Roll No. _____

END SEMESTER EXAMINATION
SEMESTER- III

COURSE CODE : AE 403
COURSE TITLE : STRENGTH OF MATERIALS & MACHINE DESIGN
SESSION : JUL - DEC'2021

DURATION : 3 (THREE)HRS
MAXIMUM MARKS : 75
PASS MARKS : 35 %

NOTE:
1. *All the questions are compulsory*
2. *Attempt any 5 (five) questions.*
3. *Mark for each question is shown against it.*
4. *Assume suitable logical data wherever necessary.*

1.	**(a)**	Briefly explain Point load and Distributed Load.		**(8)**
	(b)	Classify the various Stresses. Explain the concept of stress.		**(7)**
2.	**(a)**	Explain clearly the concept of stress.		**(7)**
	(b)	Classify the various stresses. And with neat diagram explain the simple stress.		**(8)**
3.	**(a)**	With neat diagram explain the following:		**(12)**
		i) Tensile strain	ii) Compressive strain	
		iii) Shear strain	iv) Volumetric strain.	
	(b)	The international system of units is divided into three classes. Name them.		**(3)**
4.	**(a)**	Following are the some important mechanical properties of metals. Briefly explain		**(12)**
		them.		
		i) Strength	ii) Elasticity	
		iii) Plasticity	iv) Ductility	
	(b)	Define strain, stress and load.		**(3)**
5.	**(a)**	State the Hooke's Law, Young's modulus, Modulus of rigidity and Bulk or volume		**(8)**
		Modulus of elasticity.		
	(b)	A square steel rod *20 mm x 20 mm* in section to carry an axial (compressive) of *100 kN*		**(7)**
		Calculate the shortening in a length of 50 mm. $E = 2.14 \times 10^8\ kN/m^2$		
6.	**(a)**	Discuss the stress-strain curve with suitable diagram.		**(7)**
	(b)	Briefly describe the following with respect to stress-strain curve:		**(8)**
		i) Proportional limit	ii) Elastic limit	
		iii) Yield Strength	iv) Yield point	
7.	**(a)**	Explain the function of shafts.		**(7)**
	(b)	Explain the functions of keys, types of keys and material of keys.		**(8)**
8.	**(a)**	State the functions of coupling and also briefly explain the types of coupling		**(8)**
	(b)	Discuss the difference between torque and torsion.		**(7)**

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