

Following Paper ID and Roll No. to be filled in your Answer Book.

**PAPER ID : 21110**

Roll  
No.

1	1	8	0	2	1	1	1	1	0
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## BCA. Examination 2018-2019

(Even Semester)

### COMPUTER ORGANIZATION AND ARCHITECTURE

*Time : Three Hours]*

*[Maximum Marks : 60*

**Note :-** Attempt all questions.

#### SECTION - A

1. Attempt all parts of the following :  $8 \times 1 = 8$
- What is the role of control variable in register transfer language?
  - With initial value of 10101010 after shifting left circularly two times. What will be the value of register?
  - Give two example of two address instructions.
  - Define the term accumulator register.

**[P. T. O.]**

- (d) Write a program in assembly 8085 to add five numbers stored in memory from location 2025 H to 2029 H.

### SECTION – C

3. Attempt any two parts from the following :  $2 \times 5 = 10$
- (a) Draw and explain the working of 4 - Bit arithmetic circuit.
- (b) What is reverse polish notation? How a arithmetic expression in reverse polish notation can be evaluated. Explain with example.
- (c) Write a program to evaluate arithmetic expression.

$$X = (A + B * C) / (D - E * F)$$

- (i) Using two address instruction
- (ii) Using one address instruction
- (iii) Using zero address instruction
4. Attempt any two parts from the following :  $2 \times 5 = 10$
- (a) Why Input Output interface is required? Explain its structure in detail.

- (e) Why strobe control method of asynchronous data transfer is not useful.

- (f) How can you measure the performance of memory.

- (g) How many status registers are used in microprocessor 8085 name them.

- (h) Give an mnemonics which uses immediate addressing mode.

### SECTION – B

2. Attempt any two parts from the following :  $2 \times 6 = 12$

- (a) Draw the block diagram for the hardware that implements the following statements

$$x + yz : AR \leftarrow AR + BR$$

Where AR and BR are two n-bit registers and x, y and z are control variable.

- (b) Discuss the complete working of DMA by putting all resources such as CPU, RAM and I/O devices together.

- (c) What do you know by mapping, discuss any one mapping technique using example.

- (b) Define interrupts. Discuss various types of interrupts. Draw and explain the working of daisy chaining priority interrupt.
  - (c) Differentiate among :
    - (i) Strobe Vs. Hand shaking method
    - (ii) Isolated I/O Vs. memory mapped I/O
    - (iii) Logical shifting Vs. Arithmetic shifting.
5. Attempt any two parts from the following :  $2 \times 5 = 10$
- (a) A computer uses RAM chips of  $226 \times 8$  and ROM chips of  $1024 \times 8$  computer system needs 2KB of RAM 4KB ROM and four interface units with four registers. A memory mapped I/O configuration is used. The two highest order bits of address bus assigned 00 for RAM, 01 for ROM, and 10 for interface registers.
    - (i) How many RAM and ROM chips are needed.
    - (ii) Draw memory address map for system.
    - (iii) Give address range in Hexadecimal for RAM, ROM and interface.