

Total No. of Questions :8]

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Roll No

AU/IP/IEM/ME - 305
B.E. III Semester
Examination, December 2012
Machine Drawing And Design

Time : Four Hours

Maximum Marks : 70/100

- Note :** 1. Attempt four questions selecting one from each unit.
2. Question in unit-II carry 28 marks.
3. Assume suitable missing data if any.

Unit - I

1. a) Draw sectional view from front and view from above of double riveted zig-zag lap joint to join plates of thickness 10 mm. 7
- b) Draw the conventional representation of following machine parts. 7
 - i) Bearing.
 - ii) Splined shaft.
 - iii) Cylindrical tension spring.
 - iv) Spur gear.

OR

2. a) Discuss two methods normally followed while dimensioning a drawing. 4

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[2]

- b) Draw sectional view from the front and view from above of an bracket given in Fig. 1. 10

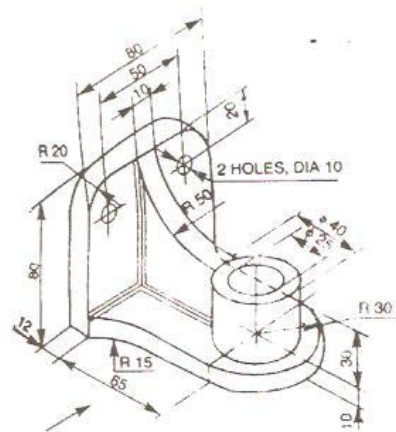


Figure 1

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Unit - II

3. Assemble the parts of a foot step bearing shown in Fig. 2 and draw sectional view from front and view from above of the assembly. 28

Assembly Drawings

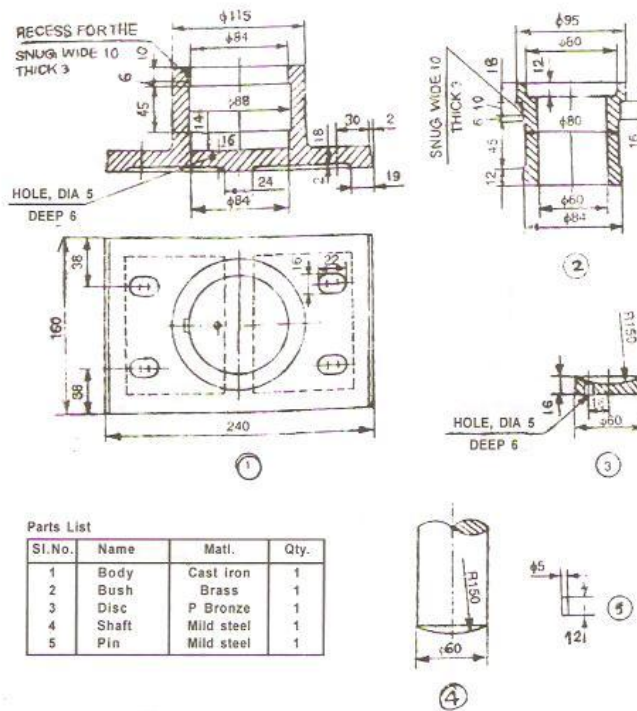


Figure 2 - Foot Step Bearing

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OR

4. Details of a tool carrier are shown in Figure 3. Assemble the parts and draw the half section front view with right half in section and top view of the assembly.

28

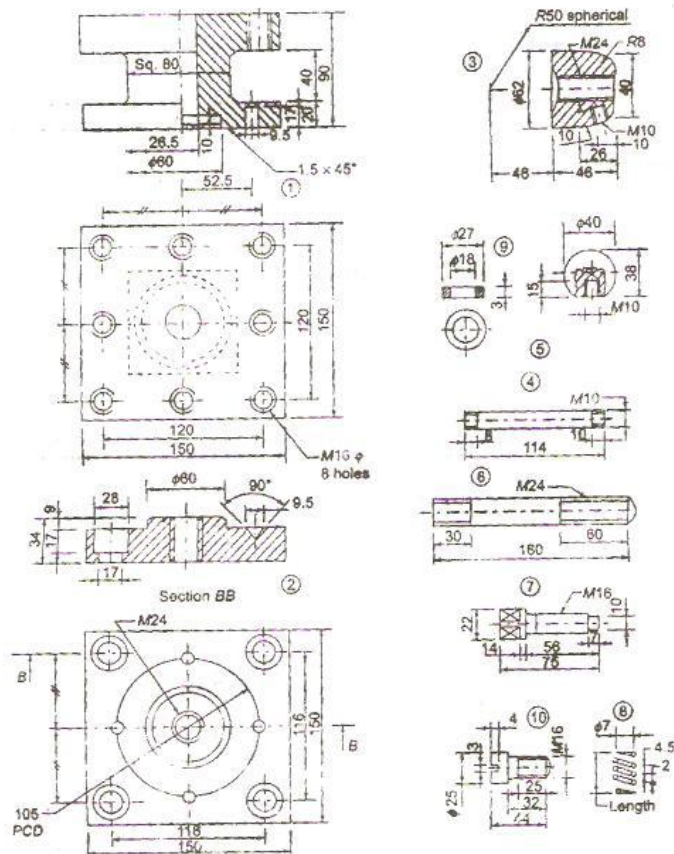


Figure - 3 - Tool carrier

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Part list of tool carrier

Sl.No.	Part	Quantity	Material
1	Side plates	1 set	MS
2	Pin with nut	4+4	MS
3	Hexagonal nut	4+4	MS
4	Bush	1	MS
5	Hook	1	CS
6	Ball bearing	1	Bearing material
7	Cover plate	1	MS
8	Nut	1	MS
9	Split pin	1	MS
10	Support plate	2	MS
11	Screw	4	MS
12	Pin	1	MS
13	Casted bolt with sim (Pulley)	2 sets	MS

Unit - III

5. a) What do you mean by engineering design? Explain the basic design concepts. 7
- b) Define the following terms: 7
- i) Normal stress ii) Yield stress
 - iii) Proof stress iv) Modulus of Elasticity
 - v) Elastic strain

OR

6. a) What is the importance of factor of safety? List the parameters on which it depends. 7
- b) Explain the importance of manufacturing considerations in the design process. 7

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Unit - IV

7. Design a Knuckle joint to connect two mild steel rods which transmit a tensile force of 25 kN. The safe working stresses for tension, shear and crushing are 100 N/mm^2 , 160 N/mm^2 and 160 N/mm^2 respectively. 14

OR

8. Two mild steel tie rods having width 200 mm and thickness 12.5 mm are to be connected by means of a bolt joint with double cover plates. Design and draw the joint. Allowable stresses for mild steel for tension, shear and crushing are 120 N/mm^2 , 85 N/mm^2 and 240 N/mm^2 respectively. 14

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