

TE - II / Applⁿ of Microcontrollers / (INSTRO)



24-11-2014

QP Code :14861

(3 Hours)

Total Marks : 80

- N. B. : (1) Question No.1 is compulsory.
(2) Attempt any **three** questions form remaining questions.
(3) Assume **suitable** data wherever **necessary**.
(4) Figure to right indicate **full** marks.

1. Attempt any **five** questions :- 20
- (a) Compare between RISC and CISC processor.
 - (b) Compare between microprocessor and microcontroller.
 - (c) State any eight features of 8051 microcontroller.
 - (d) Describe the function of following instruction of 8051 microcontroller.
 - (i) ADD A, 40H
 - (ii) MOV A, @ Rp
 - (iii) CPL C
 - (iv) SWAP A
 - (e) If the crystal frequency is 22 MHz, what will be the band rate if TH1 = -3 and THi = -12 with SMOD = 0 and SMOD = 1?
 - (f) Draw complete circuit diagram for interfacing 7-segment LED display to 8051 microcontroller.
2. (a) Draw and explain any one microprocessor of based system 5
(b) Give comparison between 8051 microcontroller family. 5
(c) Write the steps for programming the 8051 microcontroller to transfer data serially. 5
(d) Describe the addressing modes in 8052 microcontroller with example. 5
3. (a) Draw complete architecture of 8051 microcontroller and explain the use of all ports. 10
(b) Suppose two data bytes are stored in memory locations 3000H and 3001H. Write an assembly language program to add these two bytes form enternal memory locations. Assume result is greater than 8-bit and store MSB of result in memory location 3003H and LSB of result in memory location 3002H of the eneternal memory. Also write algorithm and draw flowchart. 10
4. (a) Draw format for following registers and explain the function of each bit. 10
(any two)
 - (i) TCON register
 - (ii) SCON register
 - (iii) CCON register
- (b) A door sensor is connected to the P1.1 pin and a buzzer is connected to P1.7. 10
Write an 8051 C program to monitor the door sensor and when it opens, sound the buzzer. Assume sound the buzzer by sending a square wave of a few handred Hz.

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5. (a) Write a short note on I2C bus. 5
(b) Draw and explain interfacing serial EEPROM to 8051 microcontroller. 5
(c) Explain following terms in relation to interfacing of LCD with 8051 microcontroller. 10
(i) 16x2 LCD module
(ii) LCD initialization
(iii) Sending data to the LCD
(iv) Draw circuit diagram
6. (a) Write a short note on PCA (Programmable counter Array). 5
(b) State and explain need of the following development tools microcontroller board: 5
(i) Editor
(ii) Assembler
(iii) Linker
(c) Write an 8051C program to monitor bit P1.5. If it is high, send 55H to P0, otherwise send AAH to P2. 5
(d) Draw the diagram to interface external RAM and ROM with 8051 microcontroller. Mention the pins during interfacing and describe in brief. 5

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