PART-A

UNIT - I

1. (i) Define time complexity and space complexity.

(ii) Differentiate between null and void.

UNIT - II

(iii) Define self referential structure.

(iv) Differentiate between malloc() and calloc() functions.

UNIT - III

(v) What is Balanced Tree ?

(vi) What is Complete Tree ?

UNIT - IV

(vii) What do you mean by Graph Representation ?

(viii) Define Multigraph.

UNIT - V

(ix) Define linear probing.

(x) What do you mean by best case efficiency ?

PART-B

UNIT - I

2. Defin data structuree. Write an algorithm for inseertion and deletion in circular queue ?

3. Explain various stack and queue applications.

UNIT - II

4. What do you mean by traversing a linked list ? Write an algorithm to swap vry two nodes of linked list ?

5. Explain header node. Write an algorithm to concate two linked lists.

UNIT - III

6. Explain various tree traversal techniques in non-recursive manner.

7. Discuss various applications of three. Explain insertion in Binary search tree.

UNIT - IV

8. Discuss various graph applications.

9. Explain the following :

(a) Orthogonal graph representation

(b) Shortest path algorithm

UNIT - V

10. Explain the concept of heat sort.

11. Explain divide and conquer technique.

PART-C

UNIT - I

12. Write a program using structure to print studnt marksheet?

UNIT - II

13. Write a program to show inseretion and deletion in Doubly Linked List ?

UNIT - III

14. Explain Spanning Tree and its application.

UNIT - IV

15. Differentiate between :

    (a) dfs and bfs algorithms

    (b) adjacncy matrix and adjacency list

UNIT - V

16. Explain the following :

    (a) Hashing and Hash functions

    (b) Binary search algorithm and its principle

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Paper–IV

(Data Structures Using C)

Time : Three Hours
Maximum Marks : 100

PART - A (खण्ड-अ) [Marks : 20

Answer all questions (50 words each).
All questions carry equal marks.
सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न का उत्तर पचास शब्दों से अधिक न हो।
सभी प्रश्नों के अंक समान हैं।

PART - B (खण्ड-ब) [Marks : 50

Answer *five* questions (250 words each).
Selecting *one* from each unit. All questions carry equal marks.
प्रत्येक इकाई से **एक-एक** प्रश्न चुनते हुए, कुल **पाँच** प्रश्न कीजिए।
प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो।
सभी प्रश्नों के अंक समान हैं।

PART - C (खण्ड-स) [Marks : 30

Answer any *two* questions (300 words each).
All questions carry equal marks.
कोई दो प्रश्न कीजिए। प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो।
सभी प्रश्नों के अंक समान हैं।