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

06EC62

Sixth Semester B.E. Degree Examination, June-July 2009
Microprocessor

Time: 3 hrs. Max. Marks:100

Note: *1. Answer any FIVE full questions, selecting at least TWO questions from each part.*
2. Standard notations are used.
3. Missing data be suitably assumed.

PART – A

1 a. Draw the internal architecture of the 8086 and explain. Briefly explain the flag register. **(10 Marks)**

b. Explain the transient program area (TPA) and system area of a personal computer. **(10 Marks)**

2 a. Write an ALP to multiply two 32 bit numbers stored in consecutive memory locations and store the result in the memory. **(10 Marks)**

b. Differentiate between Direct program memory addressing, Relative program memory addressing and Indirect program memory addressing with one or two examples. **(06 Marks)**

c. If DS = AB30H, CS = 8920H, SS = 2BO1H, BP = 2D45H, SP = 0130H, SI = 1234H DI = 4356H then determine the physical address of the following instructions.
i) MOV [BP + DI + 5], AH ii) MOV AL, [5036H] **(04 Marks)**

3 a. Explain the following string instructions:
i) MOVSB ii) Repeat Prefix (REP) iii) STOSW iv) SCASB v) CMPS. **(10 Marks)**

b. Write an ALP to convert lowercase to uppercase using modular programming approach. Use two far procedures one for reading from keyboard and one for displaying. **(10 Marks)**

4 a. Explain the following DOS system call : int 21H functions:
i) 1NT 21H, Function 001H
ii) 1NT 21H, Function 08H
iii) 1NT 21H, Function 0AH
iv) 1NT 21H, Function 2BH
v) 1NT 21H, Function 2DH **(10 Marks)**

b. Draw the pin-out of the 8259 A programmable interrupt controller (PIC) and describe each pin. **(10 Marks)**

PART - B

5 a. Explain Isolated and Memory – Mapped I/O. **(05 Marks)**

b. Explain about the following I/O instructions
i) IN with fixed address ii) IN with variable address iii) INSB
iv) OUT with fixed address v)OUTSW **(05 Marks)**

c. Explain the programmable peripheral interface (PPI) with command bytes of the command register in the 82C55. **(10 Marks)**

6 a. Draw the internal structure of 80 x 87 arithmetic coprocessor and explain. **(10 Marks)**

b. Explain the following 8087 coprocessor instructions:
i) FSQRT; ii) FSTP; iii) F SCALE; iv) F RNDINT; v) F COM **(10 Marks)**

a. Write short notes on the following:
i) Peripheral Component Interconnect (PCI); ii) Parallel printer interface (LPT). **(10 Marks)**

b. Explain the Universal Serial Bus (USB) with PIN configuration, USB Data, USB commands. **(10 Marks)**

8 a. Write a note on Pentium microprocessor. **(10 Marks)**

b. Explain about special 80386 registers. **(10 Marks)**

* * * * *

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

06EC62

Sixth Semester B.E. Degree Examination, Dec.09/Jan.10
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. Discuss briefly, how microprocessor has evolved with relevance to its capability, bit size and applications. **(06 Marks)**

b. With reference to 8086 CPU, explain the role of the following:
   i) Instruction queue
   ii) Segment registers
   iii) General purpose registers. **(08 Marks)**

c. Write and explain with relevant timing diagram a memory read operation in 8086 under min mode. **(06 Marks)**

2 a. Explain the significance of the following pins of 8086 processor:
   i) ALE
   ii) MN/$\overline{MX}$
   iii) $\overline{LOCK}$
   iv) $\overline{TEST}$ **(06 Marks)**

b. Differentiate between the following instructions and explain them with suitable examples:
   i) Shift and rotate
   ii) HLT and INT-n
   iii) Jmp and call **(08 Marks)**

c. What are the assembler directives? Explain the action performed by the following directives:
   i) Price db (?)
   ii) PAI Equ 40h
   iii) ASSUME
   iv) EXTRN **(06 Marks)**

3 a. Write an assembly language program to arrange 'N' bytes of data in ascending order. Write relevant comments for each of the instruction used. **(10 Marks)**

b. Use string instructions to perform the following:
   i) Block move of 'N' bytes from 'SOURCE' to 'DESTN'
   ii) Concatenate two strings.
   Write the complete program with comments. **(10 Marks)**

4 a. Explain the software and hardware interrupt structure in 8086. **(08 Marks)**

b. Give the significance of BIOS & DOS interrupts. **(06 Marks)**

c. Differentiate between macros and procedures. **(06 Marks)**

PART – B

5 a. Show an interface of a matrix keyboard to a 8086 and explain its basic principle of operation. **(10 Marks)**

b. With necessary hardware and software, show an interface of 7 segment LED display to a 8086 processor. **(10 Marks)**

6 a. What is a co-processor? Why it is called so? Give the significance of 8087 NDP. (Numerical data processor). **(06 Marks)**

b. Explain the various data types that 8087 can handle. Give examples. **(06 Marks)**

c. Write a program to obtain the hypotenuse of a right angles triangle given its sides A & B using 8087 interfaced to 8086. **(08 Marks)**

7 a. Explain with relevant block diagram the maximum mode operation of 8086. **(06 Marks)**

b. What are the characteristics of the following?

i) Peripheral component interconnect (PCI)

ii) Universal serial bus (USB). **(06 Marks)**

c. Show an interface of a printer to a 8086 processor. Explain the signals of importance. **(08 Marks)**

8 a. Write a note on the various special registers in 80386 CPU. **(06 Marks)**

b. Discuss briefly the two modes of operation in 80386. **(08 Marks)**

c. Describe the basic features of a Pentium processor. **(06 Marks)**

* * * * *