Name:
Roll Number:

MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM

(Govt. Aided Autonomous Institution)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

B.TECH FIRST SERIES EXAMINATION, AUGUST 2026

(S3 ECE A & B) B24EC2T02 – COMPUTER ARCHITECTURE AND MICROCONTROLLERS

Max. Marks: 40 Time: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks

1) Compare Microprocessors and Microcontrollers. [CO1]

2) Draw and explain PSW of 8051. [CO1]

3) Write the functions of the following instructions. [CO2]

   a) DJNZ R2, LOOP b) MOVC A, @A+DPTR c) MOVX A, @R0

4) Write an 8051 assembly language program to check whether two 8-bit numbers stored in registers R0 and R1 are equal. Store 01H in R2 if they are equal; otherwise, store 00H in R2. [CO2]

PART B

Answer all questions. Each question carries 14 marks

5) a)Draw and explain the architecture of 8051 microcontroller. [CO1,10 marks]

   b) What is SFR? Give two examples with their RAM address. [CO1,4 marks]

6) a) Explain the addressing modes of 8051 with examples. [CO2,10 marks]

   b) Write an 8051 assembly language program to take 10 bytes of data from RAM location 45H to 4EH, add 02H to each of them and save the result in RAM locations 79H down to 70H. [CO2,4 marks]