O/c 3.10

TB2434671 Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, NOVEMBER 2024

2018, 2019, 2020, 2021, 2022 ADMISSIONS SUPPLEMENTARY

SEMESTER III - CORE COURSE (COMPUTER APPLICATIONS)

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. Briefly Explain the concept of bubble sort technique.
2. What is the concept of binary search ?
3. Explain the concept of selection sort technique.
4. Explain the following terms:- a) Infix expression. b) Polish notation
5. Describe FIFO data structure.
6. When do you get queue full and queue empty ?
7. Discuss Garbage collector ?
8. Write the syntax of Linear linked list .
9. Diagrammatically represent a tree and find its degree ?
10. Represent the given sequence of numbers as a binary search tree . 45, 87, 96, 65, 25, 90, 82, 13, 34, 38
11. Write two disadvantages of sequential file ?
12. Name any four file operations

Part B

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

13. What are the features of an efficient Algorithm ?
14. List down any five applications of data structures.
15. Explain Polish notations with examples.
16. Transform the following expressions to infix form :- a) A B C * + b) - / * A + B C D E
17. Write an algorithm for inserting a node at the beginning of a circular linked list and also write the advantages and disadvantages of circular linked list.
18. Discuss the steps involved in deleting a node from a linked list.
19. Explain the following :- a) Complete binary tree b) Full binary tree c) Strictly binary tree
20. Write the algorithm and function for inorder traversal with example.
21. Briefly explain following file organisations with example. a) Inverted files b) Random files.

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. What are the different operations on Binary tree. Explain each with algorithm . Write a program to implement binary tree.
25. Explain Random files and its operations with example.