Reg.No:

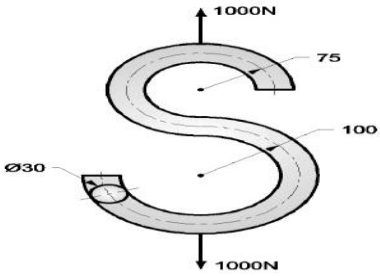**SNS College of Technology,Coimbatore-35.**
(Autonomous)
B.E/B.Tech- Internal Assessment -I
Academic Year 2023-2024 (ODD)
Fifth Semester
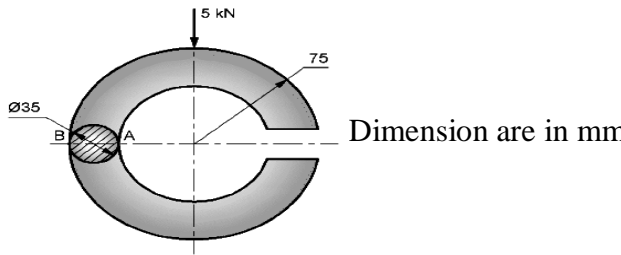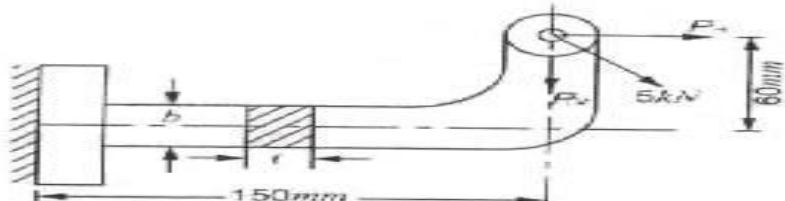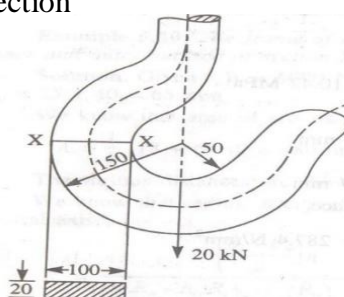**Mechanical Engineering**
19MET301 – Design of Machine Elements

A

Time: 1$^{1/2}$ Hours   **Maximum Marks: 50**

Answer All Questions

PART - A (5 x 2 = 10 Marks)		
	CO	**Blooms**
1. Write the general procedure in design?	CO1	Rem
2. Difference between Static and Variable stresses with example?	CO1	Und
3. Draw the Stress distribution of Straight and Curved beam.	CO1	Und
4. Explain octahedran theory with equation?	CO 2	Und
5. What is the method to relieve stress concentration factor?	CO 2	Rem

PART – B (2 x 13 = 26 Marks) and (1 x 14 = 14 Marks)				
			CO	**Blooms**
6.	(a)	A link of S Shape made of diameter 30mm bar shown in figure determine the maximum tensile stress in the link All Dimension are in mm	13	CO 1	Eva
		(or)			
	(b)	Calculate the stress at a point of A and B of Circular bar are shown in fig.The circular beam is subjected to a Compressive load of 5 KN.	13	CO 1	Und

		Dimension are in mm			
7.	(a)	A bolt is subjected to an axial pull of 10KN and transverse shear of 5KN.The yield strength of bolt material is 300Mpa considering F.O.S of 2.5.Determine the diameter of bolt using (i) Maximum normal stress theory(ii) Maximum shear stress theory and (iii) Maximum strain theory(iv)octahedran theory Take poison ratio as 0.25	13	CO2	App
		(or)			
	(b)	A mild steel bracket shown in fig. It is subjected to a pull of 5000N acting at 45° to the horizontal axis.The bracket has a rectangular section whose depth is twice the thickness.Find the cross sectional dimension of bracket if the permissible stress in the material is 50N/mm².	13	CO 2	R
8.	(a)	i)Explain the different property of material ii)Explain the phases of design process	14	CO1	U
		(or)			
	(b)	The crane hook carries a load of 20KN,as shown in fig,The section is rectangular whose horizontal side is 100mm.find the stress in the inner and outer fiber at a givens Section All Dimension are in mm	14	CO 1	U
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CO – Course Outcome, Und- Understanding, Rem- Remembring, App-Apply, Ana-Analyze, Eva-Evaluate

Prepared by   **Verified by**   **HOD/Mech(Academics)**