CBCS SCHEME

USN | | | | | | | | | | |

15EE52

Fifth Semester B.E. Degree Examination, July/August 2022
Microcontroller

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 a. Differentiate between RISC and CISC. **(06 Marks)**

b. List the special features of 8051 microcontroller with the block diagram. **(06 Marks)**

c. Explain the various addressing modes of 8051 microcontroller with examples. **(04 Marks)**

OR

2 a. Explain the each bits of program status word. **(06 Marks)**

b. With a neat block diagram, explain how 8051 microcontroller can be interfaced with external RAM and ROM. **(06 Marks)**

c. Briefly explain the role of stack and stack pointer. **(04 Marks)**

Module-2

3 a. Explain the following instructions of 8051 microcontroller.
i) SETB ii) XCHD iii) DAA iv) DIV v) CJNE vi) ADDC **(06 Marks)**

b. Calculate the time required for machine cycle for the given instruction.
i) XTAL = 11.0592MHz ii) XTAL = 16MHz iii) XTAL = 12MHz. **(04 Marks)**

c. Write a Assembly level language program to find largest number in a array. **(06 Marks)**

OR

4 a. Write an Assembly level language program to find average of 5 numbers stored from internal data memory address. **(06 Marks)**

b. Write a program to complement the content of accumulator 700 times. **(04 Marks)**

c. Write an ALP to convert an Hexadecimal number to Decimal number. **(06 Marks)**

Module-3

5 a. Write an 8051 C-program to monitor P1.5, if it is high send 55 to Port 0 otherwise AA to P_2. **(04 Marks)**

b. Write an Assembly level language program in 8051 to generate square wave on P1.0 of 2KHz. Use timer 0 and mode 1. Take crystal frequency of 11.0592MHz. **(08 Marks)**

c. Explain different Data types in 8051C. **(04 Marks)**

OR

6 a. Write a C program to generate a square wave of 75% duty cycle with ON time of 300 msec on pin P2.3. **(06 Marks)**

b. Explain the steps involving TCON Register for programming in mode 2. **(04 Marks)**

c. With a frequency of 22MHz, generate a frequency of 100KHz on pin P2.3 use P2.3. Use Timer 1 mode 1. **(06 Marks)**

Module-4

7 a. Explain the simplex, half duplex, full duplex in serial data transfer. **(04 Marks)**

b. Write a program to transfer a letter 'V' serially at 9600 baud rate continuously and also send letter 'E' through Port 0, which is connected to display device. **(06 Marks)**

c. State the importance of RI flag and TI flag. **(06 Marks)**

OR

8 a. Explain each pins of Interrupt Enable Register. **(04 Marks)**

b. Write a program to toggle Pin P1.2 every second. **(06 Marks)**

c. Write a 8051 C program to transfer the message "YES" serially at 9600 baud rate, 8 bit data, 1 stop bit continuously. **(06 Marks)**

Module-5

9 a. Write a 8051 C program to send letter 'V', 'T' and 'U' to the LCD display using delays. **(08 Marks)**

b. How do you interface ADC 808 chip with 8051 microcontroller. Explain in brief the steps involved with diagram. **(08 Marks)**

OR

10 a. Explain the Stepper motor Interface to 8051, with a neat diagram. **(08 Marks)**

b. Draw the pin diagram of 8255A and briefly explain the signals involved in control word format. **(08 Marks)**

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