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RM-7091-R

B. E. - III (Sem. VI) (EC/ECC) Examination

May / June – 2010

Microprocessor System & Application

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 3 (Sem. 6) (EC/ECC)**

Name of the Subject :

☛ **Microprocessor System & Application**

☛ Subject Code No. : **7 0 9 1** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Figures to the right indicate full marks.

(3) Make suitable assumptions whenever required.

SECTION - I

1 (a) Attempt following :

(i) Explain the following signals of 8086 microprocessor. **4**

(a) $DT/\overline{R}$

(b) $\overline{BHE}$

(ii) Find missing term related to 8086 addresses. **3**

(a) 4370 : 56IE = ?

(b) 7A32 : ? = 7A348H

(iii) State difference between microprocessor and microcontroller. **3**

(b) Interface ADC 0808 with 8086 using 8255 ports. Use port A of 8255 for transferring digital data output of ADC to the CPU and port C for control signals. Assume that an analog input is present at i/P_2 of the ADC and a clock input of suitable frequency is available for ADC. Draw the schematic and write required ALP. **10**

2 (a) Interface two 4K × 8 EPROMS and two 4k × 8 RAM chips with 8086. Select Suitable Maps. 8

(b) Draw a schematic hardware circuit for interfacing five, 7-segment displays with 8086 using output ports. Display numbers 1 to 5 on them continuously. The 7-segment codes are stored in a look-up table serially at the address 2000 : 0000H onwards starting from code for 1. 8

OR

(b) Explain the function of following special function register regarding 8051 : 8

(i) IP

(ii) DPTR

(iii) PSW

(iv) SCON

3 Any **two** : 14

(a) Draw block diagram of minimum mode 8086 system and discuss function of all available control signals in minimum mode.

(b) Explain daisy chaining and polling.

(c) Design the hardware interface circuit for interfacing 8251 with 8086. Set the 8251A in asynchronous mode as a transmitter and receiver with even parity enabled, 2 stopbits, 8 bits character length, frequency 160 kHz and band rate 10 k. Write an ALP to transmit 100 bytes of data string starting at location 2000 : 5000 H.

SECTION - II

4 (a) Do as directed : 10

(i) What is the function of code segment?

(ii) List the pointers and index registers.

(iii) Explain the function of direction flag.

(iv) Identify the following addressing mode

MOV AX, [Bx]

(v) Explain the instruction XCHG.

(vi) J_2 and JE are same instructions - State true or false.

(vii) Explain the instruction HLT.

(viii) Why 8086 is known as 16-bit processor?

(ix) State the syntax, error and correct it in the instruction if necessary.

ADD [BX][SI], AX

(x) Which pins are provided on 8086 to give hardware interrupts.

(b) (i) Explain any three addressing modes with example. **6**

(ii) Explain the following directives : **4**

(a) Offset

(b) Length

5 (a) Write a program to add ten 16 bit binary no. to give a 32 bit result. And find the average of the numbers offset = 2000 H. **8**

(b) Explain the process of passing the parameters in a procedure. **7**

OR

5 (a) Write a program to find largest no. of a given unordered array. **5**

(b) What is prefetched queue? How it is useful in fast execution? Explain pipelining. **7**

6 Attempt any **three** : **15**

(i) Explain the difference between near and far CALL.

(ii) Explain in detail the function of type 1 interrupt. Explain the instruction to set and reset trap flag.

(iii) Explain the DOS interrupt INT 21H with five different parameters for key board and video processing.

(iv) Explain interrupt vector table.