

Roll No. Total No. of Printed Pages : 5

Code No. : BC-396

Online Annual Examination, 2022

B.C.A. Part III

Paper VI

COMPUTER SYSTEM ARCHITECTURE

Time : Three Hours] [Maximum Marks : 80

Note : Section 'A', containing 10 very short answer type questions, is compulsory. Section 'B' consists of short answer type questions and Section 'C' consists of long answer type questions. Section 'A' has to be solved first.

Section 'A'

Answer the following very short answer type questions in one or two sentences. 1 × 10 = 10

1. $(543)_8 = (?)_{10}$.
2. $(101101)_2 = (?)_{16}$.
3. What do you mean by logic Gate ?
4. What do you mean by flip-flop ?

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5. Write full form of ALU.
6. Write the full form of SMPS.
7. What is Synchronous data transfer ?
8. What is Asynchronous data transfer ?
9. What do you mean by memory ?
10. What do you mean by secondary memory ?

Section 'B'

Answer the following short answer type questions with word limit 150-200. 4 × 5 = 20

1. Convert the following :
 - (a) $(1101.1001)_2 = (?)_{10}$
 - (b) $(35.32)_{10} = (?)_2$
 - (c) $(1100101000010)_2 = (?)_8$
 - (d) $(FCB)_{16} = (?)_{10}$

Or

Explain EBCDIC codes. Discuss their area of applications.

2. Explain Combinational and Sequential Circuits with example.

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Or

Write short note on Boolean Algebra.

3. Draw and explain block diagram of micro computer system.

Or

Write the main steps involved in execution of an instruction by a Computer's CPU.

4. Explain I/O interface.

Or

Why I/O devices are very slow as compared to the speed of primary storage and CPU ?

5. What are various types of semiconductor memory ?

Or

Illustrate the auxiliary memory devices used in computer system.

Section 'C'

Answer the following long answer type questions with word limit 300-350. **10 × 5 = 50**

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1. Explain with example :

- (a) Gray code
- (b) BCD code
- (c) Overflow and Underflow
- (d) Error detection code
- (e) Excess-3 code

Or

What do you mean by number system ? Explain its types with example.

2. State and prove De morgan's Theorem.

Or

Simplify the following Boolean functions in SOP form by using K-Map :

$$F(A, B, C, D) = \Sigma 0, 1, 4, 5, 14, 15 + d(2, 3, 7, 10)$$

3. What is Microprocessor ? Explain Architecture of microprocessor.

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What do you understand by system buses ? Explain the different types of system buses.

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4. Explain various modes of data transfer discuss hand shaking and Asynchronous data transfer.

Or

Discuss the DMA driven data transfer technique.

5. Explain memory hierarchy. Differentiate between address space and memory space.

Or

Describe the important characteristics and function of associative memory.

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