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**Second Semester B.C.A. Degree Examination,  
September/October 2021**

*(CBCS Scheme – Freshers and Repeaters)*

**Computer Science**

**Paper BCA 203 – DATA STRUCTURES**

*Time : 3 Hours]*

*[Max. Marks : 70*

*Instructions to Candidates : Answer All Sections.*

SECTION – A

Answer any **TEN** questions :

**(10 × 2 = 20)**

1. Define Data Structure.
2. Define space and time complexity of an algorithm.
3. Define a string. Give an example.
4. What is linear array?
5. Define sorting.
6. What is linear search?
7. What is dynamic memory allocation?
8. Mention difference between linear list and linked list.
9. Define Stack.
10. What are the operations that can be carried out on queues?
11. What is adjacency matrix?
12. What is binary search tree?

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SECTION - B

Answer any **FIVE** of the following : **(5 × 10 = 50)**

13. (a) Explain the classification of data structures. **(5)**  
(b) What do you mean by best case efficiency and worst case efficiency? Explain. **(5)**
14. (a) What are the different methods of string storage? Explain any one method. **(5)**  
(b) Write a C program to concatenate two strings. **(5)**
15. (a) Explain 2D array memory representation. **(5)**  
(b) Illustrate bubble sort algorithm with an example. **(5)**
16. (a) What are the advantages of array? **(5)**  
(b) Explain binary search algorithm. **(5)**
17. (a) Define Linked List. Mention the applications of Linked List. **(5)**  
(b) Write an algorithm for searching a node in a singly linked list. **(5)**
18. (a) How is Linked List represented in memory? Explain. **(5)**  
(b) Explain the steps involved in creating Linked list. **(5)**
19. (a) What are Stack Operations? Explain. **(5)**  
(b) Describe the classification of queues. **(5)**
20. (a) Explain sequential representation of graphs. **(5)**  
(b) With a neat diagram, explain various tree terminologies. **(5)**

