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8. (a) Explain handshaking technique used for asynchronous data transfer.
- (b) Explain 0-address, 1-address and 2-address instruction format to compute

$$X = A + B * C$$

9. Draw pin diagram of 8085 microprocessor and explain the role of each pin of 8085 chip.

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Roll No.

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B. C. A. (Third Semester)
EXAMINATION, Dec., 2019

(New Course)

Paper Third

COMPUTER ARCHITECTURE AND
ASSEMBLY LANGUAGE

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 3 marks.

1. (A) What is Cache Memory ? How cache memory is useful to reduce Memory Access Time ? Explain with an example.
- (B) What do you mean by Computer Instruction ? Explain the role of different parts of an instruction in the its execution.

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- (C) What is Floating Point Number ? Explain floating point representation in digital computers.
- (D) Draw a logic circuit to add two 4-bit Binary Numbers.
- (E) What do you mean by Input-Output Processor (IOP) ? How is IOP different from DMA ?
- (F) What is interrupt ? Explain the different types of interrupt used in digital computers.
- (G) Explain different control instructions of 8085 microprocessor with suitable examples.
- (H) What is significant of flags in Computers ? Explain all flags used in 8085 microprocessor.
- (I) What do you mean by low level programming languages ? Explain different low level languages with its characteristics.

Section—B

(Long Answer Type Questions)

Note : Attempt any *two* questions. Each question carries 12 marks.

- 2. (a) What do you mean by microoperation ? Explain the different types of microoperations with suitable examples.
- (b) Implement circuit of 4-bit ALU to perform four different arithmetic and logical operations.
- 3. (a) Register A holds the 8-bit binary data 11011001. Determine the B operand and the logic microoperation to be performed in order to change value in A to :
 - (i) 01101101
 - (ii) 11111101

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- (b) Explain general register and stack organizations used in different computers.
- 4. (a) What do you mean by Addressing Modes ? Explain different addressing modes with examples.
- (b) What do you mean by pipeline processing ? Explain RISC and CISC architecture with their advantages and disadvantages.
- 5. (a) Explain Booth's algorithms for multiplication of integer numbers.
- (b) Explain steps for memory read and memory write operations in 8085 microprocessor.

Section—C

(Long Answer Type Questions)

Note : Attempt any *two* questions. Each question carries 12 marks.

- 6. (a) What is need of registers in CPU ? Explain functions of each register used in 8085 microprocessor.
- (b) Write a assembly language program to add contents of a memory block of size 10. Block start in memory at address 2000H.
- 7. (a) Draw timing diagram for the execution of MVI Instruction.
- (b) What do you mean by BCD Number ? Draw circuit to add two BCD numbers.

(C-47) P. T. O.