

Exam. Code: 0928

Sub. Code: 33651

2056

B.E. (Electronics and Communication Engineering)

Fourth Semester

EC-402: Microcontrollers and Interfacing

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) RISC vs CISC.
- b) What are 8051 timer interrupts?
- c) Differentiate between assembler directives statements and mnemonic instructions?
- d) What is the difference between DECFSZ 09H,1 and DECFSNZ 09H, 0.
- e) What is the role of GATE bit in TMOD register?
- f) List all the SFR's of 8051
- g) What is the range of internal ROM addresses of 8051 and PIC?
- h) What is 8051 serial interrupt?
- i) Draw file register of PIC18.
- j) Why LJMP instruction is usually written at the start of 8051 program? (10x1)

UNIT - I

- II.
 - a) Draw pin diagram of 8051. (3)
 - b) What is the difference between .ASM, .LST and .HEX file? (3)
 - c) If the initial count is 100H, calculate after how much time, timer overflows. XTAL=11.0592MHz. (4)
- III.
 - a) Assume set of ten random 8-bit numbers stored from ROM location 0200H onwards. Write 8051 ALP to count all the input numbers having digit 5 in them. Store the count in some RAM location. For e.g. add numbers like 35H, 54H.....Store the program from ROM address 0080H onwards.
 - b) Generate a delay of 2 sec using software or hardware method. XTAL= 12MHZ.

(2x5)

P.T.O.

(2)

- IV. a) How 8051 differentiates between data and instructions?
b) At some bus station, whenever a bus is passed across the sensor placed at the entry gate, a pulse is generated. Write 8051 ALP to count the number of buses entering the bus station and when the count reaches 100, turn on the LED connected to 8051. Show interfacing diagram. (2x5)

UNIT - II

- V. a) Write 8051 ALP to display "India is my country" on 16x2 LCD. Draw interfacing diagram.
b) Write 8051 ALP to transmit serially "I LIVE IN BHARAT" at 9600 baud, 8-bit data with one stop bit. Assume XTAL= 15 MHz. (2x5)
- VI. a) Discuss briefly working of ultra sonic distance measurement and ADC. Draw diagrams.
b) Draw well-labelled interfacing diagram of stepper motor and 8051. Write 8051 ALP to rotate stepper motor continuously (wave drive mode) 180° clockwise direction with an approximate delay of 0.5 sec after every step. Assume 2° step size of stepper motor. XTAL-12 Mhz. (2x5)
- VII. a) What is WREG and status register of PIC18. What will the contents of status register after the execution of MOVLW 9CH and then ADDLW 93H.
b) Discuss the data transfer and bit-addressable instruction of PIC. (2x5)

x-x-x