Printed Pages: 4 NEC-022

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 131667 Roll No. | | | | | | | | | |

B.TECH

Theory Examination (Semester-VI) 2015-16

MICROCONTROLLER & ITS APPLICATIONS

Time : 3 Hours *Max. Marks : 100*

Section-A

1. **Attempt all parts. All parts carry equal marks. Write answer of each part in sort.** (2×10 = 20)

(a) What is the difference between microprocessor and microcomputer?

(b) What is CISC?

(c) Give 8 and 16 bit registers of 8051.

(d) Give addressing mode of MOV A. #65h.

(e) Which port of 8051 requires pull-up resistors?

(f) What do you understand by MOVC A, @ A +DPTR?

(g) Find the timer control frequency and the period of 8051 based system with crystal frequency of 12MHz.

(h) A given memory block use address 4000h-7FFFh. How much memory Kbytes in this block?

(i) Which port of 8051 provide A8-A15?

(j) In accessing external stored program code the PSEN is always activated, explain why?

Section-B

2. Attempt any five questions from this section. (10×5 = 50)

(a) Write a program to get x value from P1 and send x^2 continuously to P2.

(b) Describe 8051 flag bits and PSW register.

(c) Find out to which byte each of the following bits belong. Give address of RAM byte in hex.

(a) SETB 42h,

(b) CLR 47h,

(c) CLR 0Fh,

(d) SETB 28h,

(e) CLR 12

(d) Explain Serial communication procedure in 8051 through interrupts.

(e) Write an 8051 C program to toggle all bits of P1 continuously. Explain LED connection diagram.

(f) Explain the function of ADC0808/0809 with 8 analog channel.

(g) With the help of diagram explain Temperature sensor (LM35) interfacing with 8051 based system.

(h) With the help of diagram show LCD connections to 8051 and explain its functioning.

Section-C

Note : Attempt any two questions in this section. (15×2 = 30)

3. (a) Draw the block diagram of 8051 architecture.

(b) Draw programming model of 8051.

(c) Mention the specific features of 8051. Indicate bit addressable registers.

4. (a) Give internal RAM organization specifying working registers, bit addressable register and general purpose registers.

(b) Explain stack and stack pointer. With the help of an example explain stack organization,

(c) What do you understand by special function registers (SFR). Give their name, function and RAM address (HEX).

5. (a) Show the design of an 8031 based system with 8kbyte of program ROM and 8 kbyte of data ROM.

(b) In certain application we need 256 kbye of NV-RAM to store data collected by 8051 microcontroller.

(i) Show the connection of an 8051 to single 256k × 8 NV-RAM chip

(ii) Show how various blocks of this single chip accessed?

(c) Draw the diagram of 8031 connection to external program ROM and 8255.