

Roll No.....

Total No. of Questions : 13]

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J-3851[S-8013]

[2037]

B.Sc. (IT)

MICROPROCESSOR SYSTEM

(B.Sc. (IT) - 403)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 x 2 = 30)

- a) What is the function of assembler?
- b) Explain the difference between machine language and the assembly language in INTEL 8085 microprocessor.
- c) How does a microprocessor differentiate among a positive number, a negative number and a bit pattern?
- d) If the memory chip size is 1024 x 4 bits, how many chips are required to make up 2048 bytes of memory?
- e) Why is the direction of data flow in address bus?
- f) In a peripheral mapped I/O, can an input port and output port have the same port address? Justify your answer.
- g) What is machine cycle?
- h) What is opcode?
- i) Why are program counter and stack pointer in INTEL 8085 microprocessor 16 bit register?
- j) Is there a minimum pulse width required for the interrupt signal?
- k) Write instruction to :
 - (a) Load 08H in the accumulator.
 - (b) Increment the accumulator.
 - (c) Display the answer.

P.T.O.

- l) If the INTEL 8085 microprocessor adds 89H and 79H specify the contents of accumulator and status of S, Z and CY flags.
- m) The following instructions subtract two unsigned numbers in INTEL 8085 microprocessor. Specify the contents of register A and status of S and CY flags. Explain the significance of the sign flag if it is set.
- ```
MVI A, F8H
SUI 69H
```
- n) Explain how many times the following loop will be executed in INTEL 8085 microprocessor :
- ```
LXI B, 0007H
LOOP:DCX B
JNZ LOOP
```
- o) Write the instruction to load the number 2050H in the register pair BC in INTEL 8085. Increment the number using the instruction INX B and illustrate whether the INX B instruction is equivalent to the instructions INR B and INR C.

Section - B

(9 x 5 = 45)

- Q2)** Draw the functional block diagram of INTEL 8085 microprocessor.
- Q3)** How address decoding is done in INTEL 8085 microprocessor?
- Q4)** Explain the operations commonly performed by MPU.
- Q5)** Describe the functions of different flags of ALU of INTEL 8085 microprocessor.
- Q6)** Explain why demultiplexing is done for bus AD_7 ñ AD_0 in INTEL 8085 microprocessor.
- Q7)** Describe TRAP, RST 7.5 RST 6.5 and RST 5.5 interrupts in INTEL 8085 microprocessor.
- Q8)** Explain the functions of ALE and IO / \overline{M} signals in microprocessor.
- Q9)** Give the block diagram for memory chip 8155.

Q10) Specify the register contents and flag status (S, Z CY) after the instruction ORA A is executed in INTEL 8085 microprocessor.

MVI A, B9H

MVI B, 47H

ADD B

ORA A

Q11) Sixteen bytes of data are stored in memory locations at XX50H to XX5FH in INTEL 8085 microprocessor. Write a program to transfer the entire block of data to new memory locations starting from XX70H. The data in hexadecimal code are : 37, A2, F2, 82, 57, 5A, 7F, DA, E5, 8C, A7, C2, B4, 10, 19, 98.

Q12) Write a program to add the following data bytes stored in memory locations starting at XX60H in INTEL 8085 microprocessor and display the sum at the output port if the sum does not generate a carry. If a result generates a carry, stop the addition, and display 01H at the output port. The data in hexadecimal code is

First set : 37, A3, 24, 78, 97.

Second set : 12, 1B, 29, 42, 07.

Q13) Write a main program in INTEL 8085 microprocessor to count continuously in binary with a one second delay between each count. Write a service routine at XX70H to flash FFH five times when the program is interrupted, with some appropriate delay between each flash.

