CBCS	scheme
------	--------

		OBOO COMBING	
USN			15EE52
	(6.00 -		153

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018 Microcontroller

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- a. Discuss the need for stack memory in microcontroller. How stack is operated in 805 μc?
 What is the default location of stack?
 - b. With an example explain the various addressing modes used in 8051 µc (any four). (06 Marks)
 - c. Compare RISC and CISC micro controllers.

(04 Marks)

OR

2 a. Explain the bit pattern of program states word.

- (06 Marks)
- b. With a neat diagram, explain the steps to interface 8k bytes of program RDM and 6 K bytes of data ROM to 8031 based system.

 (06 Marks)
- c. Identify the addressing modes of the following instructions:
 - i) MOV C, A, @ A+DPTR
 - ii) MOV DPTR, #1234
 - iii) MOV A, 4
 - iv) CLR C

(04 Marks)

Module-2

a. Write a program to find the square root of a given number.

- (06 Marks)
- b. With a neat diagram explain the range of JUMP and CALL instructions.
- (08 Marks)
- c. Explain the following instructions: i) DA A, ii) ANL C; P2.5

(02 Marks)

OR

- 4 a. What are assembler directives? Explain any four of them with an example. (06 Marks)
 - b. Assume that register 'A' is loaded with number 'N' (any integer value from 0 to 255). Write a program to count the number of ones in even numbered bits of accumulator. (05 Marks)
 - c. Write a program to complement the content of accumulator 62500 times.

(05 Marks)

Module-3

5 a. Explain the different data types supported by 8051C microcontroller.

(08 Marks)

b. Write a program to create a square wave of 100 Hz with a duty cycle of 80% on port 1.1. Use timer '0' and operate that timer '0' in mode '1'. Assume XTAL f_{mov} = 12 MHz.

(08 Marks)

OR

6 a. A switch is connected to pin P1.2. Write on 8051 C program to monitor 'SW' and create the following frequencies on pin P1.7.

SW = 0 : 500 Hz

SW = 1:750 Hz

Use timer '0', mode '1' for both of them. Assume crystal frequency = 11.0592 MHz.

b. Write an 8051C program to them bit P1.5 ON and OFF 50000 times.

(08 Marks) (03 Marks)

c. Write a program for counter '1' in mode '2' to count the clock pulse and display the state of the TL, count on P2. (05 Marks)

Module-4

- 7 a. Write a program to retrieve the data serially and put them in P1. Set the band rate at 4800, 8-bit data and one stop bit. (06 Marks)
 - b. Write an 8051C program to transfer the message "INDIA" serially at 9600 band rate, 8 bit data and one stop bit, continuously. (06 Marks)
 - c. Explain the importance of TI and RI flags.

(04 Marks)

OR

- 8 a. What is an interrupt? List the various interrupts of the 8051 with their corresponding vector address. (06 Marks)
 - b. Write a program that continuously gets 8-bit data from 'P0' and sends it to 'P1' where simultaneously creating a square wave of 200 μs period on pin P2.1. Use timer '0' to create square wave. Assume KTAL = 11.0952 MHz. (07 Marks)
 - c. Explain simplex, half duplex and full duplex serial data transfer.

(03 Marks)

Module-5

- 9 a. A switch 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 clock wise.
 - ii) If SW = 1: the stepper motor moves counter clock wise.

(10 Marks)

b. Explain the control word format of 8255.

(06 Marks)

COR'S

- 10 a. Explain the various modes of 8255 and find the control word for following configurations:
 - i) All ports of A, B and C are O/P ports (mode 0')
 - ii) PA = IN, PB = OUT, PCL = OUT and PCH = OUT.

(08 Marks)

b. Explain the steps to interface ADC 0808 to the 8051 microcontroller.

(08 Marks)

