MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM

ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT

Second Series Examination, OCTOBER 2026

B24EC2T02 – COMPUTER ARCHITECTURE AND MICROCONTROLLERS

Semester-3 (EC-A & B)

Max. Marks: 40 Time: 1.30 Hours

Answer all questions from Part A and Part B

PART A (3 Marks x 4 =12 Marks)

1) List and explain the different timer modes in the 8051 microcontroller [CO3]
2) Draw and write the function of each bit in IE register. [CO3]
3) With XTAL = 11.0592 MHz, find the TH1 value needed to have the following baud rates. (a) 9600 (b) 2400 (c) 1200 [CO4]
4) Explain the role of TI and RI flags in serial communication. [CO4]

PART B (14 Marks x 2=28 Marks)

5 a) Assuming XTAL=22MHz, write a program to generate a pulse train of 2 seconds period on pin P2.4. Use Timer 1 in Mode 1. (7 Marks) [CO3]

b) Assuming that XTAL=22MHz, write a program to generate a square wave of frequency 1 KHz on pin P1.2. Use Timer 0 in Mode 2. (7 Marks) [CO3]

6 a) Write a program to transfer a letter ‘Y’ serially at 9600 baud continuously and also to send a letter ‘N’ through port 0 which is connected to a display device.

(8 Marks) [CO4]

b) Explain the process of doubling the baud rate in 8051. (6 Marks) [CO4