

CBCS SCHEME

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21CS43

Fourth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Microcontroller and Embedded Systems

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain with neat diagram, about ARM core data flow model. (10 Marks)
b. Define RISC architecture. Compare with CISC processors. (10 Marks)

OR

- 2 a. Define pipelining? Explain how it helps the program execution. (10 Marks)
b. Explain the major design rules related to RISC philosophy implementation. (10 Marks)

Module-2

- 3 a. Write a program to find sum of first 20 integer numbers. (10 Marks)
b. Explain about load store instructions in ARM with example. (10 Marks)

OR

- 4 a. Write a program to find the factorial of a number. (10 Marks)
b. Write a program to find largest and smallest number in an array of 16 numbers. (10 Marks)

Module-3

- 5 a. Write a program to arrange a series of 32 bit numbers in ascending/descending order. (10 Marks)
b. What are the different types of memories used in Embedded system design? (10 Marks)

OR

- 6 a. Write a program to count the number of ones and zeros in two consecutive memory locations. (10 Marks)
b. Write a program to display 'Microcontroller' message using Internal UART. (10 Marks)

Module-4

- 7 a. Explain classification of embedded systems. (10 Marks)
b. Write a program and explain about interface of DC motor. (10 Marks)

OR

- 8 a. Explain the characteristics of embedded systems. (10 Marks)
b. Write a program to demonstrate the use of external interrupt to toggle an LED on/off. (10 Marks)

Module-5

- 9 a. With neat diagram, explain operating system architecture. (10 Marks)
b. Explain steps involved in selecting RTOS. (10 Marks)

OR

- 10 a. Explain the concept of dead lock with example. (10 Marks)
b. Explain types of operating systems with example. (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.