

**3059**

**B. Tech. (ME) 3<sup>rd</sup> Semester (G-Scheme)**

**Examination, December-2024**

**BASICS OF MECHANICAL ENGINEERING**

**Paper-ESC-ME-211G**

*Time allowed : 3 hours]*

*[Maximum marks : 75]*

*Note : Attempt any five questions in all, selecting one question from each unit. Question No. 1 is compulsory. All questions carry equal marks.*

**1. Explain the following:**  $6 \times 2.5 = 15$

- (a) Working principle of shaper
- (b). Strain and types of strain
- (c) Limitations of manual part programming
- (d) Zeroth Law of Thermodynamics
- (e) Working of clutch
- (f) Working of pelton turbine

**Unit-I**

- 2. Describe the different machining operations that can be performed on a Lathe Machine.** 15
- 3. Define first law of thermodynamics. Discuss the limitations of first law of thermodynamics.** 15

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### **Unit-II**

4. Discuss the different thermodynamic properties of steam. 15
5. Explain different types of turbine. Also derive the efficiency of pelton wheel. 15

### **Unit-III**

6. Derive velocity ratio of simple and compound belt drive. 15
7. Explain the stress-strain diagram in details. 15

### **Unit-IV**

8. What are NC Machines? Explain their classification in details. 15
9. Explain Manufacuturing systems. What are the difference between NC and CNC Machines. 15