MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM
(GOVERNMENT AIDED AUTONOMOUS ENGINEERING COLLEGE)

ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

FIRST SESSIONAL EXAMINATION - OCTOBER 2026

B24ES1T02-BASICS OF ELECTRICAL ENGINEERING

S1 CS, DS, AIML, EC

Time: 45 Minutes **Max: 20 Marks**

PART A (2x4 = 8 Marks)

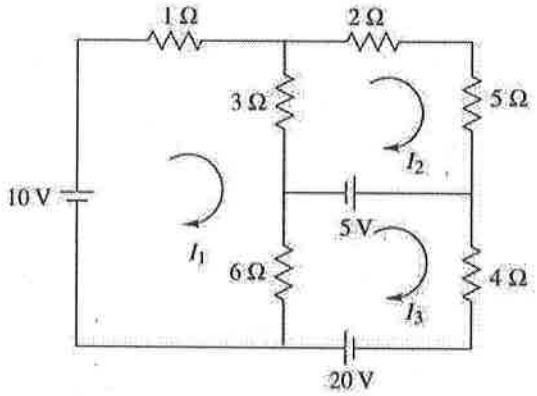
1. Two filament lamps A and B take 0.8 A and 0.9 A, respectively, when connected across a 110 V supply. Calculate the value of the current when they are connected in series across a 220 V supply, assuming the filament resistances remain unaltered. Also, find the voltage across each lamp. **[CO1]**

2. Explain Faraday's laws of electromagnetic induction and Lenz's laws. **[CO2]**

PART B (1x12 = 12 marks)

3.

a) Calculate the current through each branch of the given circuit. **[CO1] (9 Marks)**



b) A coil of 50 turns is moving at a constant velocity of 5 m/s through a magnetic field of strength 0.4 T. The length of each turn of the coil is 0.2 m. Calculate the total EMF induced in the coil if the motion is perpendicular to the magnetic field.
[CO2] (3 Marks)

CO1: The student will be able to understand the essential circuit components and the fundamental circuit laws governing electrical circuits.
CO2: The student will be able to recall the basics of electromagnetism and the fundamentals of electrical machines and three-phase systems.

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