

School of University Polytechnic**Diploma in Computer Science and Engineering
Semester End Examination - Jun 2024****Duration : 180 Minutes
Max Marks : 100****Sem IV - N1DF407B - N1DF401B - Data Structure Using C***General Instructions**Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

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| 1) | Define a binary tree with an example. | K1(2) |
| 2) | Explain the concept of a linked list and provide scenarios where using a linked list would be more advantageous than an array. | K2(4) |
| 3) | Explain the operations of circularly linked lists | K2(6) |
| 4) | Illustrate and write a program to implement selection sort. | K3(9) |
| 5) | Illustrate and write a program to implement bubble sort. | K3(9) |
| 6) | Write an algorithm to insert and delete data on linear queue. | K5(10) |
| 7) | Analyze the insertion, deletion and searching operations on AVL trees with an example. | K4(12) |
| 8) | Write an algorithm to delete a node at end in doubly linked list with example. | K5(15) |
| 9) | Write an algorithm to delete a node at specific location in doubly linked list with example. | K5(15) |
| 10) | Discuss the steps of insertion operation in a min heap with example. | K6(18) |