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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)

- 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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