Reg.No: | | | | | | | |

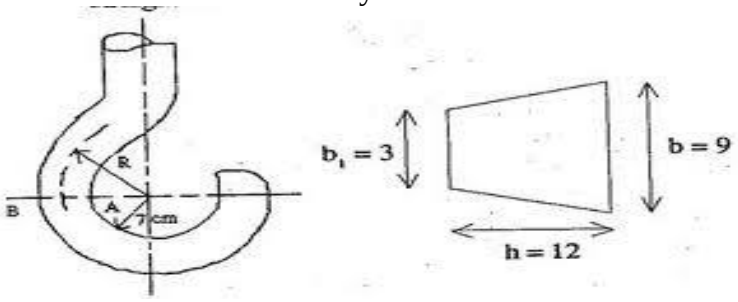
SNS College of Technology,Coimbatore-35.
(Autonomous)
B.E/B.Tech- Internal Assessment -I
Academic Year 2023-2024 (ODD)
Fifth Semester
Mechanical Engineering
19MET301 – Design of Machine Elements

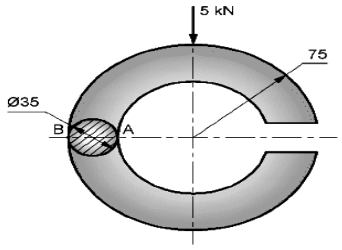
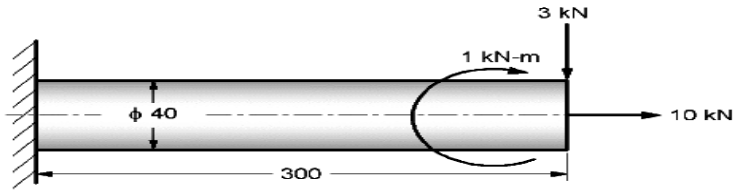
B

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

Answer All Questions

PART - A (5 x 2 = 10 Marks)			
		CO	**Blooms**
1.	List the factors influencing the Machine Design?	CO1	Rem
2.	Discuss the Static stresses with example?	CO1	Und
3.	Draw the Stress distribution of Curved beam.	CO1	Und
4.	Explain Maximum Principle stress theory with equation?	CO 2	Und
5.	List 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)	crane hook has a section, which for the purpose of analysis is consideredtrapezoidal as shown in fig.it is made of plain carbon steel with an yield strength of 380Mpa in the tension.Determine the load capacity of hook for a factor of safety 3.  All Dimension are in cm	13	CO 1	Ana
		(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.  All Dimension are in mm	13	CO 1	Ana
7.	(a)	A steel bar of 40mm dia and 300mm length is subjected to a torque of 1KN-m and two other load is shown in fig. The yield Strength of the material is 250Mpa,determine the factor of safety using(i) Maximum normal stress theory(ii) Maximum shear stress theory and (iii)Maximum strain energy  All Dimension are in mm	13	CO2	App
		(or)			
	(b)	Explain different Theory of Failure for Static Loading and Soderberg & Goodman relations..	13	CO 2	Und
8.	(a)	i)Explain the mechanical properties of material ii)Explain the impact stress and principal stress.	14	CO1	Und
		(or)			
	(b)	Steel bracket subjected to a pull of 3000N acting at 35° 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 60N/mm².	14	CO 2	Und
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CO – Course Outcome, Und- Understanding, Rem- Remembring, App-Apply, Ana-Analyze, Eva-Evaluate

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