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Fourth Semester B.E. Degree Examination, June 2012
Microprocessors

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Describe the memory map of a PC system, with a neat diagram. (08 Marks)
b. Explain the flags of 8086 processor using suitable examples. (06 Marks)
c. Draw and explain the programming model of the 8086 through the CORE-2 microprocessor including the 64-bit extensions. (06 Marks)
- 2 a. What are the advantages of memory paging? Illustrate the concept of paging with a neat diagram. (10 Marks)
b. Discuss the following addressing modes with examples:
i) Direct
ii) Register indirect
iii) Base plus index
iv) Immediate
v) Scaled indexed. (10 Marks)
- 3 a. Describe the following instruction with suitable examples:
i) PUSH ii) MUL iii) IN iv) AAA. (08 Marks)
b. Write an ALP using 8086 instructions to generate and add the first 10 even numbers and save the numbers and result in memory location Num and Sum. (08 Marks)
c. Bring out the importance of XLAT instruction using a suitable program. (04 Marks)
- 4 a. Write an ALP using 8086 instructions to count the numbers of zeros in a given 8 bit number and store the result in memory location 'Res'. (08 Marks)
b. Explain the following assembler directives: i) Assume; ii) Proc; iii) Ends; iv) DB. (08 Marks)
c. Briefly explain any four bit test instructions. (04 Marks)

PART – B

- 5 a. Explain public and extrn directives of assembler and write ALP to read data through keyboard using external procedure and save the keycode in public data segment. (08 Marks)
b. Write a C program that uses '-asm' function to display strings on output device. (06 Marks)
c. Explain with neat diagram clock generator IC8284. (06 Marks)
- 6 a. Explain in brief the functions of 8086 pins: i) $\overline{MN}/\overline{MX}$; ii) ALE; iii) NMI; iv) Ready; v) Reset; vi) \overline{BHE} . (06 Marks)
b. Describe demultiplexing of multiplexed AD bus with neat diagram. (06 Marks)
c. With neat timing diagram, explain memory read cycle. (08 Marks)

- 7 a. Interface 512 KB RAM to 8088 MP using 64 KB RAM using 3:8 decoder with starting address of memory as 80000H. Clearly mention decoding logic and memory map. (08 Marks)
- b. Explain memory bank selection in 8086 and mention the number of memory bank in 80x86 MPs. (06 Marks)
- c. Differentiate between memory mapped I/O and I/O mapped I/O (isolated I/O). (06 Marks)
- 8 a. Interface 8 digit seven segment LED display to 8088 MP through 8255 PPI. Write initialization sequence for 8255 with all port as output ports in mode 0 and address of device is FFO0h. (08 Marks)
- b. Explain control work format for IC 8254 and interface IC to 8086 MP to generate square wave of 100 kHz using counter 0 write an ALP for the same. Assume clock frequency of 10 MHz. (08 Marks)
- c. Explain interrupt vector table in brief. (04 Marks)

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