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 CS, DS, AIML)
B24CS3P13 INTERNET OF THINGS

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. Explain how an IoT data broker enables interoperability among heterogeneous IoT devices and applications with a neat diagram. .

(CO3)

2. Describe the roles of the NameNode and DataNode in HDFS file storage and replication.

(CO4)

3. Explain the basic building blocks of an IoT device with a block diagram.

(CO5)

4. State the function of the Raspberry Pi status LEDs

(CO5)

PART B

Answer all questions. Each question carries 14 marks.

5. (a) Illustrate the MQTT publish/subscribe communication framework with a neat diagram.

(CO3)(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.

(b) Discuss how the 6LoWPAN adaptation layer enables IPv6 communication over IEEE 802.15.4 networks.

(CO3)(7 marks)

6. (a) A fleet-management system continuously collects engine temperature data from its trucks. Apply descriptive, diagnostic, predictive, and prescriptive analytics to show how the system can prevent engine failures. Identify two IoT data analytics challenges likely to arise as the fleet expands, and illustrate each with reference to the fleet-management system.

(CO4)(6 marks)

(b) Illustrate the architecture of Edge Streaming Analytics and explain the functions of the Analytics Processing Unit with a neat diagram.

(CO4)(8 marks)

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