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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 μ P. (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 μ P. 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)

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.

- 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 μ P:
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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