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10EC/TE62

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Microprocessors

Time: 3 hrs.

Max. Marks:100

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

PART – A

1   a. Explain with neat diagram, the programming model of the Intel 8086. **(07 Marks)**
    b. What is real mode memory addressing? Describe the scheme with neat sketch. **(05 Marks)**
    c. Generate the machine code for the following instructions: [opcode MOV $\Rightarrow$ 1100011, 100011]
       i)   MOV WORD PTR [BX + 1000H], 4321H
       ii) MOV BX, DS **(08 Marks)**

2   a. What is a segment override prefix, explain with an example. **(05 Marks)**
    b. Define segment and offset addresses and determine the memory address accesses by each of the following instructions:
       i)   MOV AL, [1234H]
       ii) MOV EAX, [BX]
       Given: DS = 200H, BX = 300H and DI = 400H. **(06 Marks)**
    c. What is addressing mode? Explain with an example any four memory addressing modes. **(09 Marks)**

3   a. Write an ALP to read a byte of number from key board and count the number of zeroes and ones store the result in ZC and OC respectively. **(10 Marks)**
    b. Differentiate between the following pair of instructions with example:
       i)   CMP and SUB
       ii) NOT and NEG
       iii) AND and TEST. **(06 Marks)**
    c. Whether the following instructions are valid or not, give reasons:
       i)   MOV CS, DS
       ii) ADD BP, ES:[SP] **(04 Marks)**

4   a. Write an ALP to sort n number in descending order. **(10 Marks)**
    b. List the conditional jump instructions that are used for signed numbers and explain. **(06 Marks)**
    c. Explain DAA instruction with example. **(04 Marks)**

PART – B

5   a. Write an ALP to rotate stepper motor in anticlockwise direction by 10 rotations. **(08 Marks)**
    b. With example distinguish macro and procedure. **(06 Marks)**
    c. Explain the following pins:
       i) INTR   ii) NMI   iii) $\overline{INTA}$ **(06 Marks)**

6 a. Explain with neat diagram, the internal architecture of 8087 arithmetic coprocessor.

(10 Marks)

   b. Explain with example the following instructions: i) FLD   ii) FST   iii) FISTP.   (06 Marks)
   c. Give the TAG register of 80×87 coprocessor.   (04 Marks)

7 a. Describe with schematic, the minimum mode operation of 8086 processor.   (10 Marks)
   b. Explain how 8284 clock generator is connected to 8086 or 8088 microprocessor for the clock and reset signals.   (10 Marks)

8 a. Describe in brief, the descriptor tables of 80386 and 80286.   (10 Marks)
   b. Explain the memory system of 80386 microprocessor.   (06 Marks)
   c. Compare 8086, 80286, 80386 and Pentium processors.   (04 Marks)

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