

**GUJARAT TECHNOLOGICAL UNIVERSITY****B.VOC - SEMESTER– I EXAMINATION – SUMMER 2024****Subject Code: 21110302****Date:27-05-2024****Subject Name: General Mechanical Engineering****Time:02:30 PM TO 04:30 PM****Total Marks:50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		<b>Marks</b>
<b>Q.1</b>	(a) Define thermodynamic system. Explain types of system with examples.	<b>05</b>
	(b) Define state, process, path, and cycle with an example.	<b>05</b>
<b>Q.2</b>	(a) Explain first and second law of thermodynamics.	<b>05</b>
	(b) Explain Carnot cycle.	<b>05</b>
	<b>OR</b>	
	(b) Derive the equation of work done of Isothermal Process.	<b>05</b>
<b>Q.3</b>	(a) Give detail classification of engineering materials.	<b>05</b>
	(b) Difference between Ferrous and Nonferrous materials.	<b>05</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What do you mean by non-ferrous metals? Name any four with their application.	<b>05</b>
	(b) Differentiate between thermo-plastic and thermo-setting material.	<b>05</b>
<b>Q.4</b>	(a) Define: Moment and Couple. Write characteristics of moment and couple.	<b>05</b>
	(b) Explain law of triangle of forces to derive resultant force.	<b>05</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain types of forces with suitable example.	<b>05</b>
	(b) Explain parallelogram method and derive equation of resultant.	<b>05</b>
<b>Q.5</b>	(a) What is strain? Explain linear and shear strain.	<b>05</b>
	(b) Define: Bulk Modulus, Modulus of Elasticity, Modulus of Rigidity, Thermal Strain, Volumetric Strain.	<b>05</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Define stress. Explain various types of stresses.	<b>05</b>
	(b) Draw and stress–strain diagram of mild steel material.	<b>05</b>

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