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SF-7091

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

May / June – 2011

Microprocessor Systems & Application

Time : 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. - III (Sem. VI) (ECC)**

Name of the Subject :

☛ **Microprocessor Systems & Application**

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

Seat No. :

Student's Signature

(2) All questions are compulsory.
(3) Assume necessary data if required.
(4) Programmable calculator are not allowed.

1 (a) (i) Give the difference between 8086 & 8088. **02**

(ii) List sequence of event occurance when 8086 is interrupted. **02**

(b) Find missing terms related to 8086 address **04**

(i) 4370 : 561E = ?

(ii) 7A32 : ? = 7A 348 H

(c) Differentiate I/o mapped I/o & memory mapped I/o. **04**

(d) Design an interface between 8086 CPU & two chips of 16K×8 EPROM and two chips of 32k×8 RAM. Select the starting address of EPROM suitably. The RAM address must start at 0000H. **08**

2 (a) 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 : 0000 H onwards starting from code for 1. **10**

(b) Draw block diagram of min mode 8086 system and discuss function of all available control signals in minimum mode. **08**

OR

(b) Design a stepper motor controller & write an ALP to rotate shaft of a 4-phase stepper motor **08**
(i) in clockwise 5 rotations
(ii) in anticlockwise 5 rotations

3 Attempt following questions.

(a) Explain daisy chaining & polling. **08**

OR

(a) Draw & discuss internal memory organization of 8051 μc. Also explain stack area & its usage. **08**

(b) Compare 8086 interrupts with 8051 interrupts. **04**

4 (a) Answer in one sentence : **10**
(i) Give a single instruction to invert the lower 4 bits of BL, but does not affect the other bits.
(ii) What is the size of prefethed queue ?
(iii) Explain DX register.
(iv) Explain the use of TEST instruction.
(v) Write instructions which copies DL to a memory location whose offset is in BX.
(vi) What is the use of interrupt flag ?
(vii) Which type of interrupt is called break point interrupt ?
(viii) Give the syntax error in the instruction MOV 7 6324H, CX
(ix) Explain the use of MACRO directing with one example.
(x) Give an single instruction which masks lower bits of BL.

(b) Do as directed : **10**
(i) Explain which bit of 8086 flag register is used by the string instruction. How ?
(ii) Write down the instruction which are required to display a message on the screen.

(iii) Explain LOOPE instruction and the condition of zero flag.

(iv) Give the difference between JUMP & CALL instruction.

(v) Calculate the physical address if segment address is 2005H & offset = 2410H.
Also identify the addressing mode of the instruction MOV AH, AMT [BX] where AMT is the memory location.

5 (a) What are recursive & reentrant procedures. Explain the recursive procedure by writing a program to compute the factorial of a no. between 1 and 8. **10**

(b) Write down the starting memory address of ISR of all interrupts in IVT. **05**

OR

5 (a) Assume that 8086 is executing DIV instruction & divide error occurs and at the same instant of time a rising edge signal arrives at the NMI interrupt. How the 8086 processor handles both interrupts ? **05**

(b) Describe the interrupt response of an 8086 processors. **06**

(c) Explain DOS interrupt. **04**

6 Attempt any three of the following. **15**

(1) Write a program to count no. of vowels in the given string.

(2) Write a program to arrange the 10 8bit numbers in memory in ascending order.

(3) 5 packed BCD no.5 are stored in data segment. Write a program and procedure to convert these no.5 in hex equivalent and save the result in memory.

(4) Write a program to check whether the string is palindrome or not.
