R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech II Year I Semester Examinations, May/June - 2015
DATA STRUCTURES THROUGH C++
(Common to CSE, IT)

Time: 3 hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks

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1.a) What is object-oriented programming? List basic concepts of it and explain each concept.
  b) What is the importance of static class members? Explain.   [8+7]

2.a) What is virtual function? Write a C++ program demonstrating the use of pure virtual function.
  b) Explain Generic functions and Generic class.   [8+7]

3.a) What is threaded binary tree? Explain.
  b) Draw a binary tree T such that:
      i) Each node of T stores a single character.
      ii) A preorder traversal of T yields EXAMFUN.
      iii) An inorder traversal of T yields MAFXUEN.   [5+10]

4.a) What is skip list? Explain search, insert, delete operations on skip lists.
  b) Compare hashing and skip lists.   [10+5]

5.a) Illustrate multiway merge sort algorithm.
  b) Describe heap sort with an example.   [10+5]

6.a) Explain insertion and deletion operations in binary search tree.
  b) What is AVL tree? Explain the height balancing property of AVL tree.   [8+7]

7.a) Write a procedure for searching an element in a B-Tree.
  b) Define graph and explain BFS algorithm with an example.   [8+7]

8. Define pattern matching and explain Knuth-Morris-Pratt algorithm.   [15]

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