SARASWATI Education Society's
SARASWATI Institute of Technology
Learn Live Achieve and Contribute
Kharghar, Navi Mumbai - 410 210.

Information Technology

Vision: To Visualize the creation of skilled, proficient IT professionals to meet current challenges.

Mission:
- To encourage young minds for training & entrepreneurship.
- To convey standard education with rapidly changing environment with ethical values.
- To provide an environment where students can continuously learn, apply & communicate knowledge.

Subject :- Data Structure Using 'C' **Date :-**

Assignment No :-1

Topic Name :- Introduction on to Data Structure

Q1. Define data structure ? why do you need data structure?

Q2. Explain different approaches to design algorithm.

Q3. Compare linear and nonlinear data structure.

Q4. Explain time and space complexity in an algorithm.

Q5. Write C program for performing following operations on array: insertion, display.

Q6. Define the term recursion. Write a program in C to display factorial of an entered number using recursion.

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Subject :- Data Structure Using 'C' **Date :-**

Assignment No :-2

Topic Name :- Searching And Sorting

Q1. Define sorting. Enlist different methods.

Q2. Describe the working of Selection Sort Method. Also sort given input list in ascending order using selection sort.

Q3. Describe the working of Bubble sort method with an example

Q4. Sort the following numbers in ascending order using quick sort. Given numbers 50, 2, 6, 22, 3, 39, 49, 25, 18, 5.

Q5. Describe working of linear search with example.

Q6. Describe the principle of insertion sort with example.

Q7. Differentiate between linear and binary search.

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Subject :- Data Structure Using 'C' **Date :-**

Assignment No :-3

Topic Name :- Stacks and queues

Q1. Differentiate between stack and queue.

Q2. Define queue. State any two applications where queue is used.

Q3. Write algorithm for performing push and pop operations on stack.

Q4. Convert the following infix expression to its prefix form using stack A + B – C ∗ D / E + F

Q5. Evaluate the following arithmetic expression P written in postfix notation: P : 4, 2, ^, 3, *,3,-,8,4 ,/,+

Q6. Write a program for insertion and deletion of queue.

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Subject :- Data Structure Using 'C' **Date :-**

Assignment No :-4

Topic Name :-Linked List

Q1. Describe the concept of linked list with the terminologies : node, next pointer, null pointer and empty list.

Q2. Write an algorithm to count number of nodes in singly linked list.

Q3. Describe circular linked list with suitable diagram. Also state advantage of circular linked list over linear linked list.

Q4. Create a singly linked list using data fields 90, 25, 46, 39, 56. Search a node 40 from the SLL and show procedure step-by-step with the help of diagram from start to end.

Q5. Show with suitable diagrams how to delete a node from singly linked list at the beginning, in between and at the end of the list.

Q6. Compare Linked List and Array.

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Subject :- Data Structure Using 'C' **Date :-**

Assignment No :-5

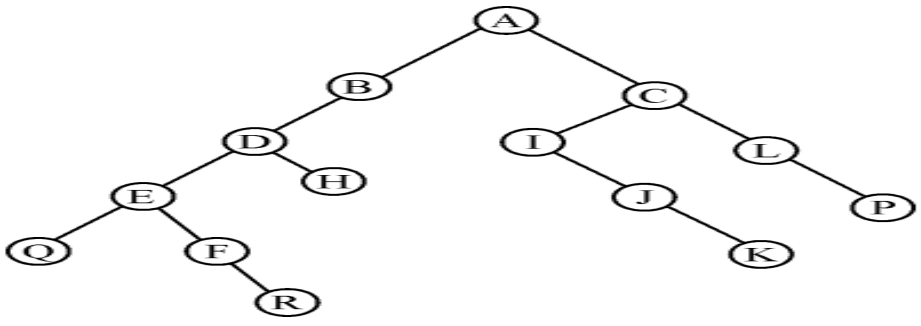
Topic Name :- Trees and graph

Q1. Describe in brief the terms related to binary tree: root, parent, child, siblings, path, degree of node ,leaf node ,level, depth, degree of tree, height of tree, ancestor/descendent node

Q2. Explain the binary tree with suitable example and diagram.

Q3. Construct a binary search tree for following elements : 30, 100, 90, 15, 2, 25, 36, 72, 78, 10 show each step of construction of BST

Q4. For given binary tree write in-order, pre-order and post-order traversal.



Q5. Explain indegree and outdegree of a graph with example.

Q6. Explain adjacency matrix for graph with example.

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