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Code No: 09A30502

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech II Year I Semester Examinations, November/December-2013

Data Structures through C++
(Common to CSE, IT)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Discuss with examples the different ways of passing objects as parameters in C++.
- b) What is a copy constructor and when is it called? [10+5]
- 2.a) Write a C++ Program that illustrates how run time polymorphism is achieved.
- b) Write a C++ Program for copying the contents of a given source file to a destination file. The source file name and the destination file name are passed as command line arguments. [8+7]
- 3.a) Define time complexity. Discuss the asymptotic notation used in algorithm analysis.
- b) Write a non recursive function in C++ for the preorder traversal of a given binary tree. [7+8]
- 4.a) What is the purpose of a Hash function in Hashing? Discuss any two hash functions with examples.
- b) Discuss with an example how the chaining method is used for resolving collisions in Hashing. [8+7]
5. Write a template based C++ Program for sorting an array of elements in ascending order using Heap sort. [15]
- 6.a) Write a C++ function for searching for an integer key element in a given Binary search tree of integer elements.
- b) Define an AVL tree. Give an example for an AVL tree. [8+7]
- 7.a) Define a B-tree of order m.
- b) Write an algorithm for performing the depth first search of a given graph. Discuss its time complexity. [7+8]
- 8.a) Write a C++ Program for implementing the Knuth-Morris-Pratt Pattern matching algorithm.
- b) What is a trie? Give an example for a trie. [8+7]

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