

Roll No. : .....

Total No. of Questions : 11 ]

[ Total No. of Printed Pages : 3

# SCA-266

## B.C.A. Part-III Due of Part-II (Supplementary) Examination, 2022

### COMPUTER ORGANIZATION

Paper : BCA - 201

Time : 1½ Hours ]

[ Maximum Marks : 70

#### Section-A

(Marks : 2 × 10 = 20)

**Note :-** Answer all *ten* questions (Answer limit 50 words). Each question carries 2 marks.

#### Section-B

(Marks : 4 × 5 = 20)

**Note :-** Answer all *five* questions. Each question has internal choice (Answer limit 200 words). Each question carries 4 marks.

#### Section-C

(Marks : 10 × 3 = 30)

**Note :-** Answer any *three* questions out of five (Answer limit 500 words). Each question carries 10 marks.

#### Section-A

2 each

1. (i) What is use of 2's complement ?
- (ii) Draw and explain working of Half-Adder.
- (iii) Difference between Combinational and Sequential circuits.
- (iv) Draw 4 × 1 Multiplexer.

**BI-151**

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**SCA-266** P.T.O.

- (v) Explain with example how stack organization helps in evaluation of arithmetic expression.
- (vi) What is Program Control ?
- (vii) How I/O interface works ?
- (viii) Explain working of I/O Processor.
- (ix) Write different types of memories used in Computer.
- (x) Explain concept of virtual memory.

**Section-B**

4 each

2. Perform the following conversion :

- (a)  $(101101.110)_2 \rightarrow ( )_{10}$
- (b)  $(4163)_8 \rightarrow ( )_{16}$
- (c)  $(739)_{10} \rightarrow ( )_8$
- (d)  $(456.112)_8 \rightarrow ( )_2$

*Or*

Differentiate between Computer Organization and Computer Architecture.

3. What do you mean by Logic Gate ? Explain the working of all basic gates.

*Or*

Solve the following using K Map :

$$Y = \Sigma(0, 2, 3, 6, 7, 8, 10, 11, 12, 15)$$

4. Explain General Register Organization in CPU.

*Or*

Explain various modes of data transfer and manipulation in detail.

5. Explain the use of I/O interface. Why I/O interface required ?

*Or*

Explain Daisy chaining priority interrupt with diagram.

6. Why memory hierarchy is required ? Justify your answer.

*Or*

What is the need of virtual memory in computer system ? Explain how the page map table is organized in virtual memory system.

### **Section–C**

7. (a) Explain the concept of 2's complement with example.  
(b) Explain Hardware and Software Interaction. 5,5
8. (a) Explain working of JK Flip-Flop with diagram and truth table.  
(b) Prove that NOR Gate is universal gate ? Justify your answer. 5,5
9. What is Addressing ? Explain various addressing modes in detail. 10
10. Explain strobe pulse and handshaking methods of asynchronous data transfer with proper and neat diagram. 10
11. What is Cache memory ? Explain its working. What are various mapping methods used with cache memory organization ? Explain any *one* method in detail. 10