MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM
(Govt aided, Autonomous)
DEPARTMENTOF ELECTRICAL AND ELECTRONICS ENGINEERING
FIRST SESSIONAL EXAMINATION AUGUST 2026
B24EE3P15 ELECTRONIC MATERIALS

S5 EA&EB

Time: 1.5hrs **Max Marks: 40**

PART A
Answer all questions, Each carry 3marks (3*4=12marks)

1. Classify the engineering materials based on energy gap. (CO1)
2. Illustrate the different types of bonding in materials. (CO1)
3. Define the terms a) dielectric constant b) dielectric strength. (CO2)
4. Comment on how dielectric materials can be classified. (CO2)

PART B
Answer all questions, Each carry 14marks (2*14=28 marks)

5. a) Explain the electron field theory of material based on conductivity. (CO1) (6 marks)
   b) Comment on the thermal and electrical conductivity of metals based on thermo electric effect. (CO1)(8 marks)

6. a) Derive the term dielectric constant of a material. (CO2) (6 Marks)
   b) Illustrate polarization under static electric field. (CO2) (8 Marks)

Students will be able to
CO1: Understand the fundamental physics of electronic materials and semiconductor materials
CO2: examine the various types of dielectric materials based on nature of electric field

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