

APRIL/MAY 2018

BCS21 — C++ AND DATA STRUCTURE

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Give the structure of switch statement with example.
2. How to define manipulator in C++?
3. Define inline function with example.
4. Mention the operators in C++ that cannot be overloaded.
5. What is pure virtual function?
6. List any four classes for file stream operations.
7. List any two primitive and composite data types.
8. Mention the use of doubly linked list.
9. How to represent a tree structure?
10. What is BFS?

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SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Describe data types in C++ in detail.

Or

- (b) Write a C++ program to list prime numbers between a range 100 to 200.

12. (a) Explain public, private and protected access specifiers and show their visibility when they are inherited.

Or

- (b) What is constructor? Explain types of constructor with example.

13. (a) What are the differences between pointers to constants and constant pointers?

Or

- (b) What is the difference between opening a file with constructor function and opening a file with open () function.

14. (a) Briefly explain the stack operations.

Or

- (b) Write a C++ program for Linked List (Insertion and Deletion) operations.

15. (a) Draw a binary search tree. Show how it is varied from binary tree. Illustrate insertion operation in it with an element.

Or

- (b) Give and demonstrate Dijkstras shortest path algorithm on a graph.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write a C++ program to convert decimal number to binary number.

17. Define operator overloading. Explain how to overload unary operator and binary operator with example.

18. What does inheritance means in c++? What are different forms of inheritance? Give an example of each.

19. Explain the algorithm for doing polynomial addition with all cases using arrays with example.

20. Give recursive tree traversals algorithms. Draw a tree structure for $(a + b) * c / d - e$. Convert it into postfix and prefix form using tree traversals.