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10CS45

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) 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 80×86 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 FFOOh. **(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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