XX-2004

Seat No._________

Second Year B. C. A. Examination
March / April - 2003

Modern Microprocessor & Assembly Language
(BCA - 204)

Time : 2 Hours] [Total Marks : 50

1 Answer the following : (any ten) 10

(i) Differentiate between Compiles and Assembler.

(ii) Find out starting and ending addresses, if DS register contains IA30H in real mode addressing scheme.

(iii) What is END, ENDP and ENDS directives.

(iv) Explain function of BHE pin of 8086 microprocessor.

(v) What is OAH function of INT 21H instruction?

(vi) Write the width of data and address bus of 8086 microprocessor.

(vii) Write down an instruction to mask upper four bits of BH register.

(viii) Find out maximum number of memory locations that can be addressed by microprocessor with 32-address lines.

(ix) What is ISA and EISA bus?

(x) List various MOV instructions, which are not supported by 8086 microprocessor.

(xi) What is SHL instruction?

(xii) Write down the content of AX register for the following instructions:

\[ \text{MOV AX, 08H} \]
\[ \text{XOR AX, AX} \]

2 Answer the following : (any five) 10

(i) List and explain all the segment registers available in 8086 through Pentium processor.

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(ii) Explain various types of Read Only Memory.

(iii) Differentiate between RISC and GISC architecture.

(iv) What is encoder? Explain priority encoder with logical diagram and function table.

(v) Draw bus structure of 8085 microprocessor and explain all the system buses.

(vi) Differentiate between program visible and program invisible register. Give example of both.

(vii) Explain memory map of 6HKB RAM With necessary diagram, considering 2H-bit address line and 16-bit data lines.

3 Do as directed:

(i) Explain descriptor of 80286 and above microprocessor and segment register in protected mode memory addressing scheme.

(ii) Explain internal block diagram of 8086 microprocessor with necessary diagram.

OR

(i) Explain instruction pipeline with diagram. List and explain all the instruction pipeline hazards and explain any one solution.

(ii) Draw the pin-in and pin-out diagram for 8086 microprocessor and explain function of minimum mode pins.

4 Do as directed: (any five)

(i) Explain following directive with example:
   (a) Title
   (b) .Model.

(ii) Explain CMP instruction with example. Also write how it affects various flags.

(iii) Differentiate between macro and procedure.

(iv) Write an assembly language program to clear all general purpose register of 8086 microprocessor.
(v) Discuss effect on stack when CALL and RET are executed with necessary diagram. List any four conditional call instructions.

(vi) Discuss following addressing modes:
(a) Immediate
(b) Register Indirect.

(vii) Find out value of \( N \) for the following module, if frequency of the system is 8 MHz and required time delay is 3 msec.

\[
\begin{align*}
\text{MOV} & \quad \text{CX}, \text{N} \\
\text{MOV} & \quad \text{BX}, \text{03} \\
\text{B-10} & \quad \text{MOV} \quad \text{AX}, \text{CX} \\
& \quad \text{NOP} \\
& \quad \text{NOP} \\
& \quad \text{NOP} \\
& \quad \text{NOP} \\
& \quad \text{LOOP} \quad \text{B-10}
\end{align*}
\]

Write an assembly language program for the following: (any two)

(i) To find minimum from an array of five numbers, also print the output.

(ii) To find whether given string is palindrome or not.

(iii) To subtract two 16-bit numbers using macro.

(iv) To find factorial of given numbers using procedure.