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10CS45

Fourth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
Microprocessors

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Write any four differences between read mode and protected mode memory system. **(04 Marks)**

b. Explain real mode memory system of a personal computer system. **(06 Marks)**

c. Explain briefly the programming model of 8086 through core – 2 microprocessor. **(10 Marks)**

2 a. What is paging? Explain the paging mechanism used in 80386 through core – 2 microprocessors. **(08 Marks)**

b. Explain with examples, the various data related addressing modes. **(08 Marks)**

c. For DS = 1200h, DI = 2024h, ARRAY = 0012h, BX = 1012 h, find the physical address for the following instructions. i) MOV AL, ARRAY [BX] ii) MOV AL, ARRAY [BX] [DI]. **(04 Marks)**

3 a. Describe the operation of the following instructions with examples :
i) LEA ii) XLAT iii) DAA iv) IMUL. **(08 Marks)**

b. Write the machine code for the following instructions :
i) MOV BP, SP
ii) MOV WORD PTR [BX + 1000 h], 1234h. **(08 Marks)**

c. Explain the following assembler directives, with examples :
i) EXTRN ii) PTR. **(04 Marks)**

4 a. With format explain rotate instructions. Give examples to rotate right by 2 – bit and rotate left by 4 – bits. **(06 Marks)**

b. Explain the following statements to control the flow of the program, with examples :
i) •IF – • ENDIF
ii) •REPEAT – •UNTIL
iii) •WHILE - •ENDW. **(06 Marks)**

c. Explain the sequence of operation that takes place during the execution of CALL and RET instructions. Mention the differences between :
i) near and far procedures
ii) procedures and macros. **(08 Marks)**

PART – B

5 a. Write an 8086 ALP to find the factorial of a given number using recursive procedures. **(06 Marks)**

b. Write a mixed ALP with 'C' to perform a simple calculator operations. **(10 Marks)**

c. Write an 8086 ALP to convert the given binary number into its equivalent unpacked decimal and ASCII. **(04 Marks)**

6 a. Explain the following pin functions of 8086 microprocessor :
i) READY ii) INTR iii) $\overline{TEST}$ iv) NMI. **(08 Marks)**

b. With a neat diagram, explain the minimum mode system of 8086 microprocessor. **(07 Marks)**

c. Explain the timing diagram of read operation in 8086 microprocessor. **(05 Marks)**

7 a. How 8086 microprocessor selects 8 – bit or 16 – bit data from odd or even memory banks? **(04 Marks)**

b. Interface 8K × 8 ROM and 4K × 8 RAM to 8086 microprocessor. Assume that the starting address for ROM is 40000 h and that for RAM is 44000 h. **(10 Marks)**

c. Mention the differences between memory mapped I/O and Isolated I/O. **(06 Marks)**

8 a. With a neat block diagram, explain 82C55 PPI. Write the control words for
i) PORT A input, PORT B output and PORTC output
ii) PORT A output, PORT B input, and PORTC input in simple I/O mode. **(08 Marks)**

b. With a neat diagram, explain 8254 PIT. **(06 Marks)**

c. Explain briefly the interrupt vector table of 8086 microprocessor. **(06 Marks)**

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