DATA STRUCTURES

Short Questions

1. Define data structure.
2. Give the applications of stack.
3. Define abstract data type with example.
4. Write the applications of queue data structure.
5. Define link list. Explain it's with suitable diagram.
6. Write the applications of linked list.
7. Define binary tree.
8. Define graph
9. Why we need data structure?
10. What are the advantages linked list over array?
11. Define recursion.
12. Convert the following infix expression into postfix form (A+B)*(C+D)*E^F
13. Write the prefix and postfix form for: A+B*(C-D)/(E-F)
14. Define Open addressing?
15. Define shortest path problem?
16. What is a string?
17. What are the collision resolution methods?

1. Give algorithm to sort a list using bubble sort.
2. Differentiate between stack and queue data structures.
3. Write an algorithm for in-order traversal of a binary tree.
4. Explain the method of representing graphs by using matrices?
5. Define data structure? Explain various operations data structure.
6. Write an algorithm to convert Infix expression into postfix expression.
7. Differentiate between linear and non-linear data structures
8. What is Stack? Why it is known as LIFO? Write algorithm of PUSH, POP operation on Stack.
9. What do you mean by Array? Describe the storage structure of Array.
10. What is Queue? Why it is known as FIFO? Write an algorithm to insert and delete an element from a simple Queue.
11. What do you mean by Link list? Write an algorithm to insert and delete a node in Singly Linked List.
12. Discuss the difference between a general tree and a binary tree. What is a complete binary tree?
13. Discuss about time and space complexity.
14.

LONG QUESTIONS

1. What do you mean by Array? Describe the storage structure of array. Also explain various types of array in detail.
2. Discuss following with reference to graphs. (i) Directed graph (ii) Undirected graph (iii) Degree of vertex (iv)Null graph (v) Acyclic Graph
3. What is stack? Why it is known as LIFO? Write algorithm of PUSH and POP operation on stack.
4. What is queue? Why it is known as FIFO? Write an algorithm to insert and delete an element from a simple queue.
5. Write and explain algorithm to insert element at the beginning of singly linked list.
6. What is tree traversal. Explain the in-order, preorder and post-order traversal.
7. Explain how infix expressions are converted to polish notation. Illustrate
8. your answer with suitable example?
9. Explain quick sort algorithm with the help of an example.
10. Write an algorithm for binary search and discuss its speed compared with linear search.
11. What are the types of Collision Resolution Techniques and the methods used in each of the type?
12. Classify the Hashing Functions based on the various methods by which the key value is found
13. How to insert and delete an element into a binary search tree and write down the code for the insertion routine with an example