

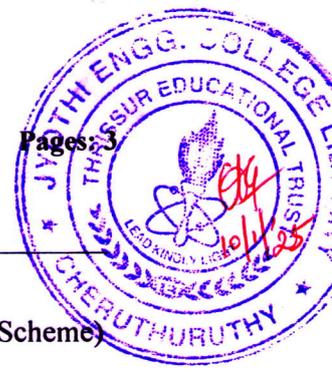
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Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
First Semester B.Tech Degree Regular Examination December 2024 (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.	CO1	3
2	Draw a diagram to represent CRDI fuel system in automobiles and label the parts.	CO1	3
3	What are rolling mills? Briefly explain about any two types of rolling mills.	CO2	3
4	What is 3D printing?	CO2	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 working of a four stroke SI engine with the help of diagrams. CO1 6

03GCEST104122405

- b) Define the following terms (i) Dry Bulb Temperature (ii) Wet Bulb Temperature (iii) Relative Humidity CO1 3
- 6 a) Explain the series and parallel configurations used in hybrid vehicles with the help of diagrams. CO1 9

Module 2

- 7 a) List any three classifications of hydraulic turbines along with its classification basis. CO2 3
- b) Elaborate the working of a reciprocating pump with the help of a diagram. CO2 4
- c) Write about any 4 types of gears. CO2 2
- 8 a) Write about any five hand forging operations. CO2 5
- b) Explain the process of Arc welding with the help of a diagram. CO2 4

PART 2: CIVIL ENGINEERING (30 Marks)**PART 2-A****Module (3 & 4)***Answer all questions. Each question carries 3 marks*

		CO	Marks
1	Explain built up area and floor area ratio (FAR).	CO5	3
2	Differentiate between load bearing and non-load bearing structure.	CO5	3
3	Explain the advantages and disadvantages of timber as a construction material.	CO6	3
4	What is rapid hardening cement. What are its advantages and uses.	CO6	3

PART 2-B**Module (3 & 4)***Answer any one full question from each module. Each question carries 9 marks***Module 3**

5	a) Discuss any three factors to be considered in the selection of site for a residential building.	CO5	3
	b) Explain the basic elements of a residential building and its function with the help of neat sketch.	CO6	6
6	a) Explain the relevance of civil engineering in the infrastructural development of a country.	CO4	3
	b) Explain any four major disciplines of civil engineering.	CO4	6

Module 4

7	a) Explain any 3 types of cement with its composition and uses.	CO6	3
	b) Explain any four tests for proper quality control of bricks.	CO6	6
8	a) List the qualities of a good building stone.	CO6	3
	b) Explain one test each on fresh and hardened concrete.	CO6	6
