BT-5/DX
MICROPROCESSOR AND INTERFACING
Paper : ECE-311(E)

Time : Three Hours]   [Maximum Marks : 100

Note : Attempt *five* questions in all, selecting *one* question from each unit. All questions carry equal marks.

UNIT–I

1. (a) Write the historical steps of generation of microprocessors.   6

    (b) Differentiate between RISC and CISC.   7

    (c) Write the applications of microprocessor.   7

2. (a) Draw the block diagram of internal architecture of 8086 and explain the function of each unit in detail.
                                                          10

    (b) Explain the microprocessor bus types & buffering technique.   10

UNIT–II

3. (a) What is the use of data transfer instruction ? Explain the following instructions with suitable example :
    (i) MOV (ii) POP (iii) LEA (iv) AAA (v) LDS/LES.
                                                          10

8514/7000/KD/1970   [P.T.O.

(b) WAP to add two multibyte numbers and store the result as a third number. The numbers are stored in the form of byte lists stored with the lowest byte first. **10**

4. (a) List three methods of passing parameters to a procedure. Give the advantages and disadvantages of each method. **10**

(b) See if you can find any errors in the following instructions or group of instructions :

    (i)   CNTDOWN: MOV   BL , 72H
                  DEC   BL
                  JNZ   CNTDOWN
    (ii) REP ADD   AL , 07
    (iii) JMP BL
    (iv) ADD CX , AL
    (v) DIV AX , BX   **5**

(c) What is the difference between the following instructions :

    MOV   AX,   TABLE_ADDR   and   LEA AX,TABLE_ADDR   **5**

UNIT–III

5. (a) Draw and explain the timing waveforms for read and write operations of 8086 in maximum mode. **12**

(b) Design and interface between 8086 CPU and two chips of 16K × 8EPROM and two chips of 32K × 8RAM. Select the starting address of EPROM in F8000H. The RAM address must start at 00000H. **08**

6. (a) Write short notes on the following :
    (i)   Addressing decoding technique.
    (ii) DRAM controller.   **7×2=14**

(b) Differentiate between SRAM and DRAM. **06**

UNIT–IV

7. (a) Draw a schematic hardware circuit for interfacing five 7 segment displays (common cathode) with 8086 using output ports. Display numbers 1 to 5 on them continuously. The seven segment codes are stored in a look-up table serially at the address 2000 to 0000H onwards starting from code for 1. **10**

(b) Draw the internal architecture of USART and explain the operating modes in detail. **10**

8. Write short notes on any *two* :

(a) Discuss various types of interrupts in 8086 with suitable example. **10**

(b) Programmable DMA interface 8237. **10**

(c) Microcomputer video displays. **10**