Roll No .....

FT - 503

B.E. V Semester

Examination, June 2014

Machine Drawing and Design

Time : Three Hours

Max. Marks : 70

Note : i) Attempt all questions
ii) Marks are indicated as per questions.
iii) use of design data book is permitted.

Unit - I

1. a) Draw the conventional representation of the following: 7
   i) External thread
   ii) Semi elliptical spring
   iii) Bearing
   iv) Diamond knurling

   b) Define surface finish and tolerances 7

   OR

   a) Draw the sectional front view and top view of single riveted butt joint, take thickness of plate 10mm and diameter of rivet 20 mm. 7

   b) Sketch the conventional representation of 7
   i) Gear
   ii) Internal thread
   iii) Splined shaft

Unit - II and - III

2. Figure 1 shows the details of stuffing box, assembly part and draw the following views: 28
   i) Front view
   ii) Top view

   OR

   Figure No. 2 shows the detail of knuckle joint Assemble the parts and draw the following : 28
   i) Front view
   ii) Top view

Unit - IV

3. a) Write the advantage and disadvantage of CAD. 7

   b) What do you mean by 2D and 3D modeling. 7

   OR

   a) Explain basic design procedure of machine element. 7

   b) What is standardization? What are its advantages 7

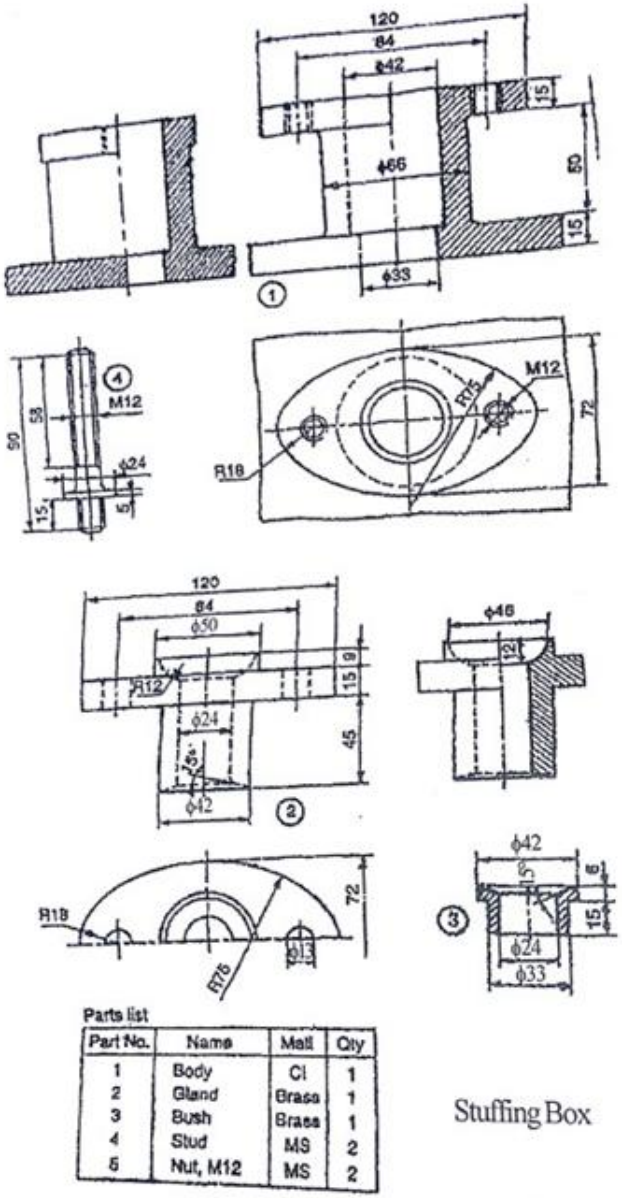
Unit - V

4. Design a knuckle joint to transmit 150 kN. The design stress may be taken as 75 MPa in tension 60 Mpa in shear and 150 Mpa in compression. 14

   OR

   A double riveted lap joint is made between 15 mm thick plates. The rivet diameter is 25 mm and pitch is 75 mm. If the ultimate stress is 400 Mpa in tension, 320 Mpa in shear and 640 Mpa in crushing find the efficiency of the joint. Also find the minimum force per pitch which will rupture the joint. 14

[3]



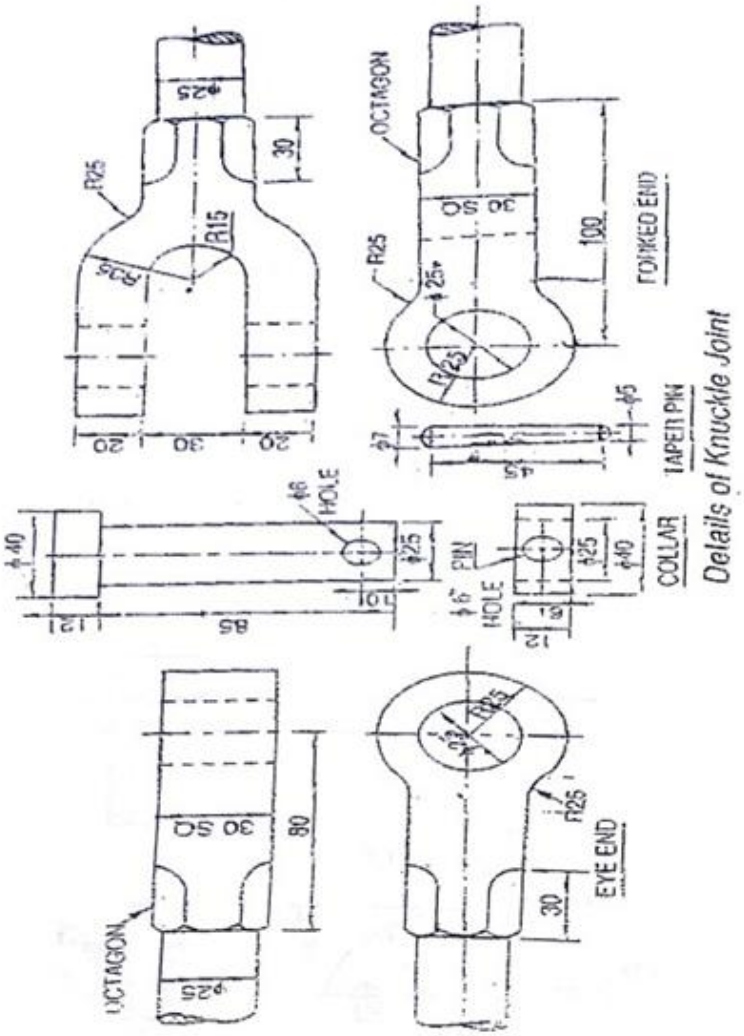
Parts list

Part No.	Name	Matl	Qty
1	Body	CI	1
2	Gland	Brass	1
3	Bush	Brass	1
4	Stud	MS	2
5	Nut, M12	MS	2

Stuffing Box

Fig. 1

[4]



Details of Knuckle Joint

Fig. 2

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