USN | | | | | | | | | | |

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.

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)

* * * * *

USN | | | | | | | | | | |

06CS45

Fourth 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. What is a microprocessor? With a neat block diagram, giving the importance of instruction queue, explain the architecture of 8086 microprocessor. **(10 Marks)**

b. In brief, explain the different types of microprocessors. **(06 Marks)**

c. Explain the sequence of operations to be performed during the execution of an instruction. **(04 Marks)**

2 a. Explain the significance of special bit indicators available in 8086. **(06 Marks)**

b. If the opcode for MOV is 100010, then find the opcodes for the following instructions:
i) MOV CX, AX ii) MOV AL, [BX]
iii) MOV DS : [BP]12, AH iv) MOV BL, [SI]06H **(08 Marks)**

c. With the flag register format, explain the status flags of 8086. **(06 Marks)**

3 a. Replace the following program segments by their single equivalent instruction: **(06 Marks)**
i) NEGCL
ADD BL, CL
CMC
ii) MOV CL, 02H
DIV CL

b. Write an 8086 program to pack a 2-digit unpacked BCD number, available in memory locations, LOC and LOC + 1. **(06 Marks)**

c. Clearly showing delay calculation detail, write an ALP to generate a delay of 50 msec for an 8086 microprocessor, operating at 5 MHz clock frequency. **(08 Marks)**

4 a. Give the comparisons between macros and procedures. **(04 Marks)**

b. With suitable examples, explain the repeat prefixes available in 8086. **(06 Marks)**

c. Write an ALP to find the number of ovels in a given string. **(10 Marks)**

PART – B

5 a. Explain the following :
i) INCLUDE ii) DAS iii) XLAT iv) LDS v) PUBLIC vi) ENDP **(12 Marks)**

b. Write program segments to set and reset TRAP flag. **(08 Marks)**

6 a. With a neat block diagram, explain memory organization of 8086 microprocessor. **(10 Marks)**

b. Clearly indicating demultiplexing details, explain minimum mode configuration of 8086. **(10 Marks)**

7 a. What is an interrupt? Discuss the interrupts classification in 8086. **(07 Marks)**

b. What do you mean by an IVT? Explain IVT in 8086 microprocessor. **(07 Marks)**

c. Explain the microprocessor's response for an INTR interrupt. **(06 Marks)**

8 a. With a neat block diagram, explain the functioning of 8255 PPI. **(10 Marks)**

b. Write the control word format and 8255 initialization to set PC_5 and reset PC_3 bits of port C. **(05 Marks)**

c. With a neat diagram showing details of signal directions, explain the input data transfer. **(05 Marks)**

* * * * *