Total No. of Questions :8] *[Total No. of Printed Pages :6*

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 dimensionly a drawing. 4

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

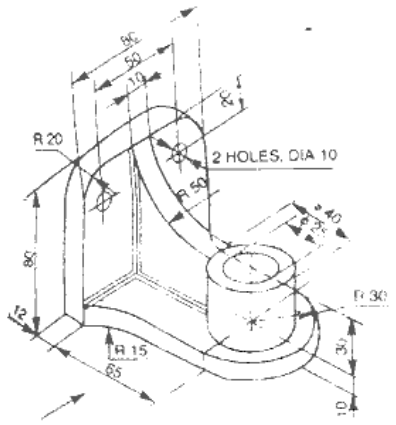


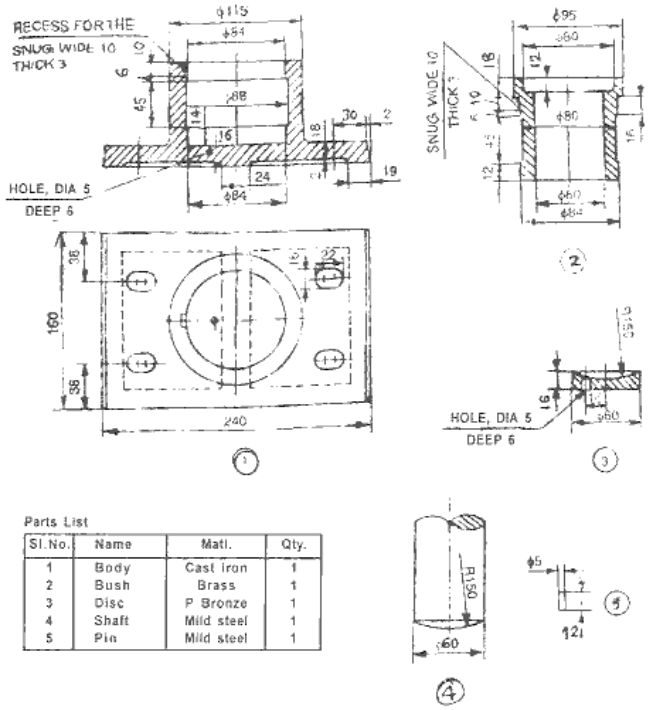
Figure 1

[3]

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



Parts List

Sl.No.	Name	Matl.	Qty.
1	Body	Cast iron	1
2	Bush	Brass	1
3	Disc	P Bronze	1
4	Shaft	Mild steel	1
5	Pin	Mild steel	1

Figure 2 - Foot Step Bearing

[4]

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

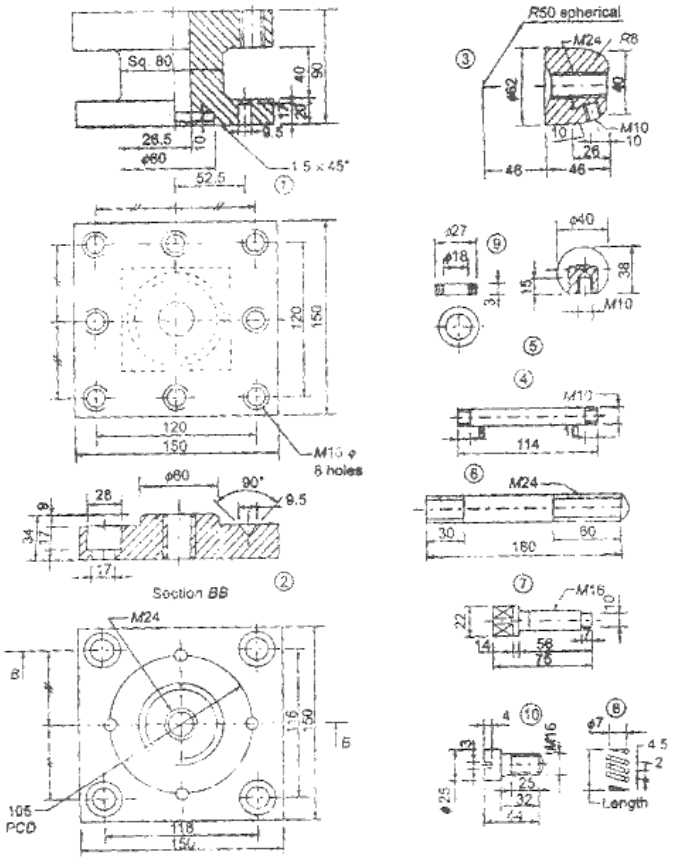


Figure - 3 - Tool carrier

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

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

******