Ex/PRN/PC/B/CSE/T/226/2024

B.E. PRINTING ENGINEERING SECOND YEAR SECOND SEMESTER – 2024

MICROPROCESSOR

Time Allotted: Three hours Full Marks: 100

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

(Long answer type questions)
Answer any five of the following

1. (a) Explain stack operation in 8085 microprocessor with example. (5)
   (b) Show the timing diagram of MVI A, 32H instruction [opcode-3E H]. Calculate the time required to execute the opcode fetch, memory read cycle, and the entire instruction cycle if the clock frequency is 2MHz. (5+5)
   (c) Write the function of a) DAA b) XCHG c) RLC (5)

2. (a) Draw and explain the circuit diagram of the memory address range of the chip with 256 byte and explain how the range can be changed by modifying the hardware of (CS)' line. (5+5)
   (b) Explain several addressing modes of 8085 with example. (5)
   (c)Write a program to add two 8 bit binary numbers [two numbers are 5B H & 95 H]. [5]

3. (a) Explain several flag register of 8085. (5)
   (b) Draw the interfacing circuit of 8KB EPROM and 16 KB RAM with 8085 microprocessor using the chip of 4KB of EPROM and 8 KB of RAM. Write the address range of all memory chips and also show the address decoding logic. (5+5)
   (c) Write a program to find two's complement of B8H number [5]

4. (a) Identify the port address, identify the mode 0 control word to configure port A and upper port C as output port and port B and lower port C as input port. Write a program to read DIP from input and display it with LED on output. (5+5)
   (b) Delay programming for Microprocessor 8085 is
   MVI C, Count [7T]
   Loop: DCR C [4T]
   JNZ Loop [10T/7T]
   Crystal frequency of microprocessor is 2 MHz, count = (FF H), calculate the total time delay. (5)
   (c) Explain the functional block diagram of DMA controller (8257). (5)

5. (a) Explain the functional block diagram of programmable peripheral interface IC 8255. (5)
   (b) Program to count number of ones in the given data (F5 H). (5)
   (c) Draw and explain the block architecture of 8085. (6+4)

6. (a) Draw and explain the internal architecture of interrupt structure of 8085. (5)
   (b) What are the significance of HOLD, HLDA and ALE pins of microprocessor? (6)
   (c) What is the function of RIM and SIM? Explain all the accumulator contents of RIM and SIM instruction for interrupt. (4+5)

7. (a) Write a program of whether a no is even or odd [given number is 9B H].(5)
   (b) Explain the functional description of 8259A interrupt controller with diagram. (5)
   (c) What is Subroutine call explains with example. What is the significance of subroutine? What is nested subroutine? (5+2+3)