2002 SCHEME

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CS45

Fourth Semester B.E. Degree Examination, December 2011
Introduction to Microprocessor

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions***

1 a. With a neat diagram, explain the internal block diagram of 8085 microprocessor. **(10 Marks)**
b. Differentiate between standard input/output and memory mapped input/output. **(05 Marks)**
c. Explain with a neat diagram, system buses in microcomputer based system. **(05 Marks)**

2 a. Explain the functions of the following registers and pointers in a 8086 microprocessor.
i) AX ii) BX iii) IP iv) SP v) SI. **(05 Marks)**
b. Calculate the physical address of memory, by using segment and offset address.
CS = 2800 H, IP = 4840 H, SS = EE 00H SP = 1 F04H. **(05 Marks)**
c. Explain with a neat diagram, minimum mode configuration of 8086 microprocessor. **(10 Marks)**

3 a. Explain the instruction format for MOV instruction to move data between registers and register /memory. Generate the machine code for the following instructions.
i) MOV CX, AX ii) MOV AX, [SI]. **(10 Marks)**
b. Explain in brief, any five addressing modes, with an example of each. **(05 Marks)**
c. Describe the following assembler directives :
i) DB ii) DUP iii) ENDS iv) PROC v) EVEN. **(05 Marks)**

4 a. Explain the following introductions, with an example of each.
i) XCHG ii) XLAT iii) ADC iv) LOOP v) PUSH. **(10 Marks)**
b. Write an ALP to count number of one in 16 bit unsigned binary number and store count in memory location. **(05 Marks)**
c. Write an ALP to find the sum and the average of 8 bit unsigned binary numbers stored in memory location. **(05 Marks)**

5 a. Write an ALP to sort 8 bit unsigned binary number in ascending order, by using bubble sort method. Assume that the numbers are stored in memory location. **(10 Marks)**
b. Write an ALP to read two strings of equal length and compare the strings by using string instruction and display suitable message. **(10 Marks)**

6 a. Describe the sequence of action followed by microprocessor upon any interrupt. Also discuss the interrupt vector table of a 8086 microprocessor. **(10 Marks)**
b. Differentiate between the producer and macro, with example of each. **(05 Marks)**
c. Calculate time delay of 100 milliseconds with 8086 microprocessor, with clock frequency of 10 MHz. **(05 Marks)**

7 a. Interface 128 KB of RAM to 8086 MP starting from 40000H memory address. Use a suitable decoding logic. **(10 Marks)**
b. Describe with a neat block diagram, the working of 8255 PPI. Write control word for 8255 PPI in mode 'o' with A port as input and B, C, as output ports. **(10 Marks)**

8 a. Explain the stepper motor interface to 8086 microprocessor. Write an ALP to rotate the motor in clockwise direction for given number of steps. **(10 Marks)**
b. Interface DAC to 8086 microprocessor with address of FF00H for 8255 PPI. Write an ALP to generate squarewave by using the same. **(10 Marks)**

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