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06CS45

# Fourth Semester B.E. Degree Examination, May/June 2010
## Microprocessors

Time: 3 hrs. Max. Marks:100

**Note:** *1.Answer any FIVE full questions, selecting at least TWO questions from each part*
*2.ALP should be well commented.*

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 – A

1 a. Explain the internal architecture of 8086, with a neat diagram. **(10 Marks)**

b. What is meant by pipelining? How is it implemented in 8086? Explain the advantages of pipelining. **(05 Marks)**

c. Illustrate the concept of segmented memory, with a neat diagram. Explain four advantages of segmentation. **(05 Marks)**

2 a. List any six assembly language program development tools. Explain any four ALP development tools. **(10 Marks)**

b. Construct the machine code for MOV CL, [BX] instruction. **(10 Marks)**

3 a. Briefly explain various addressing modes of 8086, with suitable instructions. **(08 Marks)**

b. Explain with an example, how multiple If-Then-Else statement can be implemented, using ALP. **(08 Marks)**

c. Write an ALP to clear all control flags of 8086. **(04 Marks)**

4 a. Differentiate between a macro and subroutine. **(04 Marks)**

b. Explain with an example, how parameters can be passed to a subroutine, using stack. **(08 Marks)**

c. Write an ALP to validate a password. Assume the correct password as SECRET. **(08 Marks)**

### PART – B

5 a. Explain with examples, the following assembler directives:
i) EXTRN ii) EVEN iii) TYPE iv) ASSUME. **(10 Marks)**

b. Compute the factorial of a given 8-bit number using recursion. **(10 Marks)**

6 a. Illustrate with a neat diagram, the working of 8086 in the minimum mode. Also give the timing diagram of I/O read operation. **(10 Marks)**

b. Interface four 8 KB RAMS starting with an address of 60000H. Draw the memory map and address decoder worksheet. Use 74LS138 decoder for external address decoding. **(10 Marks)**

7 a. List and describe the steps a 8086 will take when it responds to an interrupt. **(06 Marks)**

b. Briefly explain the operation of 8259, with a neat block diagram. **(08 Marks)**

c. Describe the response a 8086 will make , if it receives an NMI interrupt signal during a division operation which produces a divide by zero interrupt. Illustrate this concept with a stack diagram. **(06 Marks)**

8 a. Draw the control word format of 8255. Explain it. **(08 Marks)**

b. Explain different methods of data transfer schemes, with suitable examples. **(06 Marks)**

c. Write an ALP to display 0 to 9 on a 7-segment LED display device. **(06 Marks)**

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