MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM
(GOVERNMENT AIDED AUTONOMOUS ENGINEERING COLLEGE)
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

SECOND SESSIONAL EXAMINATION OCTOBER 2026

B24EE3P11 BIOMEDICAL INSTRUMENTATION (ELECTIVE I) (S5 EA & EB)

Max. Marks 40 Time: 1.5 Hours

Answer all questions from Part A and Part B

PART A (4X3=12 Marks)

1. Identify the different EEG waveforms and specify their frequency ranges. (CO3)
2. Define nerve conduction velocity and state its unit. (CO3)
3. Outline the basic principle of Magnetic Resonance Imaging. (CO4)
4. What is a cardiac pacemaker? Mention its primary function. (CO4)

PART B (2X14=28 Marks)

5. a) Illustrate the 10–20 electrode placement system with a neat diagram and indicate the positions of the electrodes. (CO3) (7 marks)

   b) With a neat respiratory waveform, discuss the respiratory parameters that can be measured using spirometry. (CO3) (7 marks)

6. a) Illustrate the principle and working of CT with a neat diagram. (CO4) (7 marks)

   b) Describe the principle and working of ultrasound imaging with a neat diagram. Compare A-mode, B-mode and M-mode ultrasound imaging. (CO4) (7 marks)

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Student will be able to:
CO 3: Apply instrumentation for the nervous, muscular, and respiratory systems.
CO 4: Understand the principles of modern imaging and therapeutic equipment.

VISION

Endeavour to Ensure Excellence

MISSION

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