

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

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BCA (Part-II) Examination, 2023 COMPUTER ORGANIZATION

Paper - BCA-201

Time : 3 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

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.

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(1)

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

Section-B

2. Perform the following conversions :

(i) $(101101.110)_2 \rightarrow ()_{10}$

(ii) $(4163)_8 \rightarrow ()_{16}$

(iii) $(739)_{10} \rightarrow ()_8$

(iv) $(456.112)_8 \rightarrow ()_2$ 1×4=4

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 the various modes of data transfer and manipulation in detail.

5. Explain the use of I/O interface. Why I/O interface is 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 the various addressing modes in detail.

10. Explain strobe pulse and handshaking methods of asynchronous data transfer with proper and neat diagram.

11. What is Cache memory ? Explain its working. What are the various mapping methods used with Cache memory organization ? Explain any *one* method in detail.