No mobile phones

Instructions to the Candidates:
1. Answer One Full Question From Each Unit.

UNIT-I

1. a) Explain the typical components of a microcomputer architecture. (10)

    b) What are the uses of memory segmentation? Illustrate the generation of 20-bit physical address in 8086 microprocessor. (10)

2. a) Which are the two categories of flags? Explain all the flags in each category with an example. Instruction showing how they effected. (10)

    b) Generate the machine code for the following instructions: (10)

      (i) MOV AX, BX   (ii) MOV 46H[BP],CX   (iii) MOV DS:0ABCD[BP],DX

      [Hint : First six bits of MOV template : 100010

           Codes of registers : AX – 000, BX – 011, CX – 001, DX-010

                R/M is 110 for 2nd & 3rd instruction]

UNIT-II

3. a) Give a comparison between macros and procedures. (10)

      Write a procedure to find gcd of two bytes and call the same from main program to find gcd of three bytes.

    b) Write a procedure to create a delay of 10 mins using an 8086 system that runs on 10MHz frequency. (10)

4. a) Explain any five addressing modes of 8086 with examples for each mode. (10)

    b) Explain the other uses of general purpose registers AX, BX, CX, and DX. (10)

UNIT-III

5. a) What are assembler directives? Explain the following assembler directives: (10)

      (i) Assume   (ii) Segment   (iii) dup   (iv) ENDM

    b) Write an ALP to sort an array of words using Bubble sort technique. Write appropriate comments wherever necessary. (10)

6. a) What is the content of Al register after the execution of each of the following (10) set of instructions:

        (i) MOV AL, 0FH   (ii) MOV AL, 0FH
           DAA   AAM

        (ii) MOV AL, 07H   (iv) MOV DX, port A
           LEA BX, table1   IN AL, DX
           XLAT

   b) Write an ALP to reverse a given string and check whether it is palindrome or (10) not.

UNIT-IV

7. a) Explain the memory organization of 8086 microprocessor. Why does it take (10) two machine cycles to fetch information from an odd addressed word location?

   b) Explain the working of 8086 in minimum mode configuration with a neat (10) diagram.

8. a) Explain the different types of interrupts. Write the structure of interrupt (10) vector table mentioning the names of all dedicated interrupts (Int 0 - Int 4)

   b) With a neat block diagram, explain the architecture of programmable (10) interrupt controller 8259A.

UNIT-V

9. a) Interface two 4Kx8 EPROMS and Two 4Kx8 RAM chips to 8086 (10) microprocessor. Select the suitable maps.

   b) Explain with a neat diagram, how do you interface seven segment display to (10) 8086 microprocessor.

10. a) Explain the control register of 8255A.   (10)

   b) Write an ALP to generate sine wave on a CRO using DAC interface.   (10)

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