MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM

(Government Aided Autonomous Institution)

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Second Sessional Examination October 2026

B24EE3T04: INSTRUMENTATION SYSTEMS

S5 EEE

Max. Marks :40 Time: 1 hr 30 min

Answer all questions

PART A (3 x 4=12 Marks)

1. Interpret amplification and filtering in an AC signal conditioning system. [CO3]
2. List any three advantages of using an isolation amplifier. [CO3]
3. Recall the factors to be considered to achieve low level multiplexing. [CO4]
4. Illustrate different possibilities for multichannel DAS. [CO4]

PART B (2 x 14=28 Marks)

5. Identify the role of the feedback capacitor and feedback resistor in determining the amplifier characteristics and operation of a charge amplifier with a suitable circuit diagram. [CO3]

6. A low-level sensor output has to be acquired using a single-channel DAS. Design a suitable signal-conditioning arrangement using a pre-amplifier, filter, and A/D converter. Explain the operation of each stage and justify the choice of each block. [CO4]

Students will be able to:
CO1: Interpret the design aspects of signal conditioning circuits and to devise an appropriate signal conditioning circuit for measurement systems.

CO2: Analyse the performance of data acquisition systems and to develop the logic for the process control applications.

VISION

Endeavour to Ensure Excellence

MISSION

Mould technically competent and morally strong Engineers
Achieve dynamic leadership through quality Education
Cater to the needs of industry and community through Emulation
Empower the students to serve the nation with Dedication