Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BVOC- SEMESTER– I EXAMINATION – SUMMER 2023

Subject Code:21110302   **Date:31-07-2023**

Subject Name:General Mechanical Engineering

Time:10:30 AM TO 12:30 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.**

			Marks
Q.1	**(a)**	What is Stress? Explain any two stress that induced in mechanical components with neat sketch.	**05**
	(b)	Enlist names of various elastic constants. Write importance and significance of poison's ratio.	**05**
Q.2	**(a)**	Define thermodynamic system. Explain types of system with examples.	**05**
	(b)	Prove that $C_p - C_v = R$ with usual notations.	**05**

OR

	(b)	Define Following:1. Heat 2. Weight 3. Pressure 4. Mass	**05**
Q.3	**(a)**	Derive the equation of work done of Isothermal Process	**05**
	(b)	Define state, process, path and cycle with an example.	**05**

OR

Q.3	**(a)**	Explain first and second law of thermodynamics.	**05**
	(b)	Explain Carnot cycle.	**05**
Q.4	**(a)**	Give detail classification of engineering materials.	**05**
	(b)	What do you mean by non-ferrous metals? Name any four with their application.	**05**

OR

Q.4	**(a)**	Explain law of triangle of forces	**05**
	(b)	Write characteristics of moment and couple.	**05**
Q.5	**(a)**	Explain method to determine resultant of non-concurrent forces.	**05**
	(b)	Define: Moment and Couple. Write characteristics of moment and couple.	**05**

OR

Q.5	**(a)**	What is strain? Explain linear and shear strain.	**05**
	(b)	Define: Bulk Modulus, Modulus of Elasticity, Modulus of Rigidity, Thermal Strain, Volumetric Strain.	**05**

****