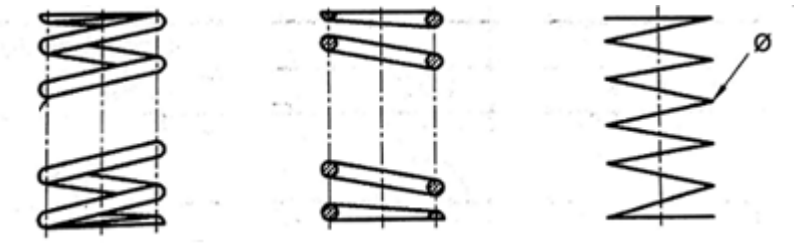
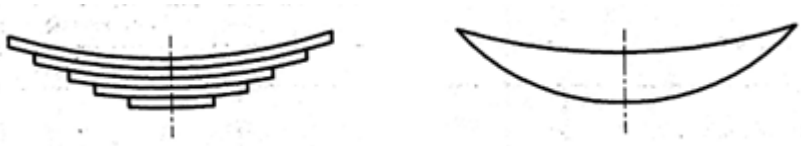
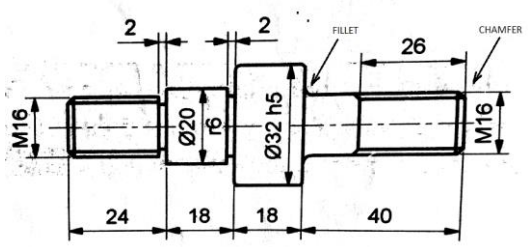
WINTER– 18 EXAMINATION

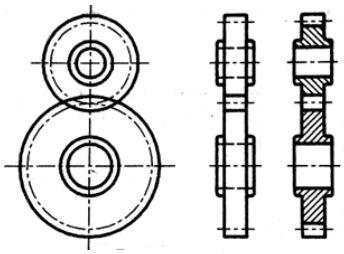
Subject Name: Mechanical Working Drawing **Model Answer** Subject Code: 22341

Important Instructions to examiners:

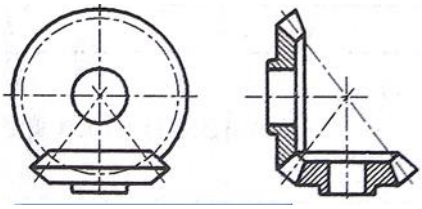
1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
3) The language errors such as grammatical, spelling 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.

Q. No.	Sub Q. N.	Answer	Marking Scheme
1		**Attempt any Five:**	02 Mark for each
	a)	(i) Cylindrical helical compression spring of wire of circular cross section 	
		(ii) Semi-elliptic leaf spring 	
	b)	Part showing Fillet radius and chamfered edge (Any component shows chamfer and fillet radius) 	

c) (i) Spur gear



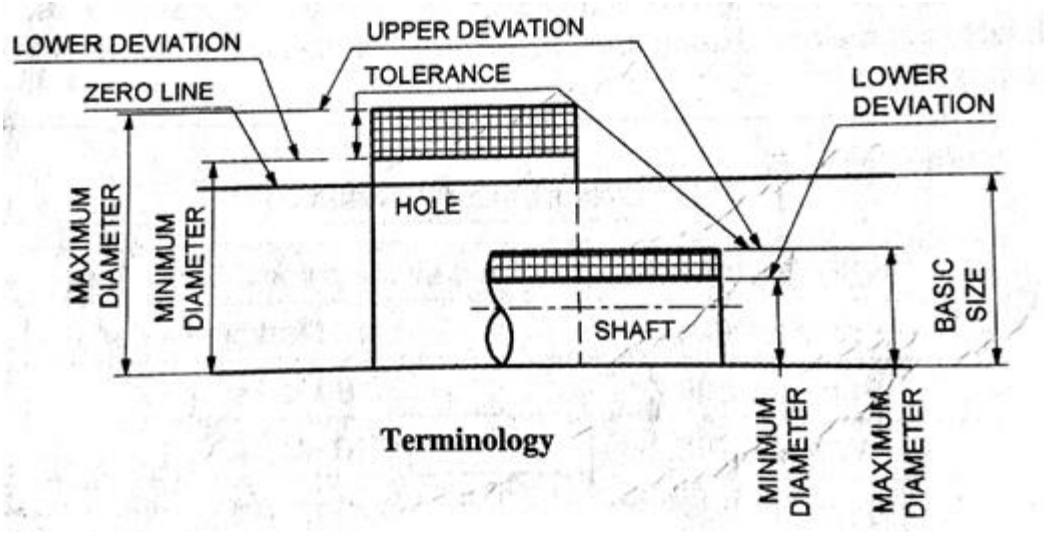
(i) Bevel gear



d) (i) External screw thread

(ii) Straight knurling

e)



Terminology

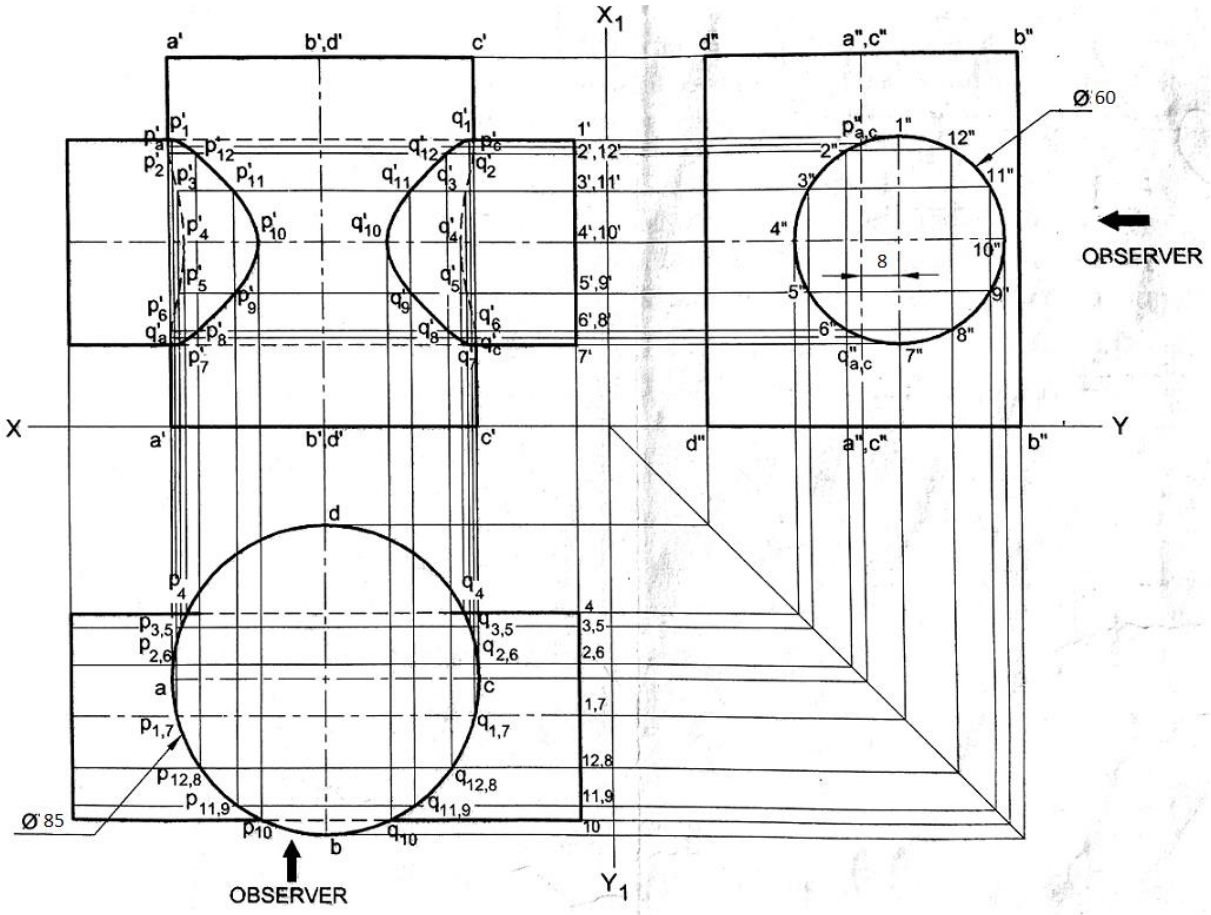
f) GRINDING – MANUFACTURING METHOD

0.8 - SURFACE ROUGHNESS VALUE IN MICRON METER
0.5 - MACHINING ALLOWANCE
2 - SAMPLING LENGTH

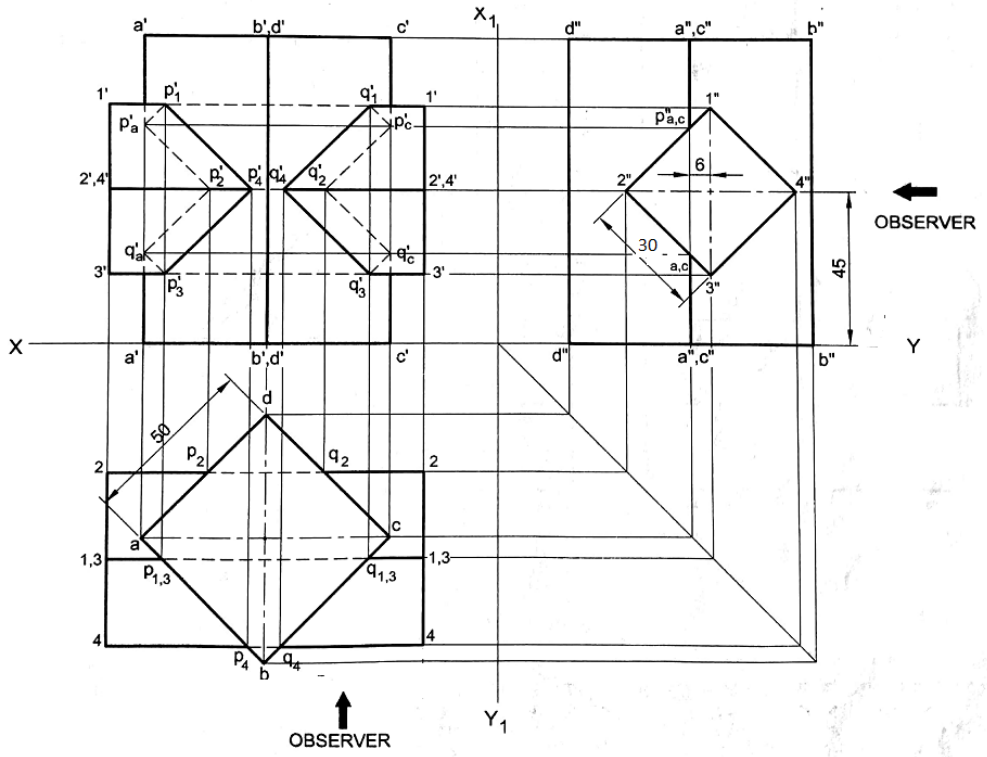
g) The Tolerance edge is perpendicular within 0.02 mm to the datum line A.

2 **Attempt any Two:** 06

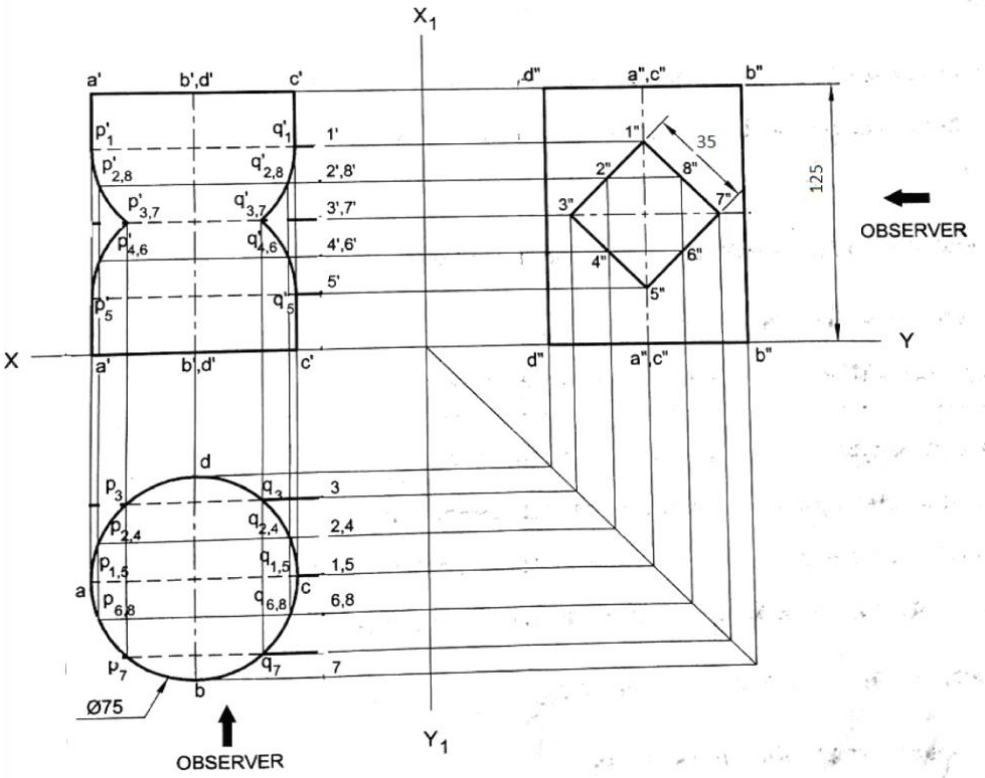
a) **(**FV 3 marks, TV 1.5 marks, SV 1.5 marks**)**



b) (FV 3 marks, TV 1.5 marks, SV 1.5 marks) 06



c) (FV 3 marks, TV 1.5 marks, SV 1.5 marks) 06



02 M

3		**Attempt any One:**	each
	(A)	a) Light press fit = H7/n6 Applications = Gears &bearing bushes, shaft & wheel assembly fixed by feather key. b)	04 M arks

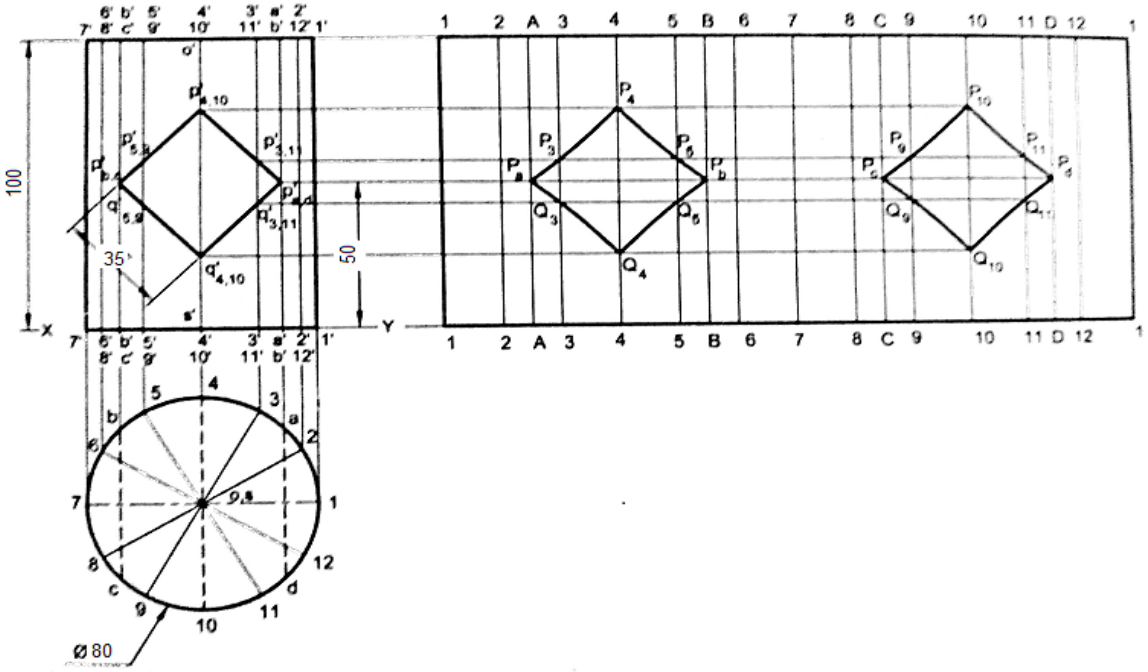
Max. Hole size (Bush) = 25.025 mm
Min " " " = 25.000 mm
Max. size of Shaft = 24.98 mm
Min " " " = 24.96 mm

∴ Max. Allowance = Max. Hole size − Min. Shaft size
= 25.025 − 24.96
= +0.065

Min Allowance = Min size of hole − Max. size of shaft
= 25.000 − 24.98
= +0.02

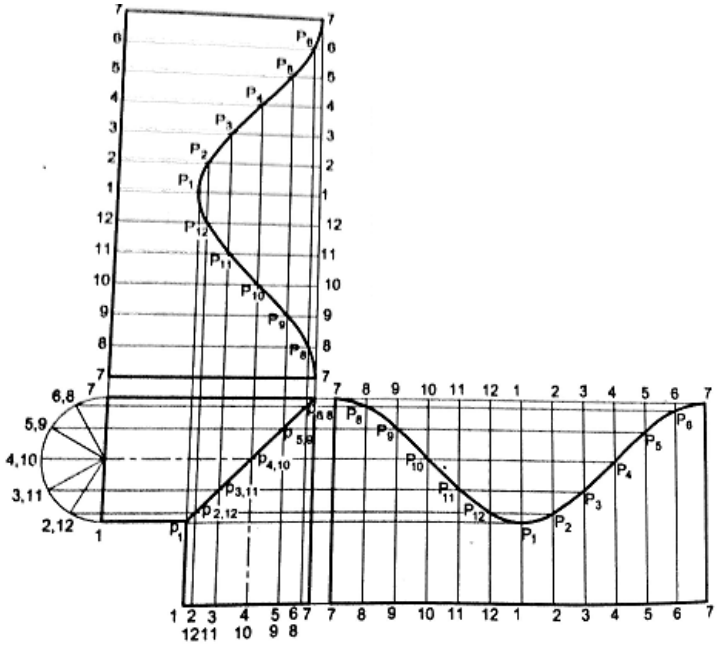
Since both values are +ve, the type of fit between Bush & Shaft is a clearance fit.

	(B)	**Attempt any Two:** (a) Initial position 02 marks & Development 04 marks	06



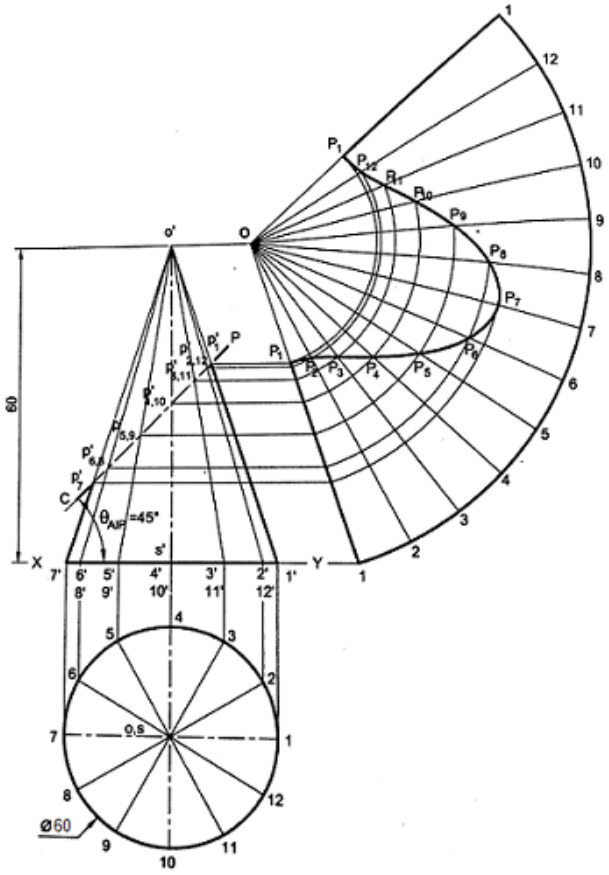
06

b) Initial position 02 marks & Development part A & B 04 marks each



06

c) Initial position 02 marks & Development 04 marks



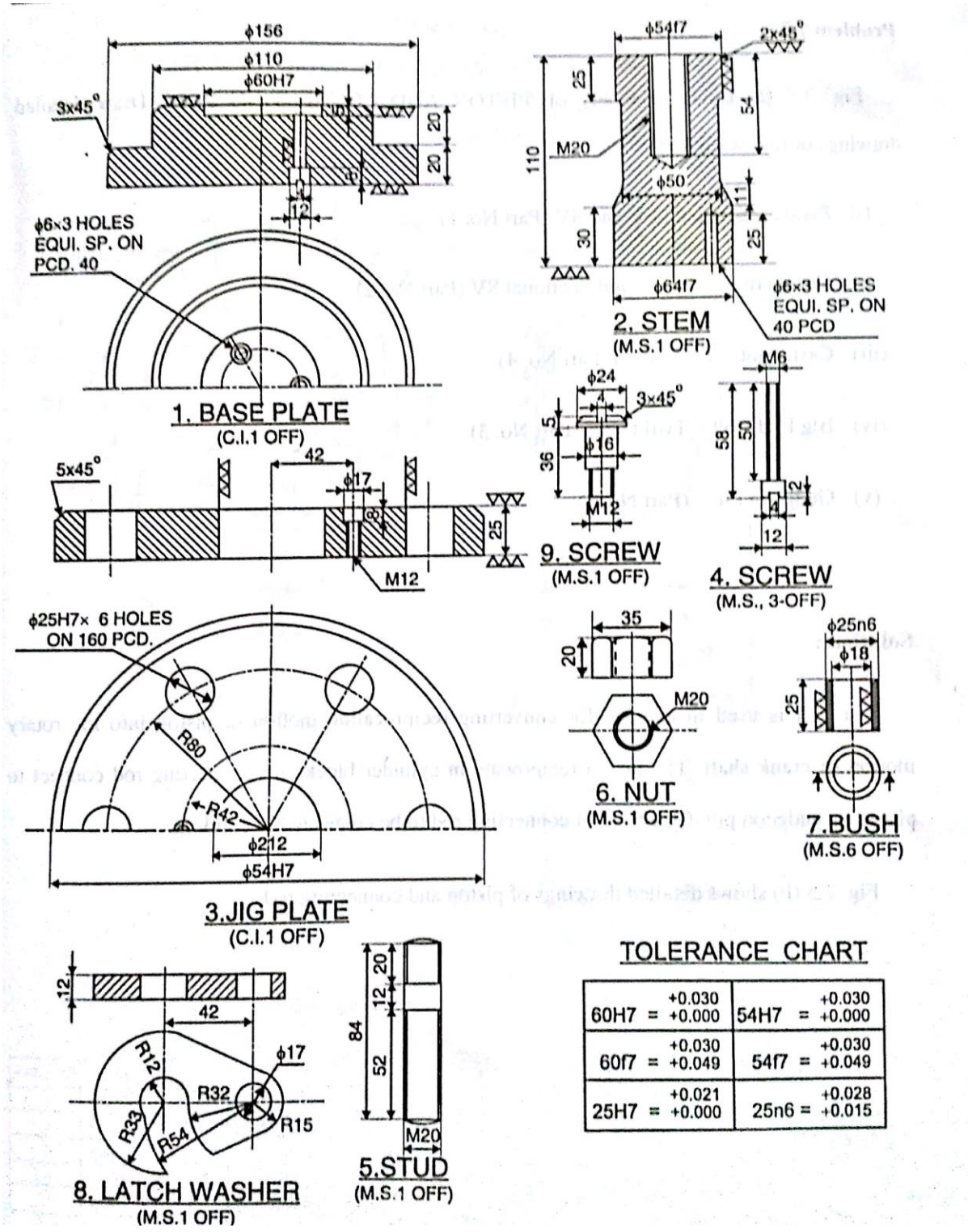
16

4 **Attempt the following: (Any Two)**

(i) Base Plate & stem Sect. F.V & T.V = 08 Marks

(ii) Jig plate & latch washer Sect. F.V & T.V = 08 Marks

(iii) F.V & T.V of Stud, Nut, Bush and Screw = 08 Marks



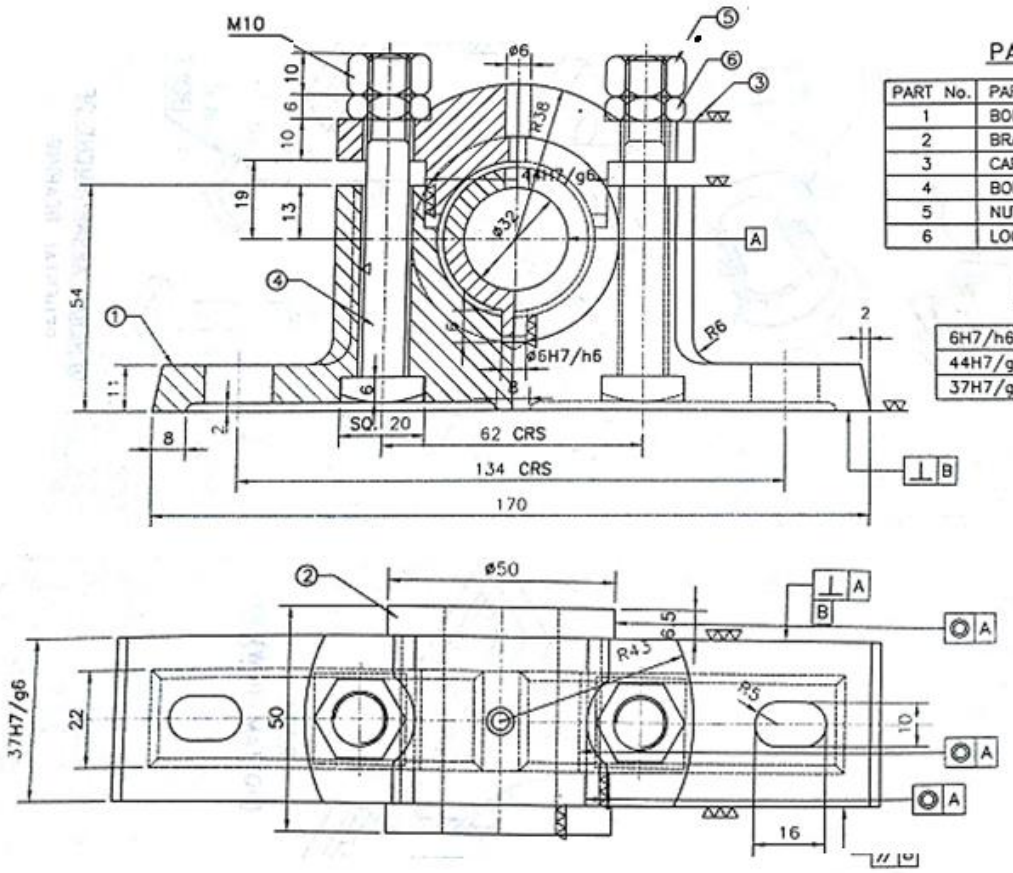
TOLERANCE CHART

60H7 = +0.030 +0.000	54H7 = +0.030 +0.000
60f7 = +0.030 +0.049	54f7 = +0.030 +0.049
25H7 = +0.021 +0.000	25n6 = +0.028 +0.015

16

5 **Attempt any One:**

a) (Half sect. Front view = 10 marks , Top View = 06 marks)



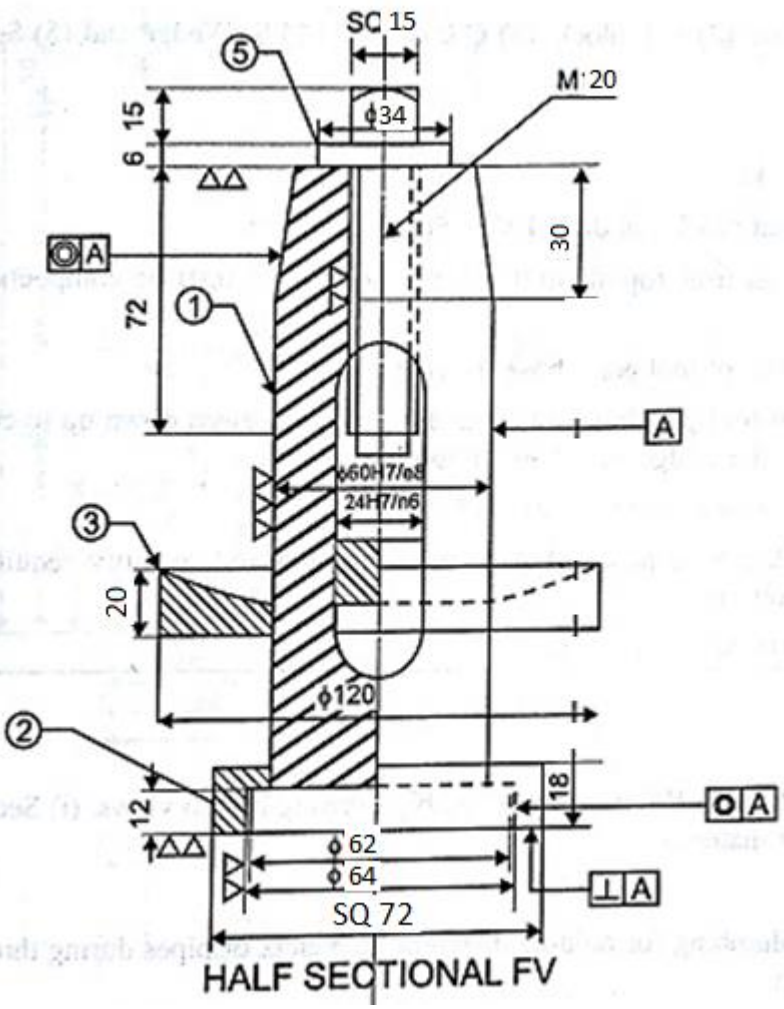
PART LIST

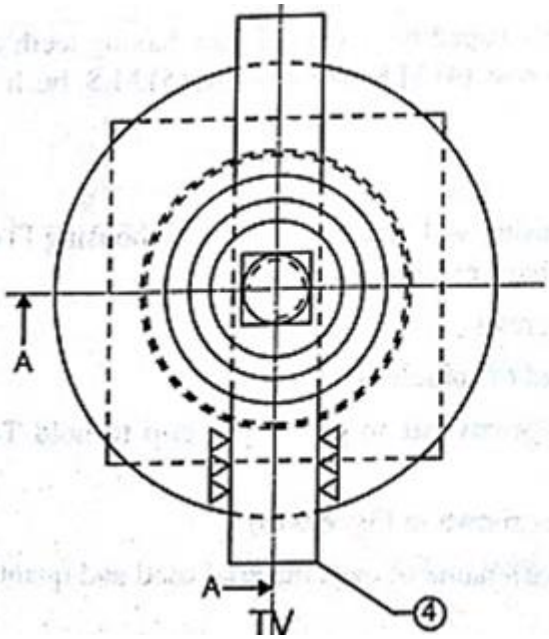
PART No.	PART NAME	MELT.	QTY.
1	BODY	C.I.	1
2	BRASS	G.M.	1
3	CAP	C.I.	1
4	BOLT	M.S.	2
5	NUT	M.S.	2
6	LOCK NUT	M.S.	2

FIT CHART

6H7/h6	=	CLEARENCE FIT
44H7/g6	=	CLEARENCE FIT
37H7/g6	=	CLEARENCE FIT

b) (Half sect. Front view = 10 marks , Top View = 06 marks)





FIT CHART

24 H7/n6 = INTERFERENCE FIT
60 H7/e8 = CLEARENCE FIT

PART LIST

PART NO.	PART NAME	MAT.	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

	Sub Q. N.	Answer	Marking Scheme
		XXXXX	