C15403   **Microprocessor Programming and applications**   **Sem No: IV**

Time: 3 Hours   **Max. Marks: 100**

Instructions :
1. Answer All Questions either (a) Division or (b) Division.
2. Each question carries 20 marks.
3. Division (a) and (b) has three subdivisions (i),(ii) and (iii) which carries **3** marks, **5** marks and **12** marks respectively.
4. Printed charts /graph sheets/data books to be issued to / used by the students.

1. a. i) Mention the functions of sign flag and parity flag in 8085.   (3)
    ii) Explain the use of following signals in 8085.   (5)
      a) ALE   b)   HOLD   c)   TRAP
    iii) Describe the architecture of 8085 with neat sketch.   (12)

(OR)

   b.i) What is program counter? How is it useful in program execution?   (3)
    ii) Draw the logical pinout of 8085.   (5)
    iii) Explain the operations performed in microprocessor.   (12)

2.a. i) Define opcode and operand, and specify the opcode and the operand in the instruction   (3)
              MVI A, 10H
    ii) Explain the various addressing modes available in 8085 with example   (5)
              MVI A, F8H
              SUI 69 H
   iii) Execute the following instructions and specify the contents of register A and the status of   (12)
        the S and CY flags after the execution.

(OR)

   b.i) If the content of accumulator is FE H and what will be the content after the execution of   (3)
        ADI 02 H instruction.
    ii) How stack is used in the execution of call instruction?   (5)
   iii) Analyse the data transfer and sequence of events in each machine cycle during   (12)
         the execution of CALL and RET Instructions.

3.a. i) Compare memory mapped I/O and peripheral I/O Interfacing.   (3)
    ii) Explain the steps involved in interfacing output devices   .   (5)
    iii) Explain the various modes and operation of 8255 Programmable Peripheral Interface.   (12)

(OR)

b.i) What are the vectored interrupts in 8085 also specify the call locations of those interrupts?   (3)
  ii) Describe DMA data transfer scheme.   (5)
  iii) Explain the various modes of operation referring the functional diagram of IC 8237 DMA.   (12)

4.a.   i) Specify the peripheral devices required for any application system.   (3)
       ii) Explain various interfacing devices in constructing an application.   (5)
       iii) Illustrate the working of 8085 microprocessor based temperature control system
            with a neat block diagram.   (12)

(OR)

4.b.   i) Write the sequence of operations performed by the microprocessor based temperature
           control system.   (3)
       ii) Explain the working of stepper motor.   (5)
       iii) Illustrate how stepper motor switching sequence is controlled using 8085
            microprocessor.   (12)

5.a. i) Which addressing method is used by the stack?   (3)
     ii) Explain how external memory can be interfaced in 8051.   (5)
     iii) Explain the block diagram of 8051 with neat sketch.   (12)

(OR)

   b.i) Which bits in the PSW select the register banks? How is memory bank 2 selected?   (3)
     ii) Give details about the organization of Data memory in 8051 microcontroller.   (5)
     iii) Describe the role of TCON and TMOD registers in various modes of timer operation
         in 8051.   (12)

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