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10CS45

Fourth Semester B.E. Degree Examination, June/July 2013
Microprocessors

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Draw the physical memory system diagram for intel Pentium microprocessors. (06 Marks)
b. Discuss the functions of segment registers of 8086 with examples. Give some advantages of memory segmentation. (08 Marks)
c. What is pipelining? How is it achieved in 8086? (06 Marks)
- 2 a. Explain how virtual address is translated into physical address with a neat diagram. (08 Marks)
b. Identify the addressing modes of the following instructions and explain them briefly:
i) MOV WORD PTR [SI], 20H
ii) MOV ES : [1000H], 10H
iii) MOV CX, NUM[BX + DI] (06 Marks)
c. Briefly explain the flat mode memory model with a neat diagram. (06 Marks)
- 3 a. Write an ALP using 8086 instructions to search a number placed in location NUM, in an array of ten numbers placed at location ARRAY. Give suitable messages. (08 Marks)
b. Describe the following instructions with an example:
i) LEA ii) XCHG iii) DAA iv) MUL (08 Marks)
c. Give the state of all the status flag bits after the addition of 30A2H with F01CH. (04 Marks)
- 4 a. Explain the following assembler directives with examples:
i) DB ii) EXTRN iii) PROC iv) SEGMENT. (08 Marks)
b. Differentiate between procedures and macros. (04 Marks)
c. Write an ALP using 8086 instructions to reverse a four digit number. (08 Marks)

PART – B

- 5 a. What is inline assembly? Explain its need. (06 Marks)
b. State the C language elements that can be used in the arm block. (06 Marks)
c. Explain the basic rules for using assembly language with C/C++ for 16-bit DOS applications with the help of examples. (08 Marks)
- 6 a. Explain the functions of the following pins of 8086 microprocessor:
i) ALE ii) INTR iii) HOLD iv) RESET v) BHE (05 Marks)
b. Explain how address demultiplexing is done in 8086 processor based systems. (07 Marks)
c. With a neat timing diagram, explain memory read cycle. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 7 a. List various memory devices. (02 Marks)
b. What is memory address decoding? Design a memory system for 8086 for the following specifications:
i) 32 Kbytes EPROM using 16 Kbyte devices.
ii) 64 Kbytes SRAM using 16 Kbyte devices.
Draw the memory map. (10 Marks)
c. What are the sources of interrupts? Briefly explain the steps taken by a processor to execute an interrupt instruction. (08 Marks)
- 8 a. Briefly explain the control word format of 8255 in I/O mode and BSR mode. Give the control word format to program Port A and Port C lower as input and Port B and Port C upper as output parts in mode O. (10 Marks)
b. Write an ALP using 8086 instructions to read a byte of data from Port A and display its parity status as OOH or FFH for odd and even parity respectively, on Port B. (05 Marks)
c. List the features of 8254 PIT (Programmable Interval Timer). (05 Marks)

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