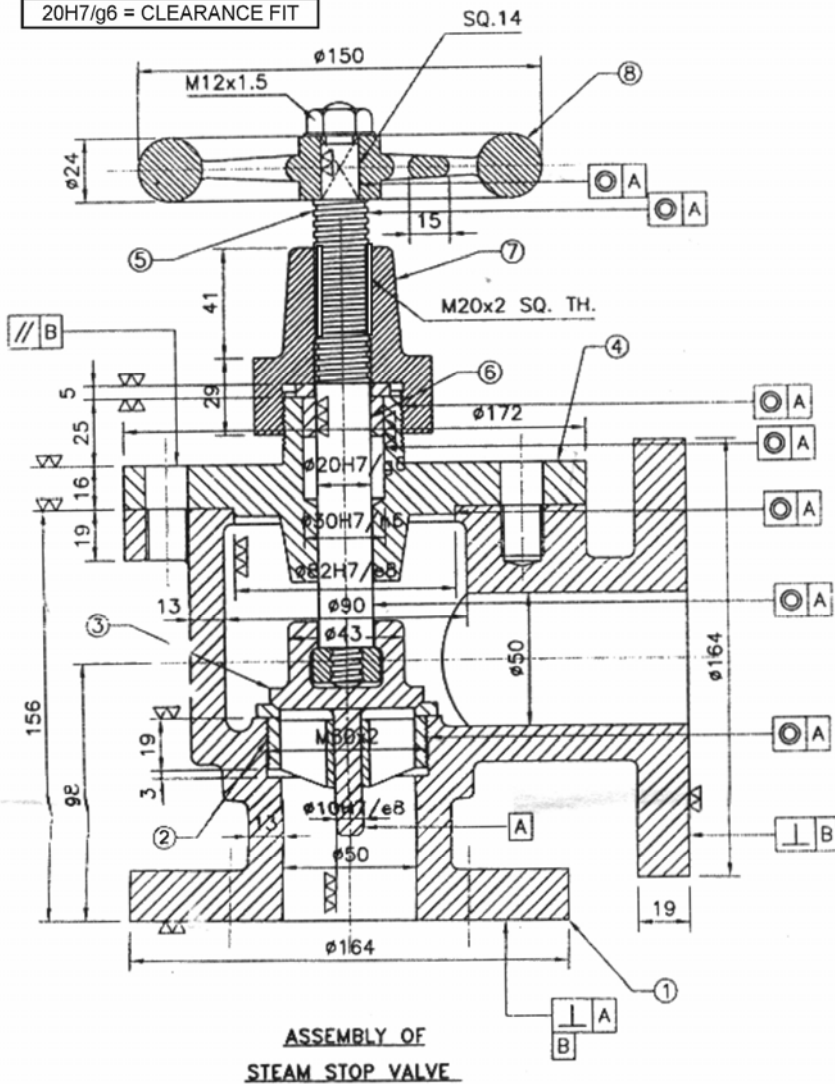


Fig. 7

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