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.***

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-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)**

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