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10CS45

Fourth Semester B.E. Degree Examination, June/July 2014
Microprocessor

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Define a microprocessor. Explain in detail the evolution of microprocessor in microprocessor age from 4004 MP to core-2 system. **(06 Marks)**

b. Explain in details with a neat figure the working of the internal architecture of the 8086MP. **(08 Marks)**

c. Explain in detail the various bits of a flag register for 8086 MP. **(06 Marks)**

2 a. Explain with an example why and how a 20 bit address is generated in 8086. **(05 Marks)**

b. Explain any five addressing modes in detail with examples that are supported in 8086 MP. **(10 Marks)**

c. Explain the concepts of protected mode of memory addressing. **(05 Marks)**

3 a. Write 8086 ALP to add 10 non-negative data items using string instructions. **(06 Marks)**

b. Explain the following instructions with examples:
i) CMP ii) LAMF iii) XCHG iv)LEA v) PUSH AX vi) LDS DI, [3000h]. **(06 Marks)**

c. Explain with examples the following assembler directives (any four):
i) ORG ii) DQ iii) PROC and ENDP iv) TYPE v) EVEN. **(08 Marks)**

4 a. Explain the various string manipulation instructions with examples. **(06 Marks)**

b. Explain the following instructions with examples any four:
i) DAA ii) MUL iii) ADC iv) SHR v) RCL. **(08 Marks)**

c. Explain the different types of jumps and cell instructions of 8086. **(06 Marks)**

PART – B

5 a. Write an assembly language program using C/C++ to perform the operation x + y = z with proper comments. **(10 Marks)**

b. Define modular programming. Using the concept of public and extra directives write a program which reads data in a program in one module which is then used by another module. **(06 Marks)**

c. Differentiate between macros and procedures. **(04 Marks)**

6 a. Describe in detail the use of the following signals:
i) ACE ii) RESET iii) NMI iv) HOLD v) MN / $\overline{MX}$ vi) QSI and QSQ. **(06 Marks)**

b. Explain in detail with a neat figure demultiplexing of address and data lines in 8086. **(06 Marks)**

c. Explain with a neat figure the working of 8086 in MIN mode configuration. **(08 Marks)**

7 a. Differentiate between memory mapped 1/0 and 1/0 mapped 1/0. **(04 Marks)**

b. Design an 8086 based system to interface with i) 64K byte EPROM; ii) 64K byte RAM. Assume RAM is connected at 30000h and EPROM at F0000h. **(08 Marks)**

c. Explain how a 3-8 line decoder could be used to interface eight 8K memory chips. **(08 Marks)**

8 a. Explain different signals of 8255 PP and control words. **(08 Marks)**

b. Explain with a neat diagram the interfacing of stepper motor to 8086 using 8255 in detail. **(06 Marks)**

c. Explain the working of different blocks of 8254 PIT with a neat figure. **(06 Marks)**

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