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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) $\overline{MN}/\overline{MX}$ 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 PPI 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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