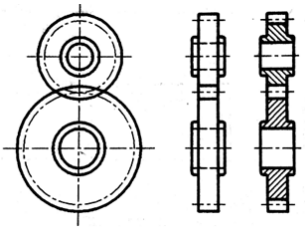
WINTER– 18 EXAMINATION

Subject Name: Mechanical Engineering Drawing **Model Answer** Subject Code: 17305

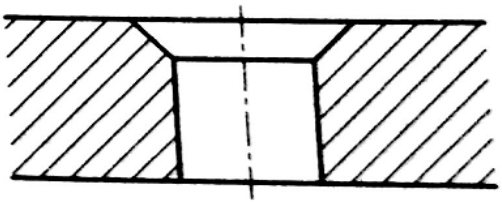
Important Instructions to examiners:

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	A)	**Attempt any SIX:** (a) SPUR GEAR  b) Round section  c) Slotted head 	02 M for each

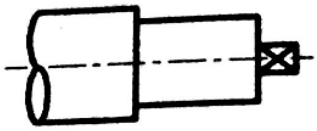
d) Diamond knurling

e) Counter Sunk



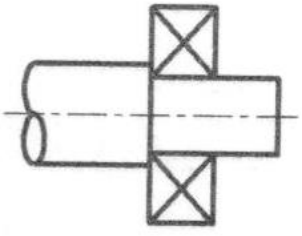
f) Union

g) Square on shaft



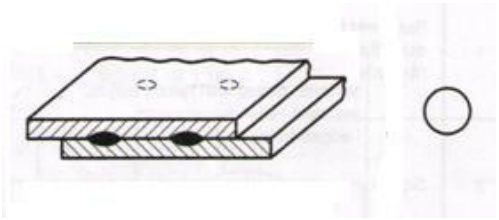
h)Semi-elliptic leaf spring with eyelets and centre band

i)Roller bearing



(B) **Attempt any TWO of the following**

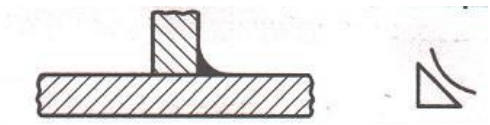
a)(i) Spot weld



01 M for each

(ii) Seam weld

(iii) Concave fillet weld



(iv) Convex double V-butt weld

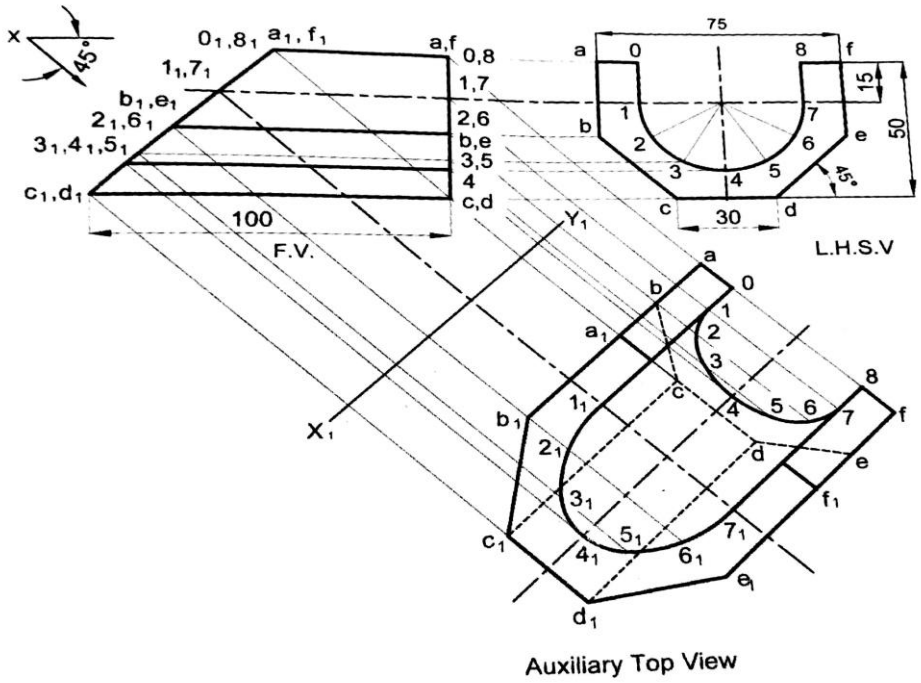
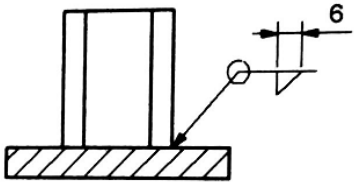
b) 04 M

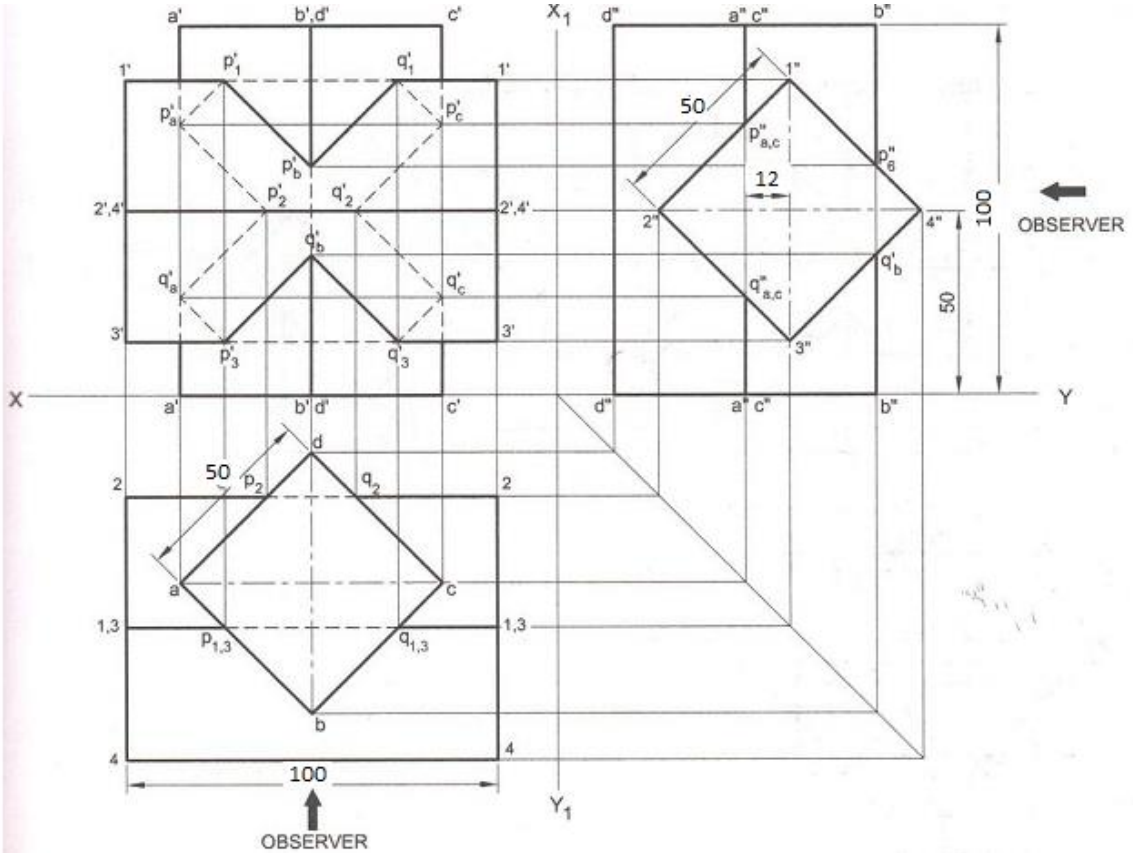
Max. Hole Size = 50.090 mm
Min " " = 50.000 mm
Max. Shaft " = 50.280 mm
Min " " = 50.120 mm

Max. Allowance = Max. Hole size − Min Shaft "
= 50.090 − 50.120 = **−0.03**

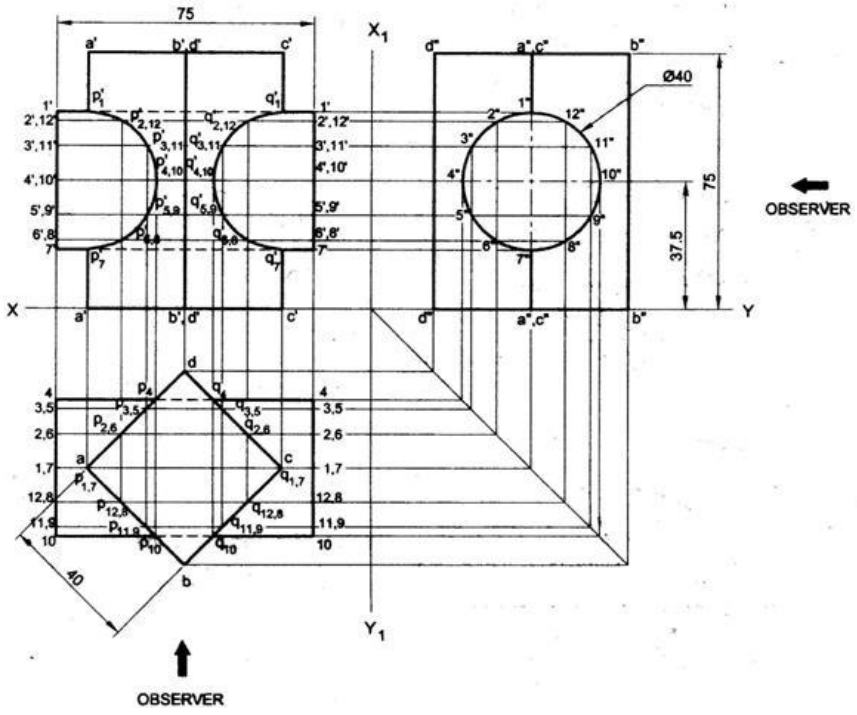
Min Allowance = Min Hole size − Max. Shaft "
= 50.000 − 50.280 = **−0.28**

Both −ve values indicate that the type of fit is Interference fit

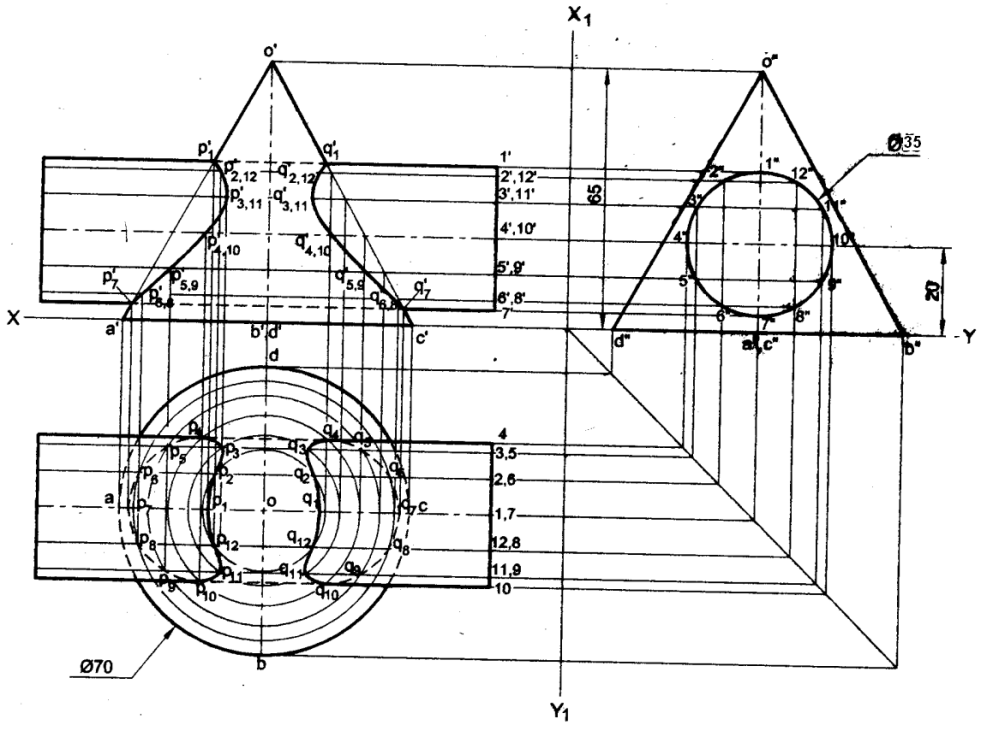
		c) MILLING – MANUFACTURING METHOD 25 - SURFACE ROUGHNESS VALUE IN MICRON METER 5 - MACHINING ALLOWANCE ⊥ - DIRECTION OF LENGTH LAY 40 - SAMPLING LENGTH	04 M
2	(A)	**(F.V. 03 MARKS , T.V. 03 MARKS, Auxiliary T.V 06 marks)**  	12
	(B)	**Attempt any TWO**: a) Meaning of x and y (x) The tolerenced edge is parallel with in 0.02 mm to the datum A (y) The tolerenced edge is perpendicular with in 0.03 mm to the datum A	02M for each
		b)  	04 M

		c) Draw the symbol of the following (i) Co-axiality  (ii) Cylindricity  (iii) Profile of any subject  (iv) Concentricity 	01 M each
3		**Attempt any TWO:**	
	(a)	**(F.V.= 06 MARKS , T.V.= 02 MARKS, Auxiliary T.V = 02 marks)** 	

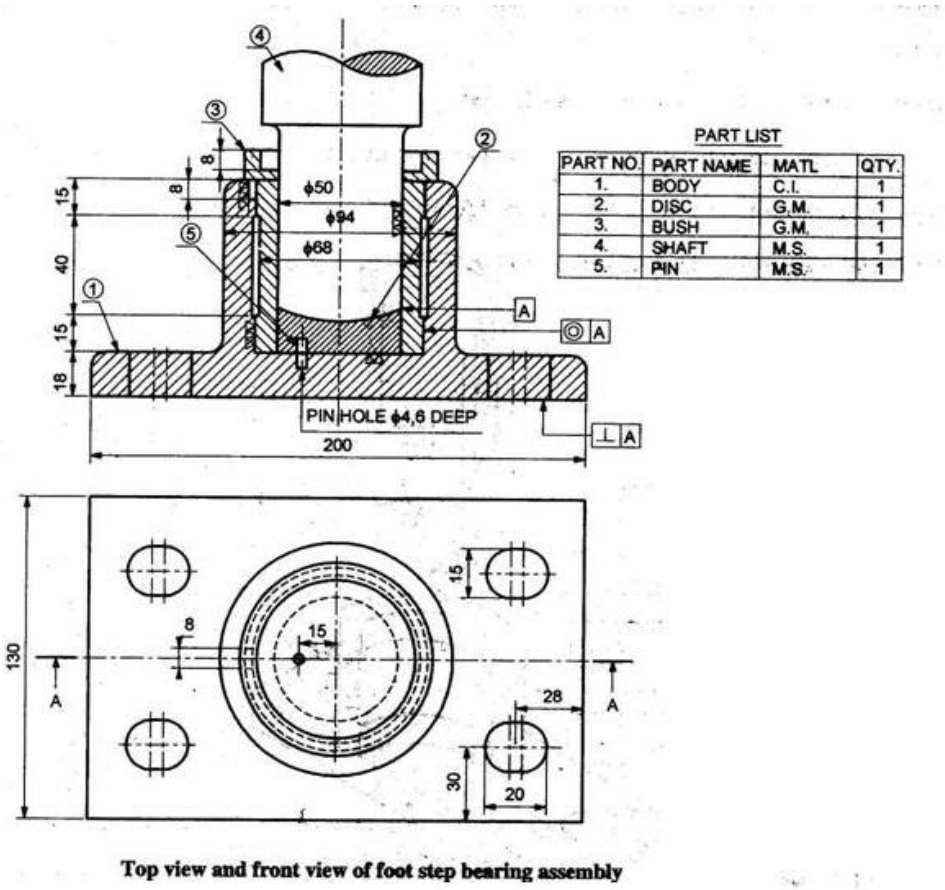
(b) **(F.V.= 06 MARKS , T.V.= 02 MARKS, Auxiliary T.V = 02 marks)**



c) **(F.V.= 06 MARKS , T.V.= 02 MARKS, Auxiliary T.V = 02 marks)**

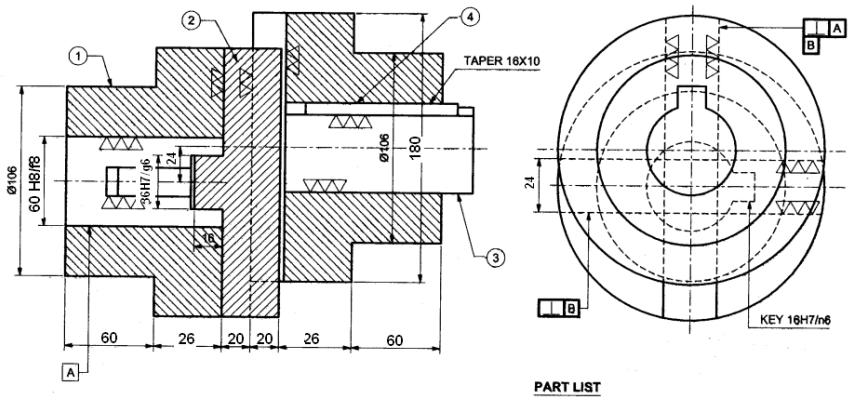


4		**Attempt any ONE:**	20
	(a)	**(Sect. Front view = 10 Marks, Top View = 08 Marks, Bill of material = 02 marks)**	



Top view and front view of foot step bearing assembly

	b)	**(Sect. Front view = 10 Marks, Top View = 08 Marks, Bill of material = 02 marks)**	



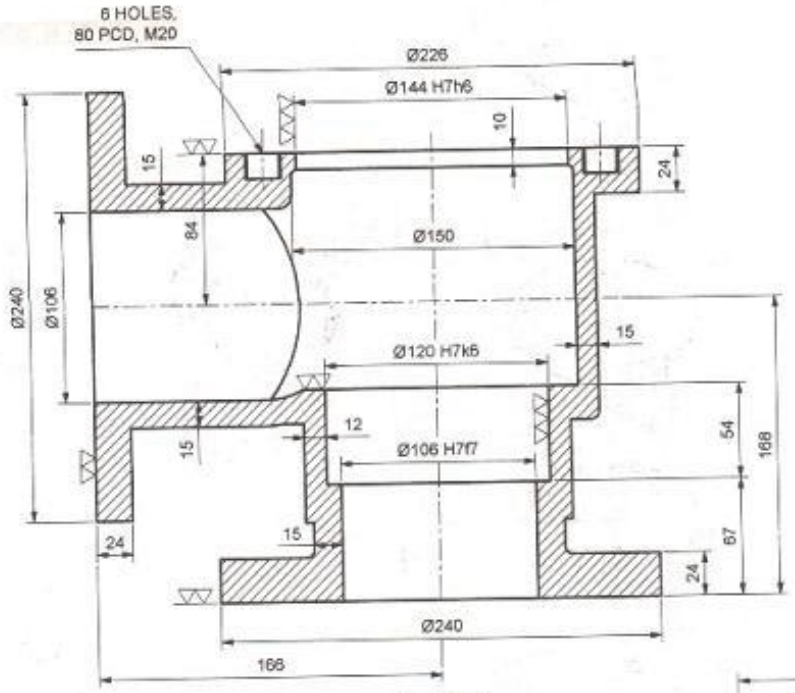
FIT CHART

16H7/n6	TRANSITION FIT
30H7/g6	CLEARANCE FIT
50H8/f8	CLEARANCE FIT

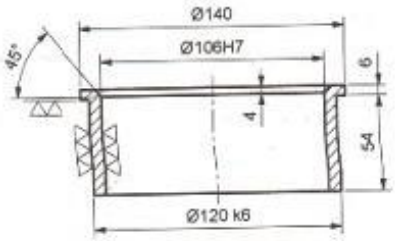
PART LIST

PART NO.	PART NAME	METL.	QTY.
1	FLANGE	C.I.	2
2	CENTER BLOCK	C.I.	1
3	SHAFT	M.S.	2
4	KEYS	M.S.	2

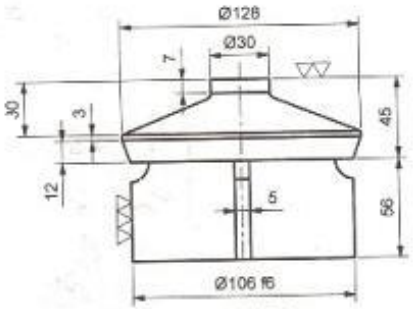
5		**Attempt any ONE:**	**20**
	a)	**(i) Body sect. F. V & T.V = 10 Marks, (ii) Valve F. V & T.V = 04 Marks,** **(iii) Valve Seat F. V & T.V = 04 Marks, (iv) Indication of tolerance, geometrical tolerance = 02 marks**	



1. BODY
C.I. 1-OFF



2. VALVE SEAT
G.M. 1-OFF



3. VALVE
G.M. 1-OFF

TOLERANCE CHART

106H7 =	+0.054 +0.000	106f7 =	−0.036 −0.071
120H7 =	+0.035 +0.000	120k6 =	+0.025 +0.003
144H7 =	+0.040 +0.000	144h6 =	+0.000 −0.025

b) **(i) Body (two views) = 06 Marks, (ii) Remaining Components (any four) = 02 Marks each**

(ii) Plate F. V & T.V = 04 Marks, (iv) Type of fit used = 02 marks