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**(21119) Roll No. ....**

**B.C.A.-III Sem.**

**18012**

**B.C.A. Examination, November-2019**

**DATA STRUCTURE USING C AND C++**

**(BCA-302)**

*Time : Three Hours]*

*[Maximum Marks : 75*

**Note :** Attempt questions from *all* sections as per instructions.

**Section-A**

**(Very Short Answer Questions)**

**Note :** Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 5×3=15

1. Write the limitations of arrays.
2. Define stacks and queues with an example.
3. What is the advantage of a header node in a linked list ?
4. How a binary tree is traversed in C language ?

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**[P.T.O.**

**5. What is the basic concept of insertion sorting ?**

**Section-B**

**(Short Answer Questions)**

**Note:** Answer any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required not exceeding 200 words.

2×7½=15

6. What do you mean by sparse matrix ? Explain how a sparse matrix is represented in memory.
7. What is D-queue ? Explain the insertion and deletion operations with the help of suitable example.
8. Write an algorithm to delete last node from a linked list.

**Section-C**

**(Detailed Answer Questions)**

**Note:** Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 3×15=45

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9. Write algorithm and its C syntax to insert an element at the  $K^{\text{th}}$  position into the linear array.
10. Write an algorithm to evaluate postfix expression and also implement the algorithm to the following expression :  
3, 1, +, 2, ↑, 7, 4, -, 2, \*, +, 5, -
11. Write algorithm to perform insertion and deletion operations on binary trees and explain them with an example. <https://www.ccsustudy.com>
12. Describe hashing and various hashing techniques in detail.
13. Explain the following :
  - (i) Priority Queues
  - (ii) Heap Sort
  - (iii) Applications of Binary Search Tree

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**18015**

**B.C.A. Examination, November-2019**

**ELEMENTS OF STATISTICS**

**(BCA-305)**

*Time : Three Hours]*

*[Maximum Marks : 75*

**Note :** Attempt questions from *all* sections as per instructions.

**Section-A**

**(Very Short Answer Questions)**

**Note :** Attempt all *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 5×3=15

1. Define population and sample with examples.
2. What are the good measures of central tendency? Also define mean for grouped and ungrouped data.
3. What is statistical quality control ? Differentiate between process and product control.

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[P.T.O.

(2)

4. What is classical definition of probability ? What is the probability of getting a sum 7 of the face values when two fair dice are thrown simultaneously ?
5. Define coefficient of variation.

**Section-B**

**(Short Answer Questions)**

**Note:** Answer any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required not exceeding 200 words. 2×7½=15

6. Discuss various measures of dispersion with their merits and demerits.
7. Differentiate between defects and defective. Discuss p-chart and c-chart in detail.
8. Define permutations and combinations. A class in probability theory consists of 6 men and 4 women. An-examination is given and the students are ranked according to their performance. Assume that no two students obtain the same score.  
(a) How many different rankings are possible ?

**18015**

(3)

- (b) If the men are ranked just among themselves and the women among themselves, how many different rankings are possible

**Section-C**

**(Detailed Answer Questions)**

**Note :** Attempt any *three* questions out of the following five questions. Each question carries 15 marks.  
 Answer is required in detail.  $3 \times 15 = 45$

- 9. What do you mean by classification and tabulation? Discuss their importance.
- 10. Define median and quantiles. Explain their uses. Calculate first and third quartiles of the following data :  
 Wages (in Rs.): 60-70, 50-60, 40-50, 30-40, 20-30  
 No. of laboures: 5 10 20 5 3
- 11. Discuss additive theorem of probability. A ball is drawn at random from a box containing 6 red balls, 4 white balls and 5 blue balls. Determine the probability that it is :  
 (i) Red (ii) White (iii) Blue  
 (iv) Not Red (v) Red or White

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- 12. Calculate mean deviation and standard deviation from the following data :

Marks	:	10	20	30	40	50	60
No. of Students	:	8	12	20	10	7	3

- 13. Discuss  $\bar{X}$  and R charts with their applications in real life. Mean values and ranges of data from 5 samples (sample size = 4) are shown below :

S. No. :	1	2	3	4	5	6	7	8	9	10	11
Mean :	10	15	12	11	9	11	11	9	10	11	12
Range :	4	4	5	4	5	6	4	4	4	6	5

S. No.:	12	13	14	15
Mean :	13	12	12	11
Range :	4	4	3	3

Construct  $\bar{X}$  and R charts for the above data and explain the results.

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**18014**

**B.C.A. Examination, November-2019**  
**BUSINESS ECONOMICS**  
**(BCA-304)**

*Time : Three Hours] [Maximum Marks : 75*

**Note :** Attempt questions from *all* sections as per instructions.

**Section-A**

**(Very Short Answer Questions)**

**Note :** Attempt all *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words.  $5 \times 3 = 15$

1. What do you understand by demand ?
2. What are the main causes of Inflation ?
3. Define Monopoly.
4. What are the phases of Business cycle ?
5. Define the functions of WTO.

**18014**

**[P.T.O.**

(2)

**Section-B**

**(Short Answer Questions)**

**Note :** Answer any *two* questions out of the following three questions. Each question carries  $7\frac{1}{2}$  marks. Short answer is required not exceeding 200 words.  $2 \times 7\frac{1}{2} = 15$

6. What are the main reasons of unemployment in India?
7. What are the various sources of foreign capital flows in India ?
8. What is elasticity ? How can it be measured ?

**Section-C**

**(Detailed Answer Questions)**

**Note :** Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.  $3 \times 15 = 45$

9. What are the major advantages and disadvantages of Globalization ?
10. What are internal and external economies and diseconomies of scale ?

**18014**

11. Describe the price-output equilibrium under perfect competition in long run.
12. What are the various methods of measuring National Income ?
13. How do you define a Multinational Corporation ?  
What are the Social, Political, Economic and Cultural effects of MNC's on the host countries ?

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**18013**

**B.C.A. Examination, November-2019**  
**COMPUTER ARCHITECTURE AND**  
**ASSEMBLY LANGUAGE**  
**(BCA-303)**

*Time : Three Hours* [Maximum Marks : 75

**Note :** Attempt questions from *all* sections as per instructions.

**Section-A**

**(Very Short Answer Questions)**

**Note :** Attempt all *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words.  $5 \times 3 = 15$

1. What is the role of Assemblers ?
2. What are Macros ?
3. Define the Computer Registers.
4. Write short note on asynchronous data transfer.
5. What is cache memory ? Describe its operations in brief.

**18013**

[P.T.O.]

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**Section-B**

**(Short Answer Questions)**

Answer any *two* questions out of the following three questions. Each question carries  $7\frac{1}{2}$  marks. Short answer is required not exceeding 200 words.

$2 \times 7\frac{1}{2} = 15$

6. Define interrupt. Explain its various types.
7. Differentiate between direct and indirect addressing with an example.
8. Explain subroutine in assembly language.

**Section-C**

**(Detailed Answer Questions)**

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.  $3 \times 15 = 45$

9. What is Booth algorithm ? Explain it in detail. Multiply 24 and -7 using Booth algorithm.
10. Write short note on following :
  - (i) Synchronous Data Transfer
  - (ii) Serial Communication

**18013**

(iii) Index Register

11. Describe the concept of DMA used in computer organisation.
12. (a) A CISC chip is a complex instruction set computing chip the alternative to RISC chips. How do they differ ?  
(b) Define Instruction Cycle. Explain each phase.
13. Explain the difference between hardwired control and microprogrammed control. Is it possible to have a hardwired control associated with a control memory.

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BCA-III Sem.

**18011**

**B.C.A. Examination, November-2019  
OBJECT ORIENTED PROGRAMMING**

**Using C++  
(BCA-301)**

*Time : Three Hours] [Maximum Marks : 75*

**Note :** Attempt questions from *all* sections as per instructions.

**Section-A**

**(Very Short Answer Questions)**

**Note :** Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required.

$5 \times 3 = 15$

1. What is destructors ? Give example. 3
2. Give the significance of 'Protected' access specifiers. 3
3. How the ambiguity in multiple inheritance can be resolved ? 3

**18011**

[P.T.O.

(2)

4. What are default arguments. 3
5. Explain the term data hiding. 3

**Section-B**

**(Short Answer Questions)**

**Note:** Answer any *two* questions out of the following three questions. Each question carries  $7\frac{1}{2}$  marks. Short answer is required not exceeding 200 words.

$2 \times 7\frac{1}{2} = 15$

6. What are inline functions ? How are they useful ?  
<https://www.ccsustudy.com>  $7\frac{1}{2}$
7. Explain : Overloading Vs. Overriding.  $7\frac{1}{2}$
8. Explain the concept of abstract classes and virtual base classes with a suitable example.  $7\frac{1}{2}$

**Section-C**

**(Detailed Answer Questions)**

**Note:** Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.  $3 \times 15 = 45$

**18011**

9. What do you mean by exception handling ? How exceptions are handling is done in C++. Illustrate with example. 15
10. In what ways object oriented paradigm is better than structured programming paradigm ? Explain the features of oops. 15
11. What do you mean by Polymorphism ? Explain with the help of example how polymorphism is achieved at (i) compile time (ii) run time. 15
12. Explain
- (i) Constructors 5
  - (ii) Inheritance 5
  - (iii) Aggregation 5
13. What is pointer variable ? What are the applications of Pointer variable ? What are its advantages and disadvantages ? What operations can be performed on the pointer variables ? What are basic data and derived data types which can be expressed in pointer variables ? 15