TB213110V **Reg. No :.....**

Name :.....

B. Sc./B.Voc. DEGREE (C.B.C.S) EXAMINATION, NOVEMBER 2022

(2021 Admissions Regular,2020 Admissions Supplementary/Improvement,2019 & 2018Admissions Supplementary)

SEMESTER III - CORE COURSE (COMPUTER APPLICATIONS (TRIPLE MAIN)

(For Computer Applications & B.Voc Software Development)

CA3B05B18 - DATA STRUCTURES USING C++

Time : 3 Hours **Maximum Marks : 80**

Part A

I. Answer any Ten questions. Each question carries 2 marks **(10x2=20)**

1. Define Data Structures.
2. What is diagonal matrix ?. Give an example.
3. Name the classification of Data Structures.
4. What do you meant by stack data structure ?
5. What is circular queue?How do you represent it ?
6. What is the significance of the top in a stack. Explain ?
7. Define circular Linked list?
8. Write the syntax of Linear linked list .
9. Diagrammatically represent a tree and find its degree ?
10. How is a Binary search tree different from a Binary tree?
11. Name any two collision resolving methods.
12. What is Index file ?

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. What are the features of an efficient Algorithm ?
14. Write a c ++ program to add two matrices using functions.
15. Give the solutions of following expressions :- a) From Infix to Postfix A - B / C ^ D + (E * F) b) From Infix to Prefix A + (B + C * D + E) + F / G
16. Discuss the following :- a) Double ended queue b) Priority queue
17. Discuss the steps involved in deleting a node from a linked list.
18. Write an algorithm for insertion and deletion operations in a circular linked list.
19. Explain Binary search tree with example.
20. Explain any four tree terminologies.
21. Differentiate Indexed sequential file and Direct file.

Part C

III. Answer any Two questions. Each question carries 15 marks **(2x15=30)**

22. Write a program to Implement circular queue using arrays. Explain each operations in detail.
23. Describe Linked list and its applications with examples.

24. a) Discuss the concept of recursion with example. b) Represent the following arithmetic expression using trees and find out the preorder and postorder traversals.
25. Explain File and its operations in detail.