



DON BOSCO COLLEGE

(Affiliated to the University of Calicut)

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SECOND INTERNAL EXAMINATION OCTOBER 2018

THIRD SEMESTER BCA

BCA3B04: DATA STRUCTURES USING C

Time: 3 hours

Max. Marks: 80

Part – A

Answer All Questions

Each Carries 1 Mark

1. Process of inserting an element in stack is called
2. Which matrix has most of the elements (not all) as Zero?
3. For a ____ search algorithm to work, it is necessary that the array (list) must be sorted.
4. Which data structure is used in RFS to hold the nodes?
5. Which of the following data structure is nonlinear type? [Graph, Stacks, Lists, None of the above]
6. The data structure required to check whether an expression contains balanced parenthesis is _____
7. A linear list in which the last node points to the first node is _____
8. The Reverse Polish notation (RPN) or postfix notation for $(3 + 5) - (2+1)$ is _____
9. _____ of a node is the total number of children of that node.
10. The order left->right->root is defined for _____ traversal of nodes in a tree.

(10*1 =10 marks)

Part - B

Answer All Questions

Each Carries 2 Marks

11. Define Big-0 notation for complexity.
12. Explain linear and non-linear data structure.
13. Define binary tree.
14. What is a circular linked list?
15. Define enqueue and dequeue.
16. Write any 2 applications of stack.



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17. Explain graph data structure.
18. When a stack is said to be overflow?

(8*2=16 marks)

Part – C

*Answer ANY six
Each Carries 4 Marks*

19. What is a sparse matrix? How it is represented? Explain:
20. Explain the operations on stack with algorithm.
21. Explain insertion sort with example.
22. Define BST with example.
23. State the difference between array and linked list.
24. Write a program to implement stack using array.
25. Define RPN with example.
26. Write a program to search an element in a 2 dimensional array.
27. Define the operations performed on an array. Explain any one sorting method to sort the elements in the array.

(6 *4=24 marks)

Part — D

*Write essays on any three
Each carries 10 marks*

28. Explain different types of graphs and its representation methods. What are the traversal methods in the graph? Explain.
29. Explain binary search algorithm with example. Also state the difference between binary tree and BST.
30. What is a stack? Explain sack operations with algorithm.
31. (a) What is recursion? Explain with example.
(b) Explain the different traversal methods in a binary tree with example.
32. Explain different categories of data structures in detail.

(3*10 =30 marks)