Name:.....
Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING (AUTONOMOUS), KOTHAMANGALAM - 686666

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

B.TECH SECOND SERIES EXAMINATION, OCTOBER 2026 (S3 CS, DS(A&B), AIML)

B24MC2T05- ENERGYCONSERVATIONANDENVIRONMENTALSUSTAINABILITY

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. Define renewable and non-renewable energy resources. Give an example of each and state their advantages and disadvantages. **(CO1)**

2. Explain any three important functions of the Bureau of Energy Efficiency (BEE) **(CO1)**

3. Describe biomass and explain any two of its benefits as a renewable energy source. **(CO2)**

4. Explain briefly the two ways in which geothermal energy can be tapped. **(CO2)**

PART B

Answer all questions.

5. Discuss the role of energy auditing and describe the major steps involved in a detailed energy audit. Also explain how energy storage technologies improve the reliability, efficiency, and grid stability of renewable energy systems

(CO1)(9 marks)

6. (a) Explain the significance of battery technologies in renewable energy conservation and grid stability.

(CO2)(4 marks)

(b) Explain the concept of smart grids and discuss the challenges in their adoption.

(CO2)(5 marks)

7. Explain why wind energy is considered an intermittent and site-specific renewable energy source, and differentiate between onshore and offshore wind energy systems, discussing the advantages and disadvantages of each in detail. **(CO2)**(10 marks)

VISION

To mould competent computing professionals, innovators, and leaders guided by ethical values and committed to technological advancement and sustainable societal development.

MISSION

- Provide quality education through strong theoretical foundations, experiential learning, and exposure to emerging computing technologies.
- Cultivate critical thinking, research aptitude, and innovation through problem-based learning, industry interaction, and research initiatives.
- Foster ethical values, leadership, social responsibility, and an aspiration for lifelong learning through professional practices, teamwork, and mentoring.