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06EC62

Sixth Semester B.E. Degree Examination, December 2010
Microprocessors

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Explain the architecture of 8086 microprocessor, with a neat diagram, along with functions of each block and register. (12 Marks)
- b. Explain the advantages of segmentation. (04 Marks)
- c. If DS = CBA0 H , CS = 4000 H, SI = 4567 H and IP = 2055 H, what is the address of the instruction that is fetched? What is the address of the data? (04 Marks)

- 2 a. Explain the following instructions:
i) XLAT ii) SCASB iii) LEA BX, 56H[SI] iv) AAA. (04 Marks)
- b. Define the assembler directive. Explain the following directives:
i) DW ii) PTR iii) EVEN iv) PROC. (06 Marks)
- c. Explain with example following addressing modes in 8086:
i) Register addressing ii) Based indexed addressed
iii) Variable port addressing iv) Stack memory addressing (10 Marks)

- 3 a. Explain the following pins of 8086:
i) $\overline{\text{LOCK}}$ ii) $\overline{\text{BHE}} / \text{S}_7$ iii) HOLD iv) $\text{DT} / \overline{\text{R}}$ (04 Marks)
- b. Write an ALP to transfer 10 words of data using REP MOV SW instruction from source location to destination location. What is the role of SI, DI registers and DF bit? (06 Marks)
- c. Write a MACRO function
i) to read a character with echo
ii) to display a character
iii) to read a character without echo
iv) to display a text message
v) to read a string of characters. (10 Marks)

- 4 a. Bring out the differences between MACRO and procedure. (05 Marks)
- b. Write an ALP to multiply a 2-digit BCD number by a single digit BCD number by repeated addition using DAA instruction. (05 Marks)
- c. Explain the types of interrupts along with action taken by 8086, when an interrupt occurs. Also, explain interrupt vector table. (10 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.

PART – B

- 5 a. Write the control word format of 8255. Explain with a block diagram, how to interface 4×4 keyboard with 8086 using 8255. (10 Marks)
- b. Interface eight 7-segment display, using 8255 with 8086. Write an ALP to display 1, 2, 3, 4, 5, 6, 7, 8 over the eight 7-segment displays continuously. (10 Marks)
- 6 a. Explain the different 8087 data types along with their format. (10 Marks)
- b. Explain the control register format of 8087. (05 Marks)
- c. Explain the following instructions:
- i) FMULP ST(1), ST
 - ii) FSQRT
 - iii) FLD QWORDPTR[SI]
 - iv) FLDPI
 - v) FBLD LOC (05 Marks)
- 7 a. With a block diagram, explain the maximum mode of operation of 8086. (10 Marks)
- b. Write a note on universal serial bus (USB). (10 Marks)
- 8 a. Explain with structure the special 80386 registers. (08 Marks)
- b. Write the features of 80486 processor and Pentium processor. (12 Marks)

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