



**LJ-1253**

**BCA (Part-III)**  
Term End Examination, 2021

**COMPUTER SCIENCE**

Paper - III

Computer System Architect

*Time* : Three Hours]                      [*Maximum Marks* : 50

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**Note** : Answer **all** questions. All questions carry equal marks.

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**Unit-I**

1. (a) Convert the following :

(i)  $(52)_{10} = O_2$

(ii)  $(10111.1011)_2 = O_{10}$

(iii)  $(1723)_8 = O_2$

(iv)  $(4163)_8 = O_H$

(v)  $(1011101.1011) = O_8 = O_{16}$

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(b) Write notes on non-weighted codes.

**OR**

(a) What do you mean by 1's and 2's complements? Write the significance of complements. State the rules for subtraction of smaller number from greater number using 2's complement.

(b) Write short notes on the following :

(i) ASCII and EBCDIC codes

(ii) Overflow and Underflow

### **Unit-II**

2. (a) Describe NAND and XOR gates and their truth tables.

(b) Define combinational circuit. Explain Full adder.

**OR**

(a) Explain Sequential circuit.

(b) Write notes on Shift Register.

### **Unit-III**

3. (a) What is microprocessor? State the characteristics and importance of microprocessor.

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(b) Write notes on the following :

- (i) System buses
- (ii) Program counter

**OR**

(a) Define Register. Explain various register organization. List and explain general purpose and accumulator register.

(b) Write notes on the following :

- (i) Motherboard
- (ii) SMPS

#### **Unit-IV**

4. Explain various modes of data transfer.

**OR**

Explain asynchronous data transfer.

#### **Unit-V**

5. (a) Differentiate between the semi-conductor memory and auxiliary memory.

(b) What do you mean by Virtual memory ?  
Why page replacement is needed ?  
Describe FIFO and LRU algorithm.

**OR**

( 4 )

Define Cache memory. Explain associative and set-associative mapping technique.

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