Chapter 01 Basics of Data Structures

Dec 2015

1) Explain following terms with help of suitable example
    a. Array
    b. Function
    c. Control Structure

Dec 2017

1) Explain following terms with help of suitable example
    a. Array
    b. Function
    c. Structure

May 2017

1) Explain techniques to access array elements using pointer.

Dec 2018

1) Explain following terms with help of suitable example
    a. Pointer
    b. Structure
    c. Control Structure

May 2018

1) Explain with suitable examples following terms
    a. Structure
    b. Functions
    c. Pointers

May 2019

1) Explain following terms with help of suitable example
    a. Function
    b. Time and space complexity
    c. Data types

Dec 2019

1) Define following terms:
    a. Array
    b. Asymptotic time complexity

Chapter 02 Searching and Sorting Techniques

Dec 2015

1) Explain working of bubble sort algorithm. Comment on complexity of sorting algorithms.
2) Sort the following given numbers using Radix sort Technique.
   6,5,3,1,8,7,2,4
3) What are hash functions? List and explain different types of hash functions.

Dec 2017

1) Write a C program to implement Insertion sort.
2) What is Hashing? Explain Open and Closed hashing.
3) Compare linear search and binary search.

May 2017

1) Write a algorithm for Merge sort
2) With help of suitable example, explain working of selection sort.

3) Comment on the complexity of merge sort and insertion sort.
4) What is Hashing? Explain Chaining operations.

Dec 2018

1) Explain algorithm for Merge sort.
2) With help of suitable example, explain working of linear search.
3) What is hashing? Explain different types of Hash functions.

May 2018

1) What is Hash functions? Explain different types of hash functions.
2) Write algorithm for binary search. Explain it with suitable example.
3) With the help of suitable example, explain working of selection sort.

May 2019

1) With help of suitable example explain working of bubble sort.
2) Choose appropriate search technique and solve search of given key elements
   12,24,26,28,35,42,44,60,70
   Key:24 Key:42 Key:100 Key:35

Dec 2019

1) Write a C Program to implement Bubble sort algorithm.
2) Write a c Program or Pseudo Code for implementation linear search algorithm.
3) What is hashing? Explain different hashing techniques.
4) Explain linear search technique.
5) Explain Quick sort algorithm.

Chapter 03 Stacks and Queues

Dec 2015

1) With the help of examples and an algorithm. Explain overflow and underflow conditions for stack, simple queue and circular queue.
2) Explain the procedure of converting infix notation to postfix notation using stack.

Dec 2017

1) With help of suitable algorithm, explain working of enqueue and dequeue operation of simple queue.
2) With help of suitable example, explain following operations of cicular queue.
   a. Enqueue
   b. Dequeue
   c. Traverse

May 2017

1) Explain PUSH and POP operation on stack in detail.
2) Write a short note on priority queue.

Dec 2018

1) With help of suitable example, explain following conditions in stack
   a. Stack overflow
   b. Stack underflow
   c. Traverse in stack
2) Explain with help of suitable example working of priority queue.

May 2018

1) Write algorithm for enqueue and dequeue operation of circular queue, to be implemented using array.

May 2019

1) With help of suitable example, explain working of PUSH and POP operations of stack.
2) Explain applications of stack. Write an algorithm for converting infix to prefix notation using stack.
3) What is queue? Explain drawback of simple queue.

Dec 2019

1) Write a C Program or Pseudo Code for implementation of Stack using array.
2) Define queue. List and explain the application of queue in details.
3) Explain push and pop operations of stack.

Chapter 04 Linked List

Dec 2015

1) Write algorithm for deleting a node from the beginning and end of singly linked list.
2) What is doubly linked list? Explain algorithm for inserting a node in the middle of doubly linked list.

Dec 2017

01) Construct algorithm for following operations on a Doubly linked list
    a. Create at end
    b. Delete at start
    c. Traverse
02) Write algorithm to delete a node at given location in singly linked list.

May 2017

01) Explain algorithm for inserting a new node in the end of doubly linked list.
02) Write algorithm for deleting a node from the end of circular linked list.

Dec 2018

1) Construct algorithm for following operations on a singly list
    a. Create at start
    b. Delete at end
    c. Traverse
2) What is circular linked list? List operations of circular linked list and explain any one operation.
3) Write algorithm for creating a node at given location in a doubly linked list.

May 2018

1) What is doubly linked list? Explain algorithm for inserting a node in the middle of doubly linked list.
2) Write algorithm for deleting a node from beginning and end of singly linked list.

May 2019

1) Construct algorithm for following operation on a circular linked list.
    a. Create at start
    b. Delete at end
    c. Traverse
2) What is doubly linked list? List various operations of doubly linked list and explain any one operation.
3) Write for counting number of elements in a given singly linked list.

Dec 2019

1) List the different types of linked list. Explain each with appropriate diagram.
2) Write a c program or pseudo code for following operations on a doubly linked list.
    a. Insert node at end of list.
    b. Delete node at start of list

    c. Display the nodes from last node to first node of the list.
3) Explain algorithm for following operations of doubly linked list
    a. Attach a node in the beginning of the linked list.
    b. Detach the last node of linked list.

Chapter 05 Tree

Dec 2015

1) Explain Insert node operation in AVL tree.
2) Explain algorithm for inserting a new data entry in B Tree.
3) What is Binary search tree? How to store binary search tree in an array?

Dec 2017

1) What is AVL tree? Explain with help of suitable example, construction of AVL tree.
2) With help of suitable example ,explain in-order, preorder and post-order traversal techniques.

May 2017

1) Explain different scenarios for inserting a new node in the AVL tree.
2) Explain the structure of B-Tree.
3) Explain recursive algorithm for In-order traversal of binary tree.

Dec 2018

1) What is Heap? Explain how heap can be used to sort the elements of array.
2) Explain following types of trees:
    a. Binary tree
    b. Strictly binary tree
    c. Complete binary tree
    d. B-Tree

May 2018

1) Write algorithm for heap sort.
2) Explain recursive algorithm for in-order and post-order traversal of a binary tree.
3) Write algorithm for finding a minimum and maximum value from a Binary Search tree.
4) Explain following terms related to tree:
    a. Complete binary tree
    b. Height of a tree
    c. Balanced binary tree.

May 2019

1) What is B-Tree? Explain with help of suitable example, creation of B-Tree?
2) Define tree. Explain basic tree terminologies.

Dec 2019

1) Write a C program or pseudo code for following operations on a binary tree:
    a. Insert a new node to the tree
    b. Pre order traversal
    c. Post order traversal
2) List and explain various types of binary tree with appropriate diagrams.
3) Explain different traversal techniques used in binary tree.
4) Explain insert node operation in binary search tree.
5) Explain structure of B Tree.
6) Explain following terms
    a. Depth of a tree

7) What is heap? How heap is stored in an array?

Chapter 06 Graphs

Dec 2015

1) Explain techniques used to store a graph.

Dec 2017

1) Define graph? Explain BFT and DFT traversal techniques.
2) Explain basic graph terminologies with help of suitable examples.

May 2017

1) Write Depth First Traversal Algorithm for Graph. Explain the algorithm with suitable example.
2) What is path matrix? How to calculate path matrix of different length?

Dec 2018

1) Explain following graph storage mechanism:
    a. Adjacency Matrix
    b. Adjacency Lists

May 2018

1) Explain Breadth First traversal algorithm for a graph.

May 2019

1) Explain basic graph terminologies with help of suitable examples.

Dec 2019

1) List and explain the graph traversal techniques.
2) List and explain the graph terminologies.
3) Explain Depth first traversal in graph.
4) Define terms: Path matrix in a graph.