Microprocessors

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Technology BCA

Semester 3

University Exam

Mangalore University

BCACAC 201   Reg. No. [ ][ ][ ][ ][ ][ ][ ][ ][ ]

Credit Based Third Semester B.C.A. Degree Examination
October/November 2008
MICROPROCESSORS   ⁵¹

Time : 3 Hours   Max. Marks : 80

Note: Answer any TEN questions from PART A and any ONE full question from
         each unit from PART B.

PART A

1. a) Expand TPA and VESA.   (10x2=20)

    b) Explain with example two types of BCD data format.

    c) Mention the various segment registers in 8086.

    d) What are the three program memory addressing modes?

    e) With syntax and example explain register indirect addressing?

    f) Suppose that AX = 1000H and BX = 2000H and DS = 0010H determine the
        address accessed by the following instruction considering the real mode
        operation.
        MOV CX, [AX + BX]

    g) What are AAA and AAM instructions? Mention the register used as source and
        destination register for the same.

    h) Will an overflow occur when a signed FFH is added to a Signed 01H?

    i) What are the conditions to execute JCXZ instruction.

    j) What is an interrupt? How many different interrupt types are available in 8086?

    k) Discuss the three types of unconditional jump instructions with their byte size.

    l) Differentiate between RET and IRET instruction.

PART B

UNIT-I

2   a) Explain the various flag registers of 8086 processor with the help of a diagram.

    b) With the help of a diagram, explain the computer system with the address bus,
        data bus and control bus structure.

    c) Write a note on word sized and double word sized data.   (6+5+4)

                                    OR

3. a) Explain the architecture of 8086 with the aid of a diagram.

    b) Explain the evolution of microprocessor from 4-bis to 16 bit microprocessor.

    c) Write a note on ASCII data format.   (5+6+4)

                                                            Contd... 2

UNIT-II

4. a) What is meant by addressing mode? Explain any four types of addressing mode with proper examples.

    b) Assuming real mode operation, suppose DS = 1300H, SS = 1400H. BP = 1500H, SI = 0100 determine the address accessed by each of the following instructions
        i)   MOV AX, [BP + 200H]
        ii)   MOV AL, [BP + SI – 200H]
        iii) MOV AL, [SI – 0100H]   (10+5)

OR

5. a) What is a difference between inter segment jump explain with a help of a diagram?

    b) With the help of a suitable diagram explain LEA, LDS and LES instructions.

    c) Write an assembly level program to check a given number is prime or not.   (5+5+5)

UNIT-III

6. a) Explain the Shift and Rotate instructions with the help of a diagram.

    b) Explain five string instructions with syntax.

    c) Explain Rep prefix with example and also explain the conditions for the execution of the same.   (6+5+4)

OR

7. a) Explain the various BCD arithmetic instructions.

    b) Develop a sequence of instructions that set the rightmost 4 bits of AX, clear the leftmost 3 bits of AX and invert bits 7, 8 and 9.

    c) Write an assembly program to find the GCD of 2 numbers.   (4+6+5)

UNIT-IV

8. a) Write note on near call, far call and calls with register operands.

    b) Explain the loop and conditional loop instructions.

    c) Explain interrupt vector.   (5+6+4)

OR

9. a) What are interrupt instructions? Explain the following interrupt instructions
        i)   INT 3   ii)   INTO

    b) Explain WAIT, LOCK prefix and Bound instructions.

    c) Write a note on procedure.   (4+6+5)

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