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 I/O and I/O mapped I/O.   (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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