Code: A-C730123-A	**I SEMESTER EXAM - 2023-24**	3 x 260
Std.: XII	Sub: Computer Science-II (D9)	Marks: 50
Date: 08/11/2023	Roll No.: _____	Time: 3 hrs

Note : 1) Label your answers very properly, as per question number. Unlabeled or wrongly labeled answers are not credited marks.

2) Label the diagrams wherever you draw them. Draw them neat.

3) For assembly language program, due credits are given for correct comments.

4) All questions are compulsory and numeric figures to the right are max marks for the question.

Q.1 A) Select the most appropriate answer from the given alternatives and rewrite the sentence with option number. **(4)**

a) 8085 is _____

i) a programming language ii) an operating system

iii) a microcomputer iv) None of these

b) _____ is NOT a valid instruction in 8085..

i) SBU C ii) SBB C iii) ACI 55 H iv) None of these

c) Let (A)= 5F H, (B) = D7 H. To transfer the contents of register B into accumulator, the correct mnemonic instruction in 8085 is _____

i) MOV B, A ii) COPY B, A iii) MOV A, B iv) MOV B

d) Which of these is a true statement?

i) There is no mention of Borrow, no mechanism to work on Borrow value, in 8085 programming.

ii) In 8085 programming, there are mechanisms for working on only CY FLAG, not on Borrow flag.

iii) In 8085 programming, same Flip-Flop that stores value of CY flag, also works as "Borrow" flag.

iv) In 8085 programming, there are 2 separate Flip-Flops to work with values of CY and Borrow.

B) Answer any two of the following. **(6)**

a) Write 3 distinct points for first generation microprocessor.

b) Explain Address Bus and Data Bus. With respect to 8085, explain Multiplexed Data Buses. [1 + 1 + 1]

c) How is 'word size' of a microprocessor determined ? Explain size capacity of 8085.

Q. 2A) Answer any two of the following. **(6)**

a) With respect to 8085 microprocessor, explain following terms : **(1 Mark each)**

i) PSW ii) Register iii) Memory Pointer

P.T.O

b) Write features on following instructions with respect to 8085 programming:

Mnemonic Instructions		2 points Common to all 3 Instructions	A point of difference In all 3 instructions
(i)	CMA		
(ii)	RAL		
(iii)	CMC		

c) In 8085 programming, explain the instructions :

i) MVI C, 0F H ii) ANA D iii) JMP C050 H

B) Differentiate between following terms with minimum 2 points in each. (Any Two)(4)

a) Microprocessor and Microcomputer

b) Opcode and Operand

c) Stack Pointer and Program Counter

d) HL pair and BC pair

Q.3 A) Answer any two of the following. (6)

a) Explain following 8085 instructions with respect to their addressing modes, length of instructions and functional (working) groups: (i) RST 01 (ii) LDA C050 H

b) Give an example of 8085 instruction in full, that exhibits mentioned properties -

i) Immediate addressing mode and 3 - byte length

ii) 2-byte instruction from Arithmetic group

iii) Implicit Addressing mode of 1-byte length

c) Consider (B) = 5A H, (A) = C2 H and (D) = F9 H. Write contents of registers A, B, D each time, after the execution of following instruction -

i) RRC ii) ORA B

iii) MOV D, A [Use results after each instruction]

B) Answer any one of the following. (4)

a) Write a common point of similarity and a point of difference between -

i) INX and INR ii) DAD and ADD

b) Assume (A) = D8 H, (E) = 7B H. Execute following instructions showing bit-wise operation at each step and use results of execution one after the other. Also, write status of flags they affect.

i) SUB E ii) CMP E

Q.4 A) Answer any two of the following. (6)

a) Draw block diagram of a generic microprocessor and write 2 distinctive features of it.

b) Explain the concept of converting a negative number into positive number. Write stepwise the instructions used for this.

c) Write an assembly language program to store a 3-byte data F2DD2F H in memory locations beginning C051 H.

B) Answer any one of the following. (4)

a) Assume contents of Flag registers shows 54 H after execution. Interpret the meaning of this.

b) Write all conditional jump instructions with their respective flag conditions. Explain the concept of conditional Jump instruction with any one of these.

Q.5 Answer any two of the following. (10)

a) A block of one-byte hex data is stored at memory locations beginning 2011 H. Length of block is given at 2010 H. Write an assembly language program to store each data of this block in another block beginning with 3011 H, in reverse order (bottom to top).

b) Two blocks of one-byte hex data each are stored at memory locations beginning 5501 H and 6601 H respectively. Length of block is at 5500 H. Write an assembly language program to exchange data of these two blocks with each other.

c) Write an assembly language program to separate both nibbles of a 1 - byte hex data and store both nibbles individually. The Data is at memory location 8451 H. Store the nibbles in subsequent locations one after other. The program must also multiply both nibbles and store the product at next memory location(s).

OR

a) A block of one-byte hex data is stored at memory locations beginning C001 H. Length of block is given at C000 H. Write an assembly language program to count the occurrence of data byte 4C H in the block. Store this count at the end of the block.

b) Two 1-byte hex data is stored at memory locations beginning B001 H and B002 H respectively. Write an assembly language program to multiply both data and store the 16-bit product in subsequent memory locations beginning with lower order byte.

c) A block of one-byte hex data is stored at memory locations beginning F001 H. Length of block is given at F000 H. Write an assembly language program to count the odd and even data bytes in this block. Store the count at the end of the block.