



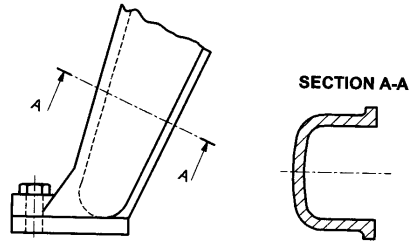
**Important Instructions to examiners:**

- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
- 6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.

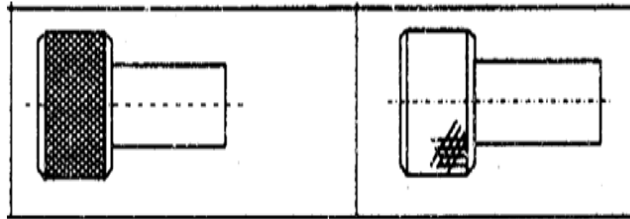
Subject Code: 17305

Que 1. a) Conventional symbols of any six ( 2 marks each )

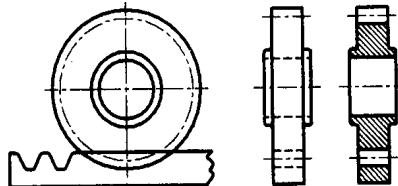
i) Removed section



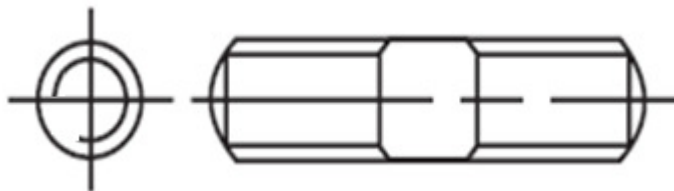
ii) Diamond knurling



iii) Rack & Pinion gear

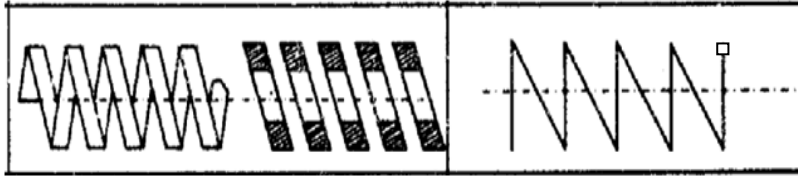


iv) External thread

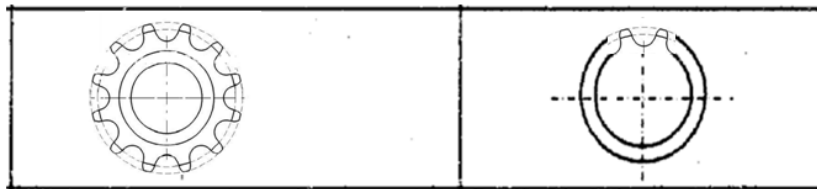


Subject Code: 17305

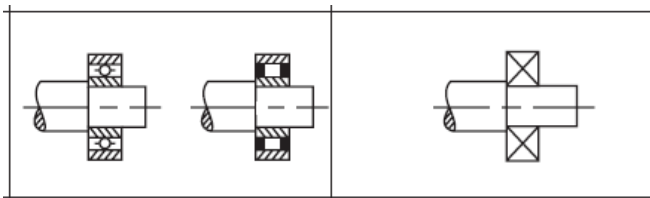
v) Helical compression spring with sq. end



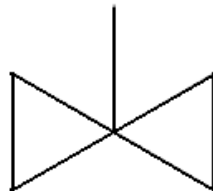
vi) Sprocket wheel



vii) Ball bearing



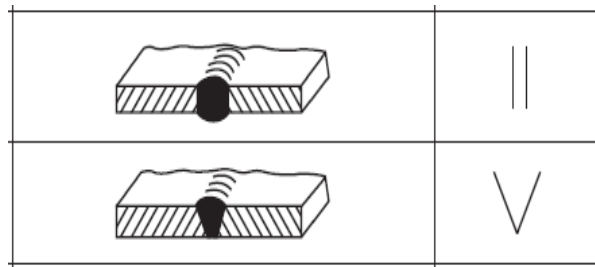
viii) Gate valve



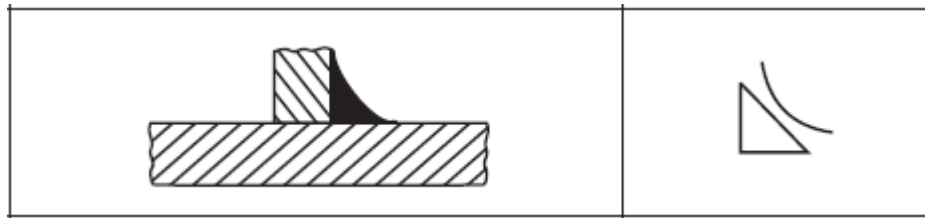
Subject Code: 17305

Q1 b) Symbols of any two ( Each 04 marks)

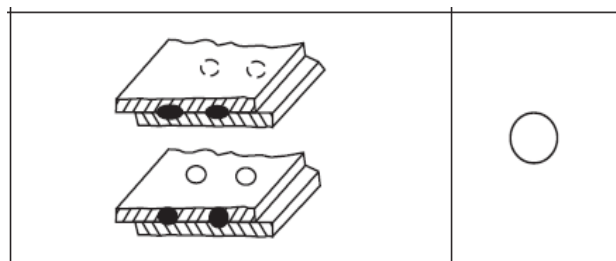
i) ( 01 mark for each symbol) Square butt weld & Single V butt weld



Concave fillet weld



Spot weld



**Q1b) ii Marks: Calculation of Hole & Shaft sizes : 02 & Decide type of fit : 02 Marks**

**Hole size:** max dia 30.02 mm & min 29.96 mm

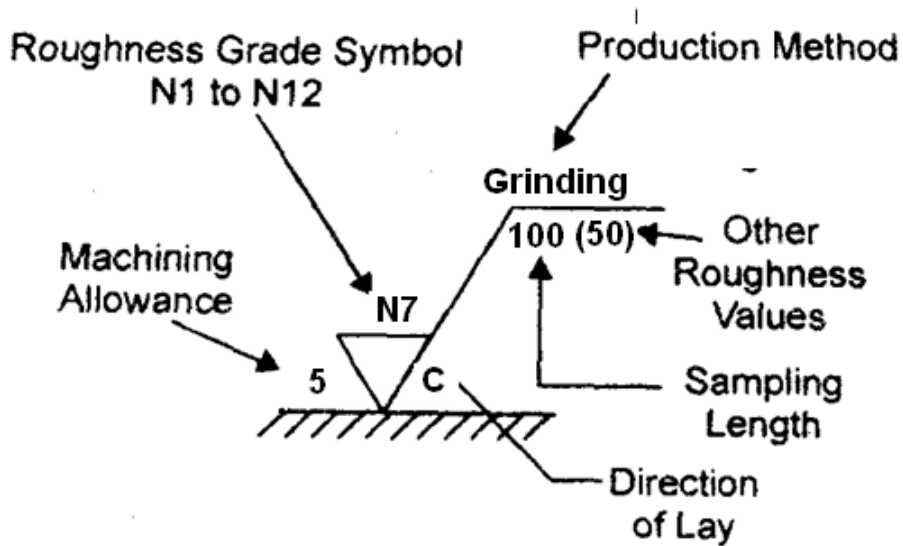
**Shaft size:** max dia 29.98 mm & min 29.96 mm

$$\begin{aligned}\text{Max allowance} &= \text{max hole size} - \text{min shaft size} \\ &= 30.02 - 29.96 = +0.06\end{aligned}$$

$$\begin{aligned}\text{Min allowance} &= \text{min hole size} - \text{max shaft size} \\ &= 29.96 - 29.98 = -0.02\end{aligned}$$

Hence, the type of fit is TRANSITION

**Q1b) iii 04 Marks for all symbols**

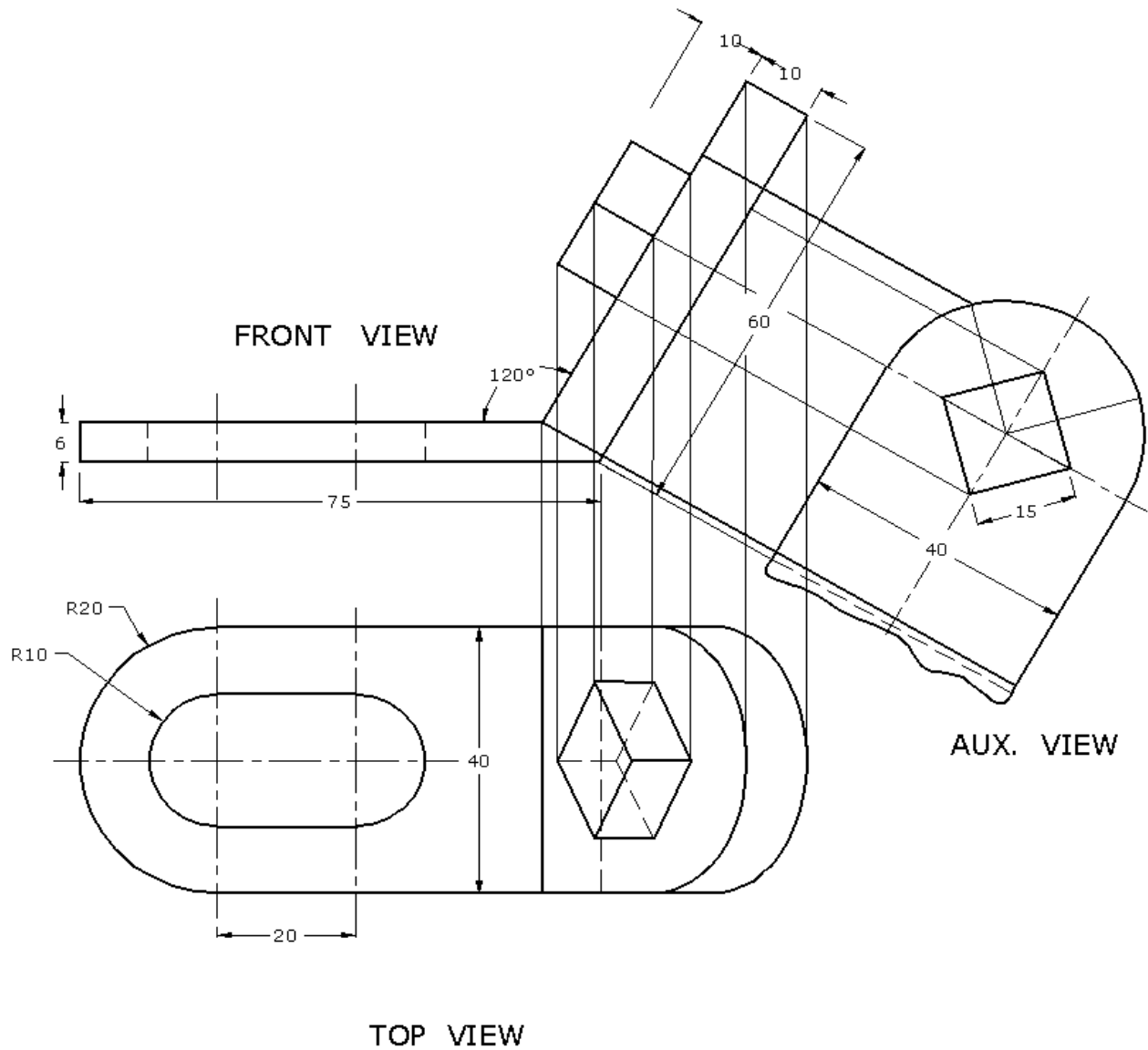




Subject Code: 17305

Q2 a) Aux. view

For Front View: 03 marks, Aux.view : 03 marks & Top view: 06 marks

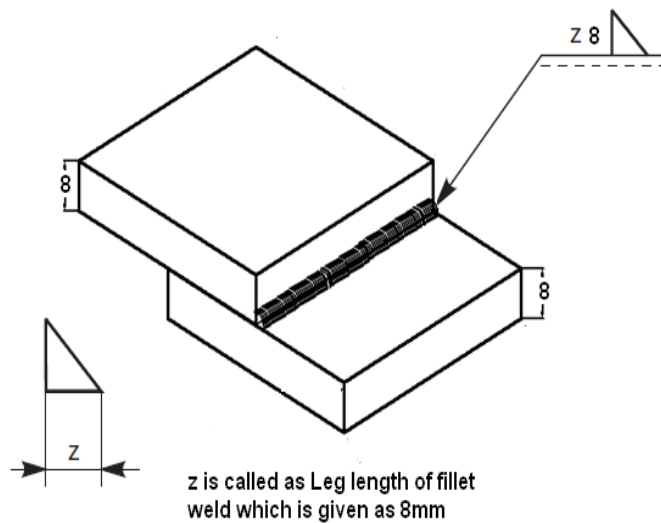


Subject Code: 17305

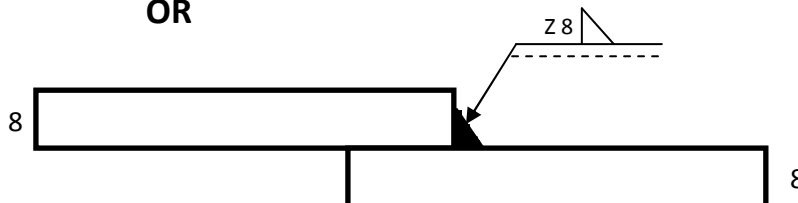
**Q2 b) Any Two ( 04 Marks Each )**

i) Symbol at **X** shows Parallelism of a indicated plane w.r.t. datum plane A within the tolerance of 0.02 mm  
and Symbol at **Y** shows Perpendicularity of a indicated plane w.r.t. datum plane A within the tolerance of 0.03 mm

ii) **Two M.S. Plates of 8mm thickness and weld leg length 8mm**  
**(Any one solution may be given due credit)**



**OR**



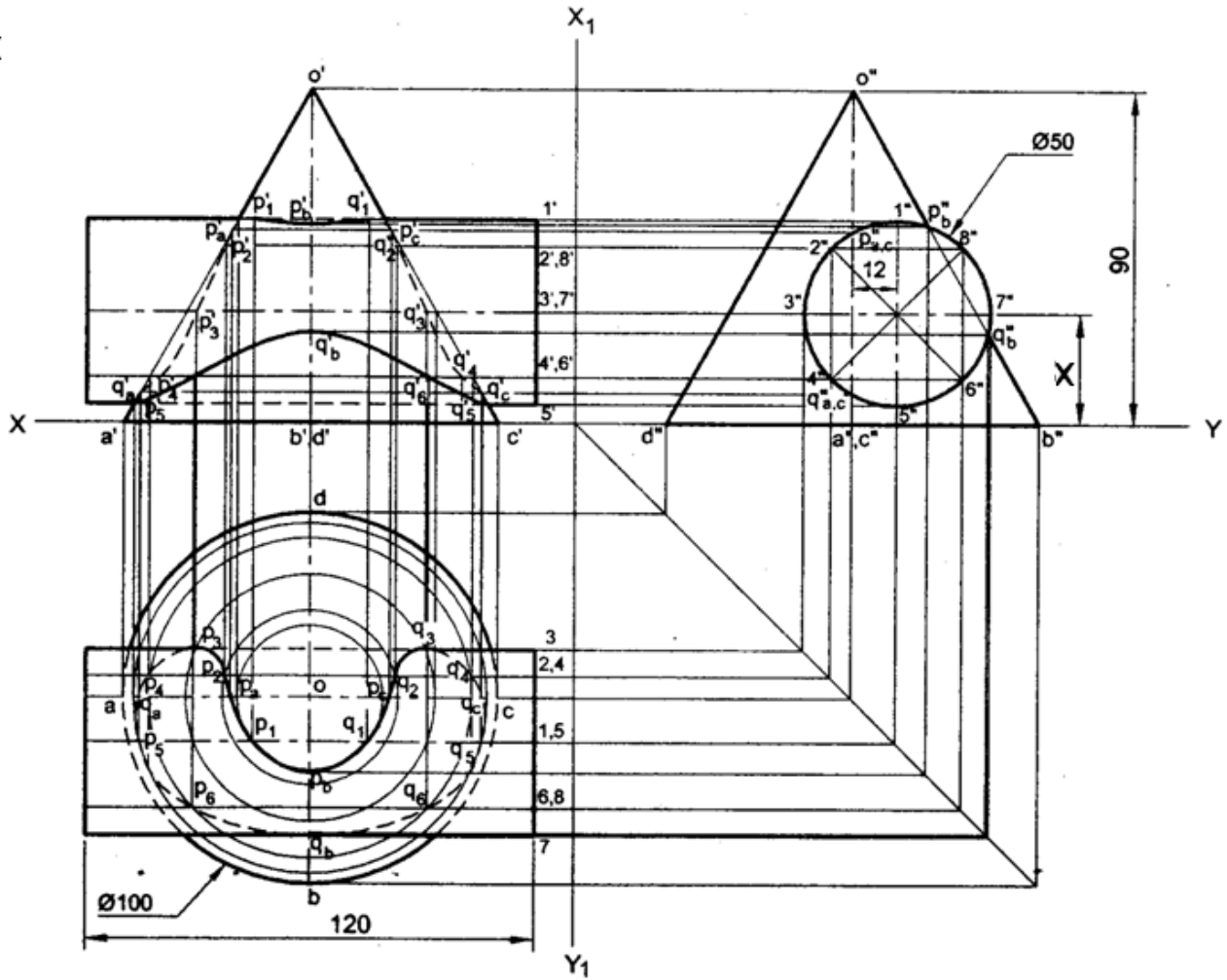
( z is called as Leg length of fillet weld which is given as 8 mm )

iii) Symbol at **a** shows Flatness of a indicated plane i.e. datum plane A within the tolerance of 0.1 mm  
and Symbol at **d** shows Run-out of a indicated diameter B of 60mm within the tolerance of 0.1 mm



Q. 3 a ) For FV: 04 , TV : 04 & SV: 02 Marks

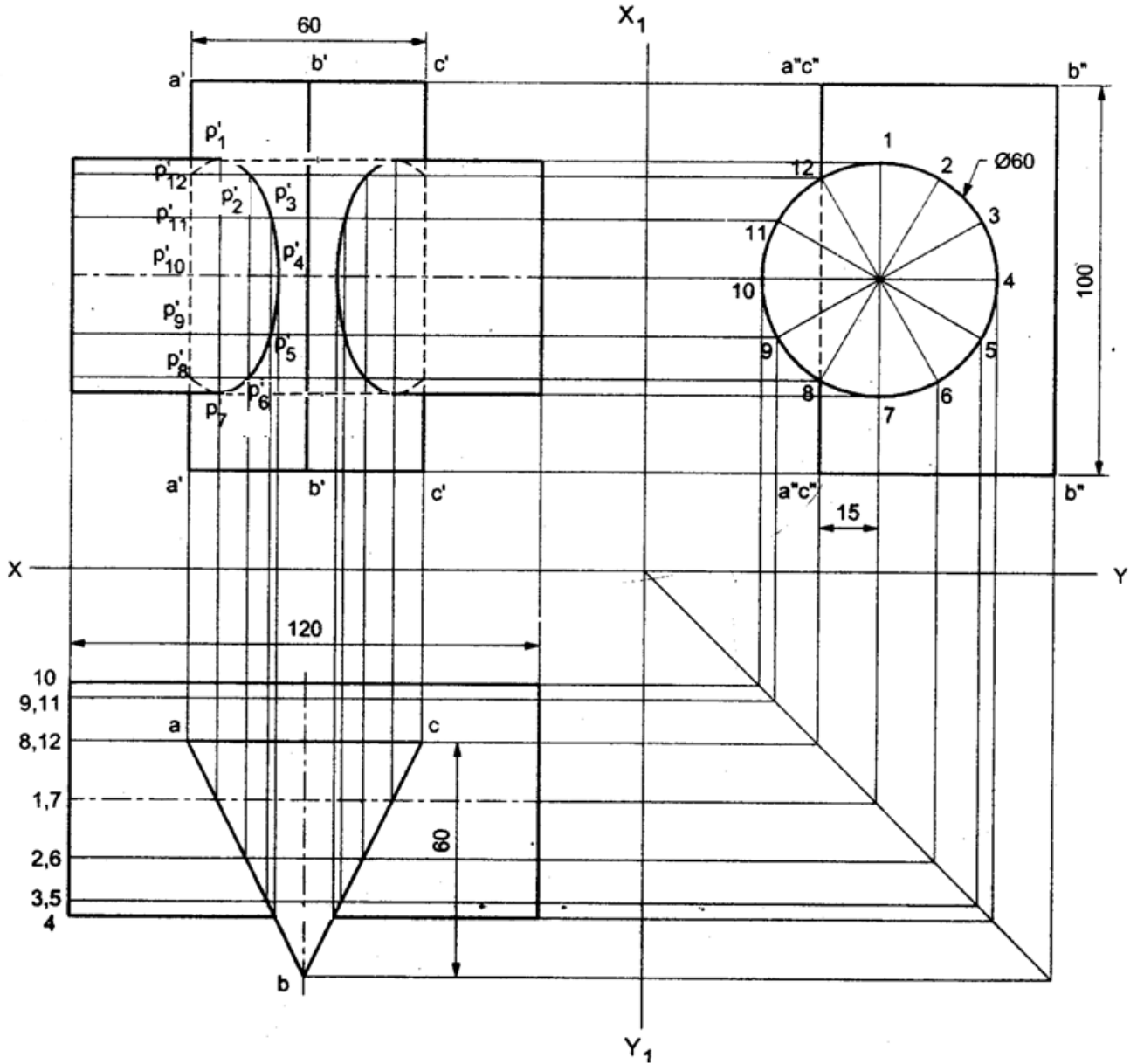
Note: Assume suitable dimension X (Which is not given in QP)





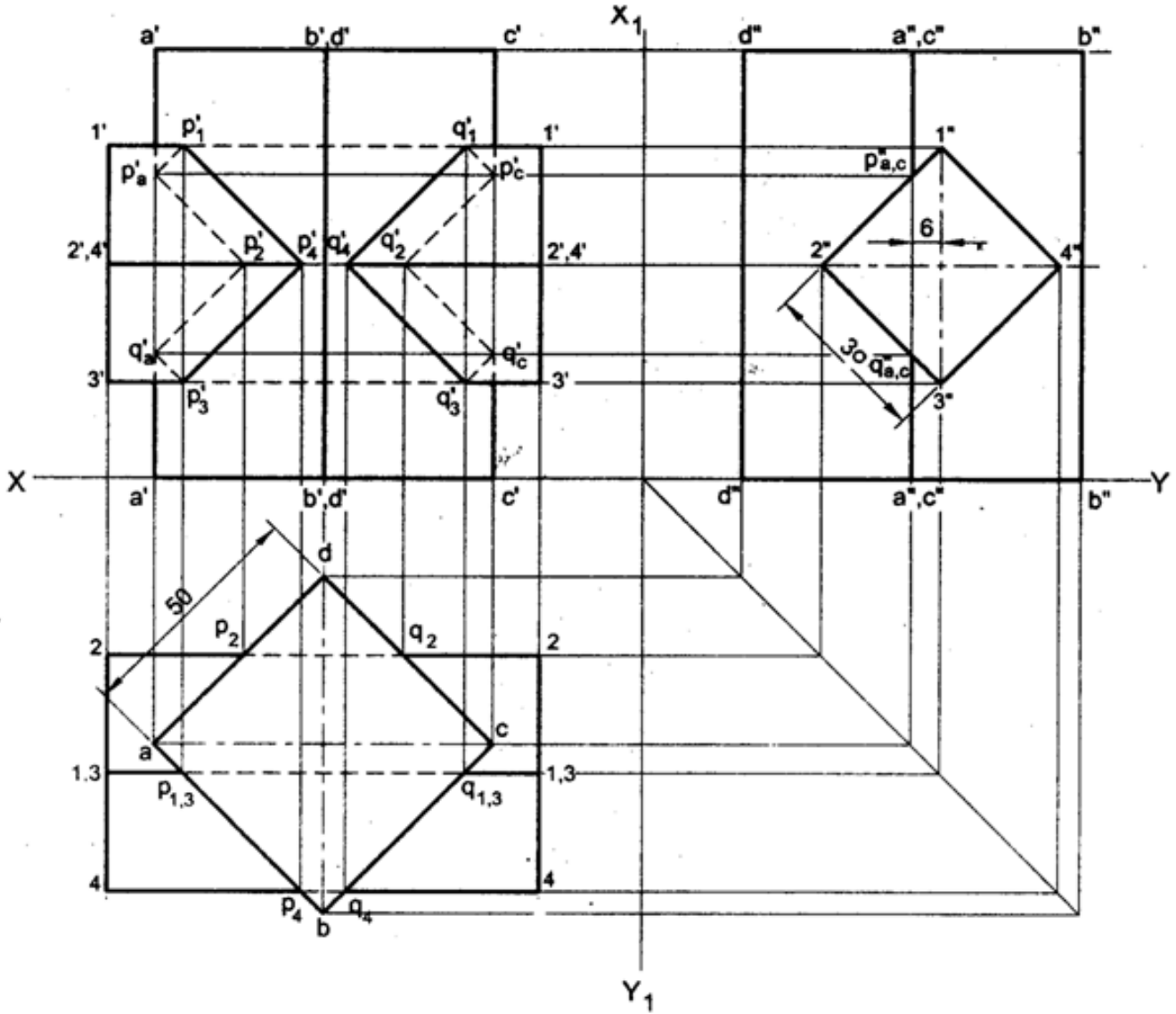


Q. 3 b ) For FV: 04 , TV : 04 & SV: 02 Marks

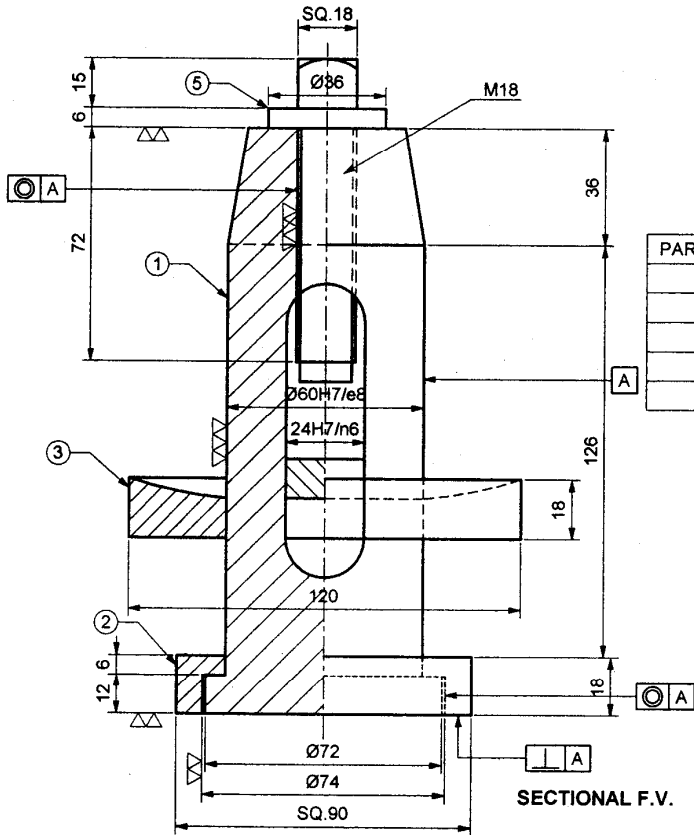




Q. 3 c) For FV: 04 , TV : 04 & SV: 02 Marks



Q. 4 a) For Sect. FV: 10 , TV : 08 & Bill of Material: 02 Marks

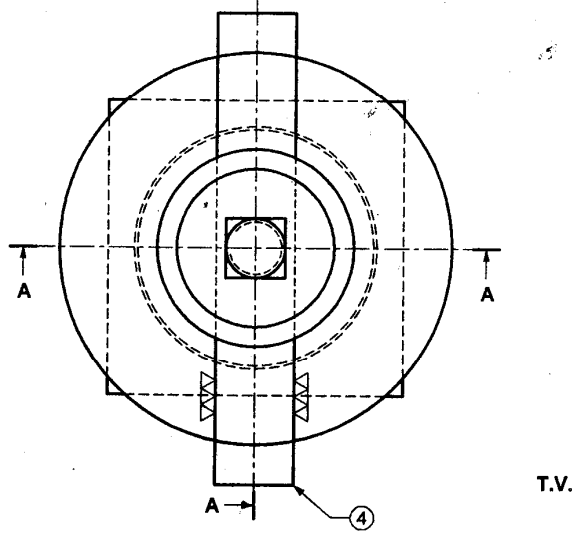


**PART LIST**

PART NO.	PART NAME	MATL	QTY.
1	POST	C.I.	1
2	BLOCK	C.I.	1
3	RING	C.I.	1
4	WEDGE	M.S.	1
5	SCREW	M.S.	1

**FIT CHART**

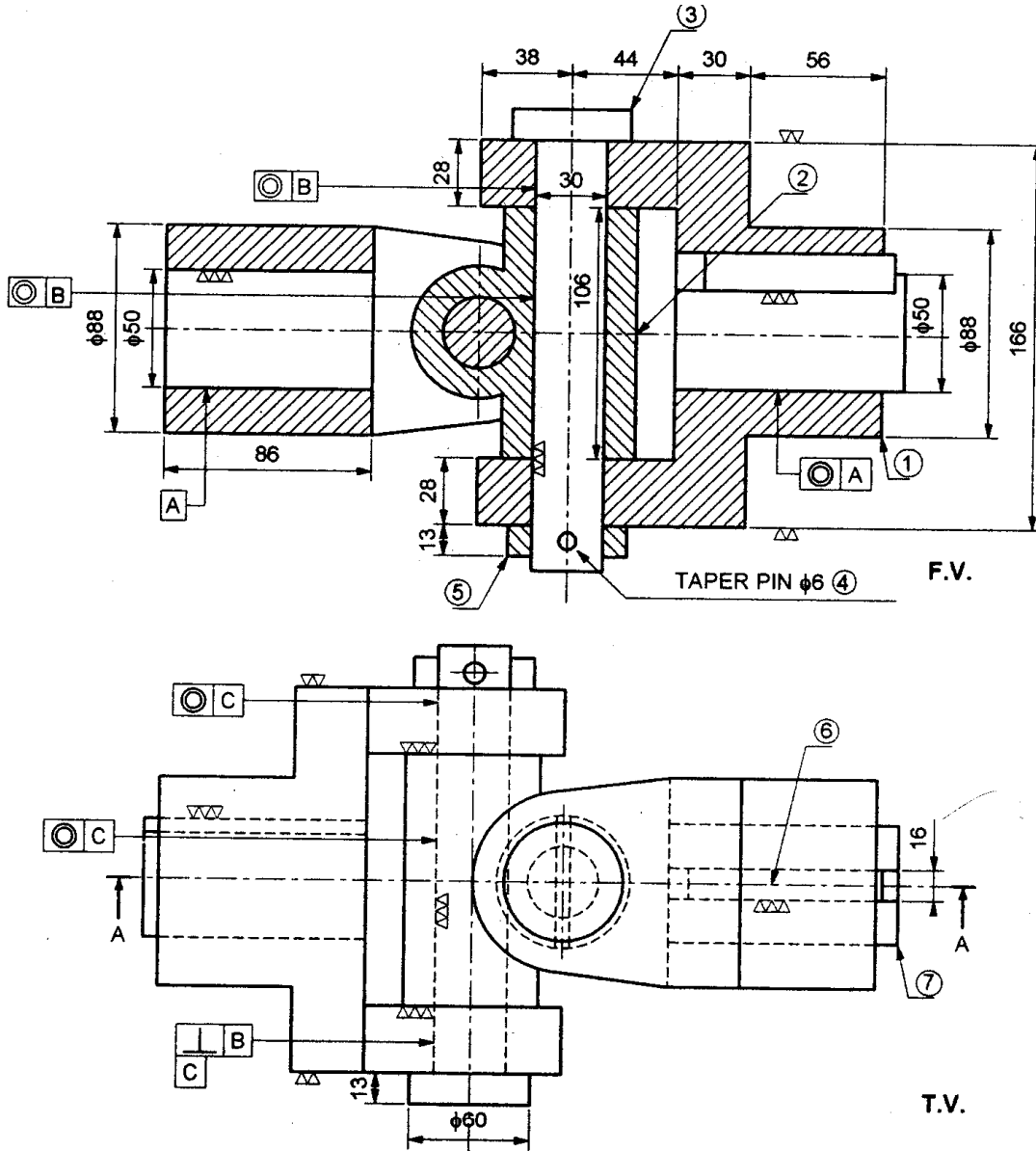
24H7/n6	INTERFERENCE FIT
60H7/e8	CLEARANCE FIT



**ASSEMBLY OF TOOL POST**



Q. 4 b ) For Sect. FV: 10 , TV : 08 & Bill of Material: 02 Marks



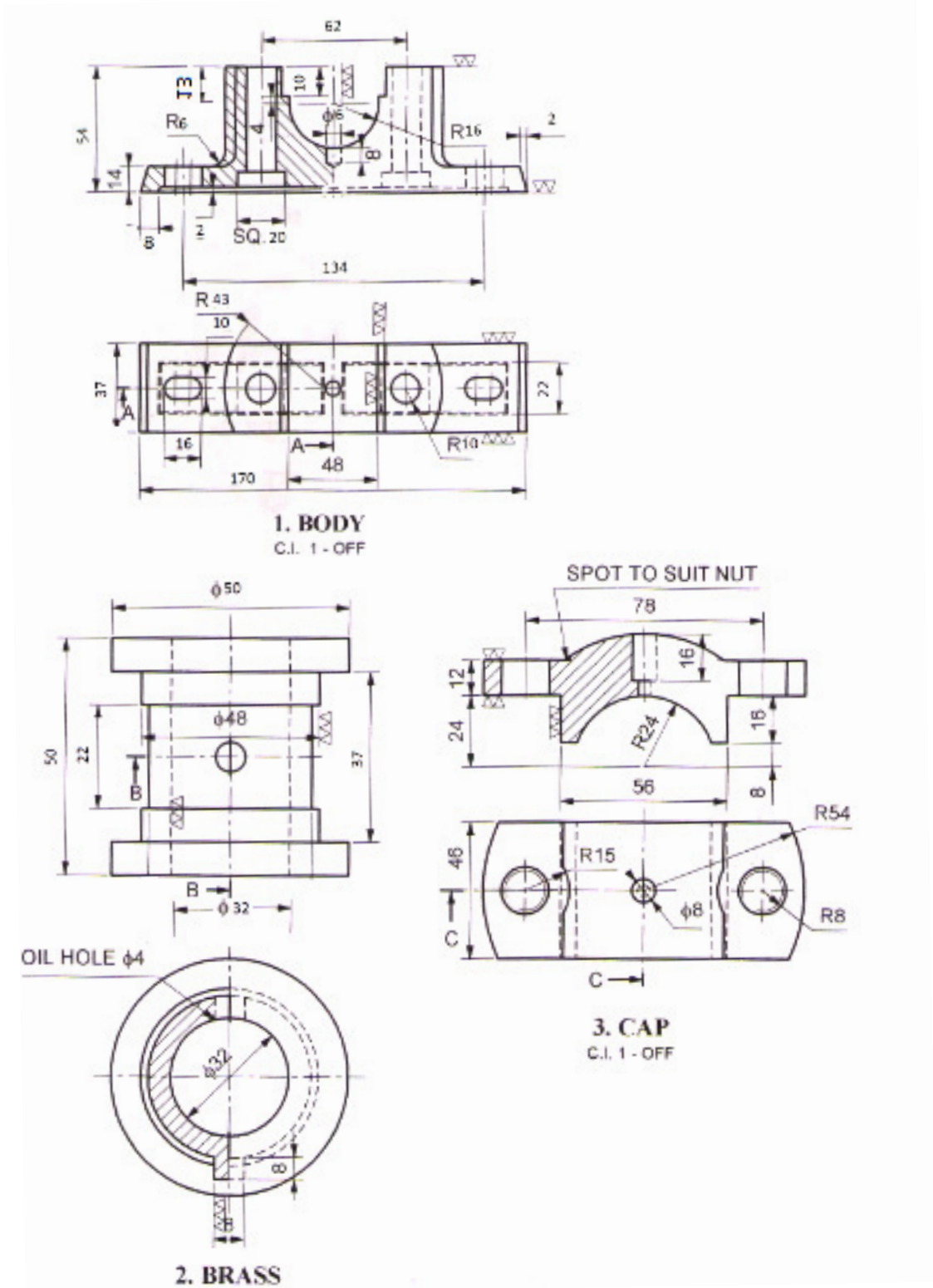
PART LIST

PART NO.	PART NAME	METAL	QTY.
1.	FORK	C.I.	2
2.	CENTER BLOCK	C.I.	1
3.	PIN	M.S.	2
4.	TAPER PIN	M.S.	2
5.	COLLAR	M.S.	2
6.	KEY	M.S.	2
7.	SHAFT	M.S.	2

Subject Code: 17305

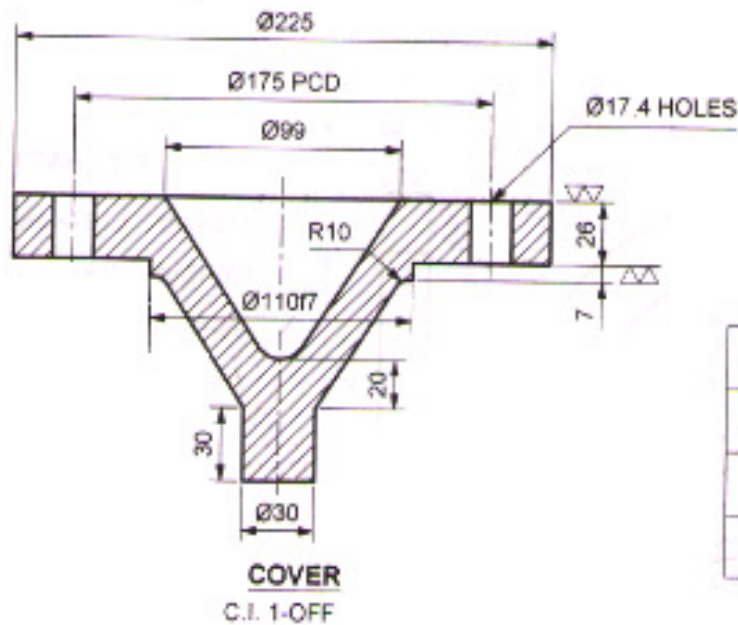
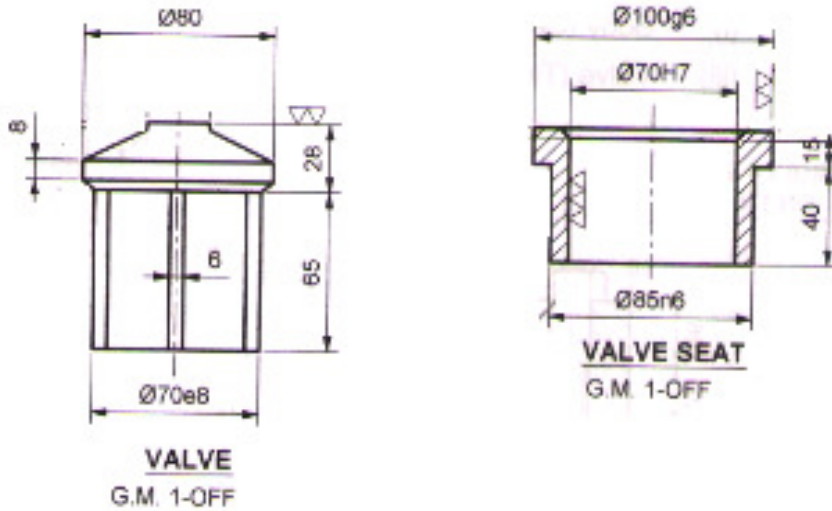
Q5 a) Details of Pedestal Bearing

Body: FV & TV Each Marks 4, Brass: FV & TV Each Marks 3 Cap: FV & TV Each Marks 3



Q5 b) Details of Non-return Valve

Valve : Marks 6 , Valve seat: Marks 6 Cover Marks 8



TOLERANCE CHART

110H7 = +0.035 +0.000	110f7 = -0.036 -0.071
100H7 = +0.035 +0.000	100g6 = -0.012 -0.034
85H7 = +0.030 +0.000	85n6 = +0.045 +0.023
70H7 = +0.030 +0.000	70e8 = -0.060 -0.106