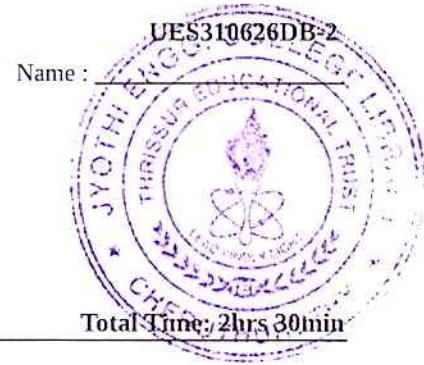


Reg No.: _____



Jyothi Engineering College(Autonomous)
B. Tech Degree S1 (S) Examination, June 2026 (2025 Scheme)
25EST107 - INTRODUCTION TO MECHANICAL ENGINEERING AND CIVIL ENGINEERING



Total Mark: 60

Total Time: 2hrs 30min

General Instructions

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

CO MARK

Part 1: MECHANICAL ENGINEERING (30 MARKS)

PART 1-A

Answer All Questions. Each question carries 3 marks

1. What is a thermodynamic process? Classify the various types of processes with examples. CO1 (3)
2. What is a psychrometric chart? State its applications. CO1 (3)
3. List the main classifications of pumps and give one example for each type. CO1 (3)
4. What is a bevel gear? Where is it commonly used? CO4 (3)

PART 1-B

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

Module - 1

5. Draw the p-V and T-s diagrams of Camot cycle. List and explain the thermodynamic processes involved in Camot cycle and also, derive the expression for the thermal efficiency. CO1 (9)

OR

6. Explain the working of Common Rail Direct Injection system (CRDI) with layout. CO2 (9)

Module - 2

7. Explain in detail the forging process. Discuss the types of forging and the advantages of forged components over cast ones. CO3 (9)

OR

8. Explain in detail the principle, equipment, working, and applications of Electric Arc Welding with a neat sketch. Discuss the advantages and limitations of this process. CO3 (9)

PART 2: CIVIL ENGINEERING (30 Marks)

PART 2-A

Answer All Questions. Each question carries 3 marks

9. Mention any three components of a residential building. CO6 (3)
10. Why is Civil Engineering considered essential for a nation's growth? CO5 (3)
11. What are the qualities of an ideal aggregate? CO6 (3)
12. Explain the classification of steel based on carbon content. CO6 (3)

PART 2-B

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

Module - 3

13. Discuss the need for building regulations and their role in sustainable development. CO5 (9)

OR

14. Discuss the significance of Geotechnical Engineering in foundation design and ground improvement. CO4 (9)

Module - 4

15. Explain the various tests conducted on bricks. CO6 (9)

OR

16. Explain the different types of cement. CO6 (9)
