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II Semester B.C.A. Degree Examination, September - 2021**COMPUTER SCIENCE****Data Structures****(CBCS Scheme Freshers)****Paper : BCA-203****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**Answer **ALL** Sections.**SECTION - A****I. Answer any TEN questions. Each question carries 2 Marks.****(10×2=20)**

1. Differentiate between Data and Information.
2. What is Big O Notation?
3. Define Sorting.
4. List the basic operations carried out in a Linked List.
5. Define a Stack.
6. What is Circular Queue?
7. What is Graph?
8. State any two Properties of a Binary Tree.
9. Convert the infix expression $(A-B/C)*(D/E-F)$ into a Postfix.
10. Give the node structure of Circular Linked List.
11. Mention any two disadvantages of an array.
12. Define Binary Search Tree.

[P.T.O.]



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15221

SECTION - B

- II. Answer any FIVE questions. Each question carries 10 Marks. (5×10=50)
13. a) Explain the Classification of Data Structures. (6)
b) Briefly Explain any four String Handling Functions. (4)
14. a) Write an algorithm for Binary Search. (5)
b) Explain bubble sort technique with an example. (5)
15. a) Explain the Steps involved in Creating a Linked List. (5)
b) Write a C function to insert a node into a sorted Linked List. (5)
16. a) What are Stack Operations? Explain. (5)
b) Evaluate the following Postfix Expression assuming A=1, B=2 and C=3
ABC+*CBA-+* (5)
17. a) Write an algorithm for deletion of an element from queue. (5)
b) Write a C Program for Towers of Hanoi Problem (5)
18. a) Explain Preorder, Postorder and inorder traversal of a Binary Tree with examples. (6)
b) Explain malloc() and calloc() with Suitable Illustrations. (4)
19. a) Write depth first search algorithm to traverse a Graph. (5)
b) Compare Linear Linked List and Doubly Linked Lists. (5)
20. a) Write recursive functions for tree traversals. (5)
b) Write a C Program to Sort a List of N elements using quick sort algorithm. (5)
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