

TB242314M

12.4

Reg. No :

Name :

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2024
2023 ADMISSIONS REGULAR

SEMESTER II - B.Sc. Computer Applications (Triple Main)

CORE

CA2C04B23 - Data Structures Using C++

Time : 3 Hours

Maximum Marks : 355

Part A

I. Answer any Ten questions. Each question carries 2 marks

(10x2=20)

1. Generalize sorting technique?
2. What is the concept of binary search ?
3. What is diagonal matrix ?. Give an example.
4. What are the two important operations carried out in a stack ?
5. When do you get queue full and queue empty ?
6. Give any two applications of Queue data structure
7. What is merging ?
8. Write the syntax of Linear linked list .
9. Name different tree traversals . Briefly explain any one of them.
10. How is a Binary search tree different from a Binary tree?
11. Name any two collision resolving methods.
12. Differentiate Data Base and DBMS.

Part B

II. Answer any Six questions. Each question carries 5 marks

(6x5=30)

13. Define algorithm ? Discuss its advantages and disadvantages.
14. Explain Polish notations with examples.
15. Discuss the applications of stack data structure in detail.
16. Write an algorithm for insertion and deletion operations in a circular linked list.
17. Describe Linked List and discuss its advantages .
18. Create a tree with nodes A, B, C, D, E, F, G, H, I, J, K, L, M, N upto depth three. Identify the following in the created tree. a) root b) Degree of node B, c) Depth of the tree, d) Path between A and J .
19. Discuss the following tree terminologies with example. a) forest b) sibling c) node d) root
20. Write a program to create a file with student name and rollno and read the file contents.
21. Write a file program to create employee details(emp_name, empl_code and salary) and read the same file contents



Part C

III. Answer any Two questions. Each question carries 15 marks

(2x15=30)

22. Write the algorithm to convert the infix expression into prefix form . Do the following :- Convert $A + (B * C - (D / E - F) * G) * H$ into prefix form showing stack status after every step in tabular form.
23. Write an algorithm to insert a number in the linked list at the following position with suitable example. a) In the beginning b) In the specified location c) at the end of the list.
24. Discuss Binary tree representation of expressions .
25. What is collision ? Discuss the situations where the collisions occur and briefly explain collision resolving methods.

