MSCCS 07 Data Structure and Algorithm

SET : 1

Section-A

(Very Short Answer Questions)

1. (i) Define data structure.
   (ii) What are the properties of an algorithm?
   (iii) What is Sorting?
   (iv) Define Graph.
   (v) What is Eulerian Path?
   (vi) What is bipartite graph?
   (vii) List out the properties of link list.
   (viii) What is chromatic number?
   (ix) What is Incidence matrix?
   (x) What is DAG?

Section-B

(Short Answer Questions)

2. What is array? How address is calculated using Column and Row Major Order? Explain
3. What is STACK? Explain operation on Stack with example.
4. Compare dynamic and static implementation of QUEUE.
5. Explain Planarity Testing with example?
6. What is greedy Algorithm? How it is different than Dynamic Algorithm.
7. How to find minimal spanning tree. Discuss some algorithms with its complexity.
8. Explain the following:
   a. Circular Queue
   b. Deque
   c. Priority Queue
9. Explain NP Complete Problems.

Section-C

(Long Answer Questions)

10. What is the significance of using notations in analysis of algorithms? Explain various notations in brief.
11. What is STACK? Explain with its applications.
12. How to find a shortest path between two vertices in a graph. Discuss any two algorithm related to it.
13. What is Network flow problem? Explain any two algorithms related to it.

MSCCS 07 Data Structure and Algorithm

SET : 2

Section-A

(Very Short Answer Questions)

1. (i) What is Abstract Data Types?
   (ii) What are the different form of Sparse matrix?
   (iii) List the operation on STACK?
   (iv) What is searching.
   (v) Write the syntax of structure in C?
   (vi) What is AVL tree?
   (viii) Define isomorphic graph.
   (viii) What is Adjacency matrix?
   (ix) List out features of ASP.NET.
   (x) What do you mean by order of graph?

Section-B

(Short Answer Questions)

2. Write algorithm to multiply two matrices and calculate its complexity
3. What is Circular QUEUE? Why it is used?
4. Compare the complexities of sorting algorithms.
5. What is Knapsack Problem? Explain with example.
6. Explain the following:
   a. P Problem
   b. NP Complete Problem
   c. NP-Hard Problem
   d. Decision Problem
7. What is B- Tree. Compare B-Tree with B+ Tree
8. What is the significance of Topological Sort? Write its algorithm.
9. Write an algorithm to find where a word is palindrome or not? Discuss its complexity.

Section-C

(Long Answer Questions)

10. Define the term problem, algorithm and complexity. Explain the time and space complexity.
11. Explain the linked list with suitable example. Also write algorithm to concatenate a linked list.
12. Write a C program to construct a binary tree with inorder and preorder traversals. Test the program on the following inorder and preorder traversal
    inorder = g d h b e i a f j c
    preorder = a b d g h e i c f j
13. What is graph? Explain Graph Traversal Algorithms with Example.