

GUJARAT TECHNOLOGICAL UNIVERSITY

B.VOC- SEMESTER-I EXAMINATION – WINTER 2025

Subject Code:21110302

Date:29-11-2025

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 the equation of state in thermodynamics?	05
(b) Define Following Terms: 1. Force 2. Weight 3. Pressure 4. Internal Energy	05
Q.2 (a) Explain first law of thermodynamics.	05
(b) Explain with neat sketch Adiabatic process.	05
OR	
(b) Explain law of triangle of forces to derive resultant force.	05
Q.3 (a) Explain parallelogram method and derive equation of resultant.	05
(b) Explain types of forces with suitable example	05
OR	
Q.3 (a) Define Thermodynamic System and Explain types of system with examples.	05
(b) Explain Varignon's theorem.	05
Q.4 (a) What is bulk modulus and modulus of rigidity? Derive relation between them.	05
(b) State application of normal stress and strains.	05
OR	
Q.4 (a) Draw and stress – strain diagram of mild steel material.	05
(b) Define stress. Explain various types of stresses with stress distribution diagram.	05
Q.5 (a) Write five names of nonferrous materials with an application.	05
(b) Differentiate between thermo-plastic and thermo-setting material.	05
OR	
Q.5 (a) Enlist properties of abrasive materials.	05
(b) Difference between Ferrous and Nonferrous materials.	05
