1) What do you mean by a Data structure?
A)The scheme of organizing related information is known as 'data structure".
Data structures are used to store data in a computer in an organized fashion

2) What are some of the applications of DS?
   Arrays
  Linked Lists
  Stack
  Queue
  Graph
  Tree
  Hash Tables
  Heap

3)What are the advantages of a Linked list over an array?

In linked list there is resize option where as array are fixed and also addition and deletion of elements is easy because we need to change only one element
where as in array we have shift all the elements from the position.

Q4. Write the syntax in C to create a node in the singly linked list.
```
struct Node {
   int data;
   struct Node* next;
};
```

5)**What is the use of a doubly-linked list when compared to that of a singly linked list?**

A Double Linked List can be traversed in both forward and backward direction.
The delete operation in Double Linked List more efficient if pointer to the node to be deleted is given.
We can quickly insert a new node before a given node

6) **.What is the difference between an Array and Stack?**
In an array, you have a list of elements and you can access any of them at any time.
But in a stack, there's no random-access operation; there are only Push, Peek and Pop, all of which deal exclusively
with the element on the top of the stack. A stack is data-structure which has a last in first out policy
Array has Fixed size where as stack has dynamic size

7)**What are the minimum number of Queues needed to implement the priority Queue?**
2 queues.
one is used for storing data... another is used for priorities

8)**What are the different types of traversal techniques in a tree?**
In order
pre order
Post order

9)**Why it is said that searching a node in a binary search tree is efficient than that of a simple binary tree?**
in binary tree There is no relative order to how the nodes should be organized.
in binary search tree It follows a definitive order to how the nodes should be organized in a tree.

10) What are the applications of Graph DS?

Facebook: Each user is represented as a vertex and two people are friends when there is an edge between two vertices.
Similarly friend suggestion also uses graph theory concept.

Google Maps: Various locations are represented as vertices and the roads are represented as edges and graph theory is used to find shortest path between two nodes.

Recommendations on e-commerce websites: The "Recommendations for you" section on various e-commerce websites uses graph theory to recommend items of similar type to user's choice.
Graph theory is also used to study molecules in chemistry and physics.

11) Can we apply Binary search algorithm to a sorted Linked list?

Yes, Binary search is possible on the linked list if the list is ordered and you know the count of elements in list.
But While sorting the list, you can access a single element at a time through a pointer to that node i.e. either a previous node or next node.

12)When can you tell that a Memory Leak will occur?

Memory leak occurs when programmers create a memory in heap and forget to delete it.
Memory leaks are particularly serious issues for programs like daemons and servers which by definition never terminate.

13) How will you check if a given Binary Tree is a Binary Search Tree or not?

All nodes in the left subtree of a node have values less than the node's value.
All nodes in the right subtree of a node have values greater than the node's value.
Both left and right subtrees are also binary search trees.

14) Which data structure is ideal to perform recursion operation and why.
Because of its LIFO (Last In First Out) property it remembers its 'caller' so knows whom to return when the function has to return.
Recursion makes use of system stack for storing the return addresses of the function calls.

15)What are some of the most important applications of a Stack?
Expression Handling – Infix to Postfix or Infix to Prefix Conversion
Backtracking Procedure – Backtracking is one of the algorithm designing technique.
Another great use of stack is during the function call and return process.

16) No image is there.

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