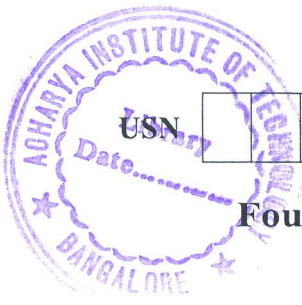


CBCS SCHEME

15MT43



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Fourth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Microcontroller

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. With the neat sketch, explain the memory organization of 8051 microcontroller. (08 Marks)
- b. With net sketch, explain PSW register in detail. (08 Marks)

OR

- 2 a. Give the difference between :
 - i) microcontroller and microprocessor
 - ii) Harvard and vonneuman architecture. (08 Marks)
- b. Explain the following pins of 8051 microcontroller i) ALE ii) PSEN iii) EA iv) RST. (08 Marks)

Module-2

- 3 a. Define addressing modes. Explain different addressing modes with suitable examples. (10 Marks)
- b. Explain the operations performed by the following instructions.
 - i) DA A ii) SWAP A iii) DJNZ. (06 Marks)

OR

- 4 a. Explain different rotate instructions. (08 Marks)
- b. Write a program to check if the character string of length 7, sorted in RAM locations 50H onwards in a palindrome. If it is, output Y to P1. (08 Marks)

Module-3

- 5 a. Explain various data types in C with respect to 8051. (08 Marks)
- b. Write an 8051 C program to toggle the bits of P1 continuously with 250msec delay. (08 Marks)

OR

- 6 a. Explain the bit configuration of TMOD register. (04 Marks)
- b. Mention the advantages of C code over assembly language. (04 Marks)
- c. Write an 8051 C program to create a frequency of 2500Hz on pin P2.7, use Timer1, in mode 2 to create delay. Use XTAL = 11.0592MHz. (08 Marks)

Module-4

- 7 a. List and explain the different handshaking signals of RS232. (08 Marks)
- b. Write an assembly code to transmit "India" serially at 9600 baudrate continuously. (08 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 different interrupt of 8051 with the help of interrupt vector table. (06 Marks)
- b. Show instructions to :
- i) Enable the serial interrupt Timer 0 interrupt and external hardware interrupt
 - ii) Disable the timer 0 interrupt
 - iii) Show how to disable all the interrupt with a single instruction. (06 Marks)
- c. List 8051 interrupt priority upon Reset. (04 Marks)

Module-5

- 9 a. With a flow chart and matrix key board connections. Explain different stages involved in keyboard interface. (10 Marks)
- b. Write a C code to generate a sine wave using DAC. (06 Marks)

OR

- 10 a. A switer is connected to pin P2.7. Write a C program to monitor the status of SW and perform the following :
- i) If SW = 0, the stepper motor moves clockwise
 - ii) If SW = 1, the stepper motor moves counterclockwise. (08 Marks)
- b. Write a 8051 C program to send characters "Hello" to the LCD display using delays with the proper circuit. (08 Marks)
