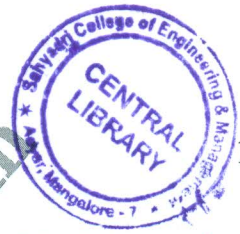


CBCS SCHEME



15EC563

USN

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 8051 Microcontroller

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. What is a micro controller? Mention its applications. (04 Marks)
b. With a neat block diagram explain the features of 8051 microcontroller. (06 Marks)
c. Mention the internal RAM organization in 8051 microcontroller. (06 Marks)

OR

- 2 a. With a neat functional block diagram explain the architecture of 8051. (08 Marks)
b. Design a micro controller system using 8051 microcontroller, 4 kbytes of ROM and 8k bytes of RAM interface the external memory such that the starting address of ROM is 1000 H and RAM is C000H. (08 Marks)

Module-2

- 3 a. Explain any 4 different addressing modes used in 8051 microcontroller with suitable illustrations. (08 Marks)
b. Explain the following instructions with examples.
i) DJNZ Rn, rel
ii) JNC rel
iii) ANL A, R_n
iv) DA A. (08 Marks)

OR

- 4 a. Write 8051 instructions to rotate the contents of A left by two positions. (08 Marks)
b. Write 8051 instructions to add two BCD numbers and store the result in BCD in register R₁. (08 Marks)

Module-3

- 5 a. Write a program to find the smallest number of an array of N-8 bit unsigned numbers. The starting address is at 2000h and store the result in 2500H. (08 Marks)
b. Write a program to count the numbers of 1's and 0's in 8 bit data stored. (08 Marks)

OR

- 6 a. Write a program to arrange the numbers in ascending order. (08 Marks)
b. Write a program to create a delay of 1sec. Assume that the oscillator frequency is 1.2 MHz. (08 Marks)

Module-4

- 7 a. Explain the jump and CALL program range with reference to 8051 microcontroller. (06 Marks)
b. Write a program to find the factorial of a number. (06 Marks)
c. Write a program to move a block of data stored in external memory location 9000h to a location starting from F000h (without overlapping). (04 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.



OR

- 8 a. Explain the role of CALL and subroutines in 8051 microcontroller programming. (04 Marks)
- b. What are timers and counters? Explain its operations. (06 Marks)
- c. Explain timer control register and timer mode control register. (06 Marks)

Module-5

- 9 a. Explain the 8051 S-CON register. (08 Marks)
- b. Write a 8051 subroutine program to initialize 8051 serial port to operate in mode 0 for transmission. (04 Marks)
- c. Explain RS – 232 standards. (04 Marks)

OR

- 10 a. Bring out the difference between interrupts and polling. (04 Marks)
- b. Explain interrupt priority register of 8051 microcontroller. (04 Marks)
- c. Write an 8051 C program to send letters 'M', 'D' and E to the LCD using delays. (08 Marks)

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