10EC/TE62

Sixth Semester B.E. Degree Examination, June/July 2019
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. With necessary diagram explain programming model of 8086 microprocessor. **(10 Marks)**
    b. Explain 2nd byte of 8086 instruction template. Also find machine code for ADC [BX + 06], AL. Given opcode of ADC is "000100". **(10 Marks)**

2   a. Indicate whether the following instructions are valid or not. If your answer is "not valid" then explain why?
       i)   MOV AL, BX
       ii) MOV AL, [BX]
       iii) XLAT CX
       iv) RCR DH, 06H **(08 Marks)**
    b. Given, CS = 4000H, DS = 20A0H, BX = 1200H, SI = 06BCH, DI = 1ABCH, disp = 4AH. Obtain physical address for,
       i)   MOV CL, [SI + DI + disp]
       ii) MOV AX, [BX]
       iii) ADD BL, [BX + SI] **(06 Marks)**
    c. Explain the tools used for implementation of assembly language programming. **(06 Marks)**

3   a. Without using dummy memory block write an ALP to perform reverse block transfer of 20 memory bytes stored in consecutive locations starting from LOC. **(08 Marks)**
    b. Explain REP prefixes available in 8086. **(04 Marks)**
    c. Using recursive procedure write an ALP to find factorial of an 8-bit number read from keyboard. **(08 Marks)**

4   a. WALP to replace a character by given character in the string stored in memory location starting from MEM. **(06 Marks)**
    b. Explain the dedicated interrupts available in 8086 μP. **(10 Marks)**
    c. Using suitable example explain how the microprocessor finds the address of an ISS for particular interrupt. **(04 Marks)**

PART – B

5   a. Compare memory mapped I/O and I/O mapped IO interfacing schemes. **(04 Marks)**
    b. What do you mean by key debouncing? Show how a 4 × 4 matrix keyboard can be interfaced to 8086 μP. Also WALP to read a key from it. (Include S/W key debounce logic). **(10 Marks)**
    c. WALP to rotate the stepper for 720° in clockwise direction. **(06 Marks)**

6   a.   What do you mean by coprocessor? Explain the features of 8087 NDP.   **(08 Marks)**

     b.   Represent $(3.625)_{10}$ into its short real format.   **(04 Marks)**

     c.   Differentiate between:
        i)   Forward and reverse division
        ii)   FADD and FADDP
        iii)   FSTSW and FNSTSW
        iv)   FTST and FXAM   **(08 Marks)**

7   a.   Explain following terms with respect to 8086 µP:

        i) ALE   ii) $AD_0 - AD_{15}$ iii) $DT/\overline{R}$ iv) $MN/\overline{MX}$ v) $\overline{LOCK}$ **(10 Marks)**

     b.   Write a note on signals used for parallel printer interface.   **(08 Marks)**

     c.   What do you mean by pipelining?   **(02 Marks)**

8   a.   Explain modes of operations of 80386 processor.   **(08 Marks)**

     b.   Explain additional features of Pentium in comparison to 80386 processor.   **(10 Marks)**

     c.   Define cache hit rate.   **(02 Marks)**

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