

11/10/13.

B. E. / B. Tech DEGREE EXAMINATION, NOV 2013

THIRD SEMESTER, R2008

8

Computer Science and Engineering

CS 9253 PROGRAMMING AND DATA STRUCTURES II

Time: Three Hours

Answer *ALL* Questions

Max. Marks: 100

PART A (10 x 2 = 20)

1. Create an array of N integers from the given integer pointer.
2. What is the advantage of namespaces?
3. Define an abstract class.
4. How variables are passed by references?
5. How types are passed as parameters while creating objects?
6. What is meant by private inheritance and what happens for the base class variables?
7. What is the minimum number of nodes in an AVL tree of height h?
8. What is the precondition to perform topological sort on any graph?
9. What happens when the presorted data are sorted using insertion sort?
10. Name three data structures used for representing graphs.

PART B (5 x 16 = 80)

11. Design a class named DATE for representing date in dd:mm:yyyy format. Write methods for overloading the following operators as per the requirements stated below.
 - i. Operator - to find the number of days in between two dates;
 - ii. Operator << to display any date in the format [dd:mm:yyyy]
 - iii. Operator ++ to increment any date by one day.

12. a. Explain how the constructors and destructors are executed in multiple inheritance and multilevel inheritance with suitable examples.

(OR)

b. Write a C++ program with Player as base class and cricket player, football player and hockey player as its derived classes. Introduce appropriate methods and variables to represent sport persons as objects and display their performances.

13. a. Design a class with template to implement list with operations for insertion, deletion and searching.

(OR)

b. Describe exception handling with examples.

14. a. Write functions to insert and delete elements from binary search trees. Create a binary search tree for the elements 30, 20, 40, 50, 70, 10, 29, 65, 32. Delete 20, 10 from the tree.

(OR)

b. Create a B-Tree tree for the elements 30, 20, 40, 50, 70, 10, 29, 65, 32, 60, 53, 90, 21, 25. Delete 20, 10 from the tree.

15. a. Write the algorithm for finding shortest path from single specified source node to all other nodes. Explain with example.

(OR)

b. Write the Prim's algorithm to find the minimum cost spanning tree from the given graph and explain the algorithm for breadth first traversal.