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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

   (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