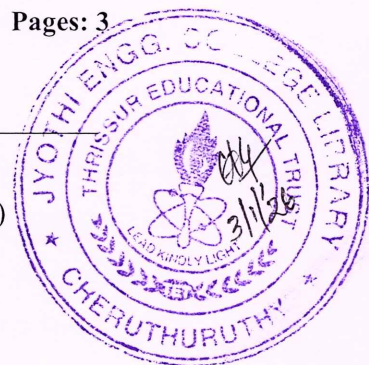


Reg No.: \_\_\_\_\_

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

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S1 (R,S) Examination December 2025 (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	Name any 6 important parts of internal combustion engine	2	3
2	Draw the P-V and T-S diagram of Otto cycle and list out the processes involved	2	3
3	Explain the rolling process with diagram.	3	3
4	What is the use of a bearing? How bearings are classified.	1	3

##### PART 1-B Module (1&2)

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

##### Module 1

5	a) Write three differences between 2 stroke & 4 stroke engines. Also Write three differences between SI & CI engines.	2	6
	b) A Carnot engine working between 700K and 300K, it produces 300 kJ of work. Find the thermal efficiency of the Carnot engine.	2	3
6	a) With a neat diagram, explain the working of 4-stroke Petrol Engine	2	6
	b) Define the following terms 1) Dew point temperature 2) Specific humidity 3) Relative humidity	2	3

**Module 2**

- |   |   |   |   |
|---|---|---|---|
| 7 | a) With the help of neat diagram explain the working of a centrifugal pump. Also mark important parts on diagram. | 1 | 6 |
|   | b) List six types of welding processes  | 3 | 3 |
| 8 | a) With the help of neat diagram explain shielded metal arc welding (SMAW) process.                               | 3 | 5 |
|   | b) Explain about any two operations that can be performed in a lathe machine                                      | 3 | 4 |

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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
4	(3)
5	(3)
6	(3)
6	(3)

- 1 List the major disciplines of Civil Engineering.
- 2 What are the primary objectives of CRZ norms in India?
- 3 List the various uses of cement.
- 4 How is soil formed?

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

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

#### Module 3

- |   |   |   |     |
|---|---|---|-----|
| 5 | Explain the classification of buildings as per NBC with an example for each.                    | 5 | (9) |
| 6 | a) What is FAR? What is its significance?   | 4 | (3) |
|   | b) How do Kerala Building Rules (KBR) influence building planning & construction?               | 5 | (3) |
|   | c) Give one function of the following building components: (i) plinth (ii) lintel (iii) parapet | 5 | (3) |

#### Module 4

- |   |   |   |     |
|---|---|---|-----|
| 7 | a) Give any six properties required for good bricks.        | 6 | (3) |
|   | b) Name any three commonly used stones with their uses.     | 6 | (3) |
|   | c) List any six qualities of a good timber.                 | 6 | (3) |
| 8 | a) What is Reinforced Cement Concrete? What are its uses?   | 6 | (3) |
|   | b) Explain any six types of steel sections with their uses. | 6 | (6) |

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