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

MAR ATHANASIUS COLLEGE OF ENGINEERING (AUTONOMOUS),

KOTHAMANGALAM - 686666

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

B.TECH SECOND SERIES EXAMINATION, OCTOBER 2026 (S5 AIML)

B24AM3T01 BIGDATA PROCESSING

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. **Construct** the Mapper for a job that finds the maximum temperature per year from weather data. CO3
2. **Analyze** the factors considered while designing an efficient MapReduce implementation. CO3
3. **Outline** the concept of sliding windows in stream data processing. How does it help in analyzing continuous data streams CO4
4. **Describe** the JOIN operations supported in HiveQL.**Compare** INNER JOIN and LEFT OUTER JOIN. CO4

PART B

Answer all questions. Each question carries 14 marks.

5. (a) **Construct** a suitable MapReduce implementation design for a data-processing problem and illustrate its major processing stages. Provide a complete design including input format, Mapper logic, Reducer logic, and output format. CO3 (7 marks)

   (b) **Analyze** the relationship between input data organization, task allocation, and MapReduce implementation efficiency. **Explain** how input splits, block size, and data locality affect task performanc CO3 (7 marks)

6. (a) **Illustrate** the architecture of stream processing. CO4 (7 marks)

   (b) **Explain** the concept of time windows in stream processing. Compare tumbling windows, sliding windows, and session windows with suitable examples. CO4 (7 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.