



CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21MT44

Fourth Semester B.E. Degree Examination, Dec.2023/Jan.2024

Microcontroller and Applications

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Differentiate between microprocessor and microcontroller. (08 Marks)
b. Explain the salient features of 8051 microcontroller. (12 Marks)

OR

- 2 a. Differentiate between RISC and CISC architecture. (05 Marks)
b. Differentiate between Harvard and Von-Neumann architecture. (05 Marks)
c. With neat diagram, explain the architecture of 8051. (10 Marks)

Module-2

- 3 a. Define addressing mode. Explain different addressing modes with suitable example. (10 Marks)
b. Explain the following instructions with examples:
i) SWAP A ii) CPL A iii) DA A
iv) MUL AB v) DIV AB (10 Marks)

OR

- 4 a. Explain different rotate instructions with neat sketch. (10 Marks)
b. Explain operation of the following pneumonics in 8051 microcontroller.
i) MOV ii) MOV X iii) MOV C iv) XCH v) PUSH (10 Marks)

Module-3

- 5 a. Explain the format of TMOD and TCON register. (10 Marks)
b. Explain data serialization. Discuss factors affecting the accuracy of time delay. Mention ways to create time delay in 8051C. (10 Marks)

OR

- 6 a. Explain different possible modes of operation of timer. (10 Marks)
b. Explain mode 1 programming and mode 2 programming. (10 Marks)

Module-4

- 7 a. Explain the steps to program 8051 to transfer data serially and receive data serially. (10 Marks)
b. Explain SCON register bit pattern. Write a program to transfer the message "yes" serially at 9600 baud, 8 bit data and 1 stop bit continuously. (10 Marks)

OR

- 8 a. Define Serial Communication. Explain the importance of TI and RI flag. (10 Marks)
b. Define Interrupt. Explain the concept of edge triggered and level triggered interrupt. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Define Stepper motor. With neat diagram explain motor interfacing of 8051. (10 Marks)
b. Define DAC. Explain how to interface DAC to 8051 microcontroller. (10 Marks)

OR

- 10 a. Explain pi description for LCD. Also write a 8051C program to send letters 'M', 'D' and 'E' to the LCD. (10 Marks)
b. Describe signal conditioning and its role in data acquisition. Also wrote a program to generate sine wave using DAC interfacing. (10 Marks)
