

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
B.Tech Degree S1(S) Examinations May 2026 (2024 Scheme)



**Course Code: GCEST104**  
**Course Name: INTRODUCTION TO MECHANICAL AND CIVIL ENGINEERING**

Max. Marks: 60

Duration: 2 hours 30 minutes

- Use separate answer sheets for Part 1 and Part 2
- No separate minimum marks are required to pass.

**PART 1- MECHANICAL ENGINEERING (30 Marks)**

**PART 1-A**

**Module (1 & 2)**

*Answer all questions. Each question carries 3 marks*

		CO	Marks
1	Draw the P-V and T-S diagram of Diesel cycle and list out the processes involved	2	3
2	Draw the layout of vapour compression refrigeration system and name the important components.	2	3
3	List the classification of hydraulic turbines based on head with the help of examples.	1	3
4	Name any 6 parts of lathe machine	3	3

**PART 1-B**

**Module (1&2)**

*Answer any one full question from each module. Each question carries 9 marks*

**Module 1**

5	a) Explain the concept of CRDI engine with simple diagram.	2	6
	b) A Carnot engine working between 900K and 300K, it produces 450 kJ of work. Calculate the thermal efficiency of Carnot engine.	2	3
6	a) With neat diagrams, explain the working of 4 stroke Diesel engine.	2	6
	b) Explain about cooling and dehumidification process. Illustrate the cooling and dehumidification process in psychrometric chart	2	3

**Module 2**

7	a) With the help of neat diagram explain the working of a reciprocating pump	1	6
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| b) Describe the purpose of a clutch.<br>List any two type of clutches                   | 1 | 3 |
| 8 a) Explain about brazing & soldering process.<br>Give one application for each method | 3 | 6 |
| b) List the steps involved in sand-casting process.                                     | 3 | 3 |

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## PART 2: CIVIL ENGINEERING (30 Marks)

### PART 2-A Module (3 & 4)

*Answer all questions. Each question carries 3 marks*

		CO	Marks
1	List out the factors to be considered for the selection of a good site for a residential building.	4	3
2	Brief the role of NBC, KBR and CRZ norms in building rules.	4	3
3	Distinguish between PCC and RCC.	5	3
4	Explain the slump test for determination of workability of concrete.	5	3

### PART 2-B Module (3 & 4)

*Answer any one full question from each module. Each question carries 9 marks*

#### Module 3

5	a) Describe the various types of buildings classified by occupancy according to the National Building Code (NBC).	4	9
6	a) Describe the relevance and objectives of the coastal regulations. Explain the zonal classification under CRZ norms	4	9

#### Module 4

7	a) What are the different classifications of stones?	5	9
8	a) Discuss the properties of fresh and hardened concrete	5	9

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