CBCS SCHEME

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15EC563

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021
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. Write the difference between Microprocessor and Microcontroller. **(04 Marks)**

b. Explain the Architecture of 8051 Microcontroller, with neat block diagram. **(08 Marks)**

c. Define Embedded system and write the characteristics of an ES. **(04 Marks)**

OR

2 a. Explain briefly the Internal RAM memory organization in 8051 Microcontroller. **(04 Marks)**

b. Explain the Bit pattern of program status work register. **(04 Marks)**

c. Draw the Memory interfacing circuit to connect a 16K EPROM and an 8K RAM to 8051 Microcontroller. **(08 Marks)**

Module-2

3 a. Explain any five Addressing modes of 8051 Microcontroller with an example each. **(10 Marks)**

b. Explain the following instructions : i) ADD A, @ R1 ii) JNC label iii) DJN2 R_3, up. **(06 Marks)**

OR

4 a. Write and explain the Assembly language program to add two 16 – bit numbers. **(08 Marks)**

b. Explain the Rotate Instructions, with an example. **(08 Marks)**

Module-3

5 a. Explain the Operation of stack with an example. **(04 Marks)**

b. Write and explain an Assembly language program to add Five 8 – bit numbers. **(08 Marks)**

c. Explain any four Assembler directives of an 8051 Microcontroller. **(04 Marks)**

OR

6 a. Write and explain an Assembly Language program to find the smallest number among the given Five 8 – bit numbers. **(08 Marks)**

b. Write and explain an Assembly language program to monitor bit P1.3. Whenever it goes high send a low to high pulse on port P1.5. **(08 Marks)**

Module-4

7 a. Write and explain TMOD and TCON register. **(08 Marks)**

b. Write and explain a Assembly program to generate a square wave at frequency 10KHz on pin 1.4. use timer 0 in mode 2 with a crystal frequency of 22MHz. **(08 Marks)**

OR

8 a. Write and explain SCON register. **(06 Marks)**

b. Write and explain a program in Assembly to transmit a string "UNIVERSITY" serially. Set baud rate at 9600, 8 – bit data and 1 stop bit. **(10 Marks)**

Module-5

9 a. Define an interrupt and write an interrupt vector table. (06 Marks)

b. Write a C program using interrupt to generate a 10KHz frequency on P2.1 using Timer 0 in 8 – bit auto reload and count up a 1Hz pulse and display it on Po. The pulse is connected to INT1 pin. Assume that the crystal frequency is 11.0592 MHz (10 Marks)

OR

10 a. Write and explain an Assembly language program to display "VTU" on LCD. (08 Marks)

b. Write and explain a C program to rotate stepper motor clockwise when switch SW = 0 and rotate in Anti clockwise when switch SW = 1 continuously. (08 Marks)

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