

GO-100-21

Roll No.....

## Annual Examination, 2021

**B.C.A. III**

B.C.A.-301

**Paper III**

(Computer System Architecture)

Time : 3 Hours ]

[Maximum Marks : 50

**Note :** *Attempt any two parts from each unit. All questions carry equal marks.*

### ***Unit I***

1. (a) What is number system ? Explain conversion of octal number to Hexadecimal number with suitable example.
- (b) Explain Arithmetic Addition and subtraction operation on binary data with suitable example.
- (c) Represent decimal number 8620 in :
  - (i) BCD,
  - (ii) Excess-3 code.

### ***Unit II***

2. (a) What is Logic Gate ? Explain AND, OR, NOT and XOR Gates with their Algebraic Function and truth table.

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[ 2 ]

- (b) Explain simplification of Boolean function in both sum of products and product of sum form with suitable example.
- (c) What is Flip Flop ? Write difference between RS flip-flop and JK Flip flop.

### ***Unit III***

- 3. (a) What is Microprocessor ? Explain Microprocessor Architecture.
- (b) Explain Arithmetic circuit with circuit diagram.
- (c) Write short notes on the following :
  - (i) Program control,
  - (ii) Motherboard.

### ***Unit IV***

- 4. (a) Explain Asynchronous Data Transfer with Hand-shaking method.
- (b) Write difference between Isolated I/O and Memory Mapped I/O.
- (c) Write short notes on the following :
  - (i) I/O controller,
  - (ii) Synchronous Data Transfer.

### ***Unit V***

- 5. (a) Explain concept of virtual memory in detail.
- (b) Explain Associative memory with its block diagram.

[ 3 ]

- (c) Explain following with respect to cache memory :
  - (i) Hit ratio,
  - (ii) Writing into Cache.

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