

23/1/13

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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2013

COMPUTER SCIENCE AND ENGINEERING

II Semester

CS8251 & Data Structures and Object Oriented Programming in C++

(Regulation ...2012.....)

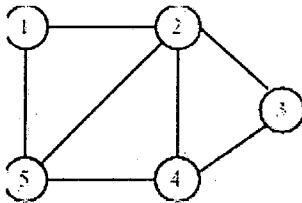
Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. What is the use of reference variable and static variable? Give example.
2. When the friend function is compulsory? Give example.
3. What is an Abstract class?
4. When a function with the same name appears in more than one base class. How do you resolve this problem in multiple inheritances? Give example.
5. What is a dequeue ?
6. Evaluate the following postfix expression using stack. 7 6 2 + * 4 5 1 - / -
7. How do you find depth and height of the tree? Give example.
8. Give the adjacency list and matrix representation for the following graph.



9. Show the result of sorting the following numbers using insertion sort (step by step o/p)
4, 7, 3, 2, 5, 1, 6
10. Compare Linear search and Binary search.

Part – B (5 x 16 = 80 marks)

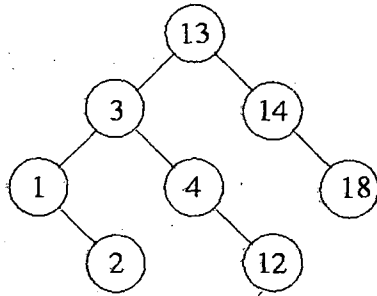
11. i) Explain the use of the following with example. (8)
 - A. Copy constructor
 - B. Dynamic constructor
 - C. Dynamic initialization of objects.
- ii) Define a class Complex_Number (Data members- Real and Imag) . Write a code to overload the following operators using Friend function. (C1,C2 &C3 are complex objects) (8)
 - A. C2++
 - B. C1=C2+C3
 - C. Cout << C1 (to print the complex number)

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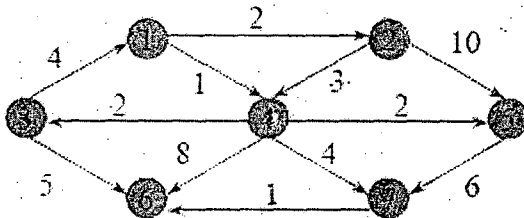
14. a) i) Give the BFS and DFS of the following Graph. (8)

ii) Write the routines for post-order traversal. Give the preorder, postorder and inorder traversals for the following tree. (8)



OR

b) i) Write the Pseudo code for Dijkstra's shortest path algorithm. Trace the algorithm for the following graph. (8)



ii) Write the function to perform insertion in a binary search tree. Show the result of inserting 4, 3, 8, 1, 9, 7, 10, 2, 5 into an empty binary search tree. (8)

15. a) i) Write a function to perform Merge sort. Give example. (8)

ii) Build the max Heap for the following Sequence 80, 150, 70, 40, 100, 20, 30, 10, 110, 90, 60, 50, 120. Show the result of sorting using delete max. (8)

OR

b) i) Write the function to perform Quick Sort. Explain with example. (10)

ii) Discuss the Best case, worse case and average case analysis of linear search algorithm (6)