

Code No: R5211203

II B.Tech I Semester(R05) Supplementary Examinations, November 2010

ADVANCED DATA STRUCTURES AND ALGORITHMS

(Common to Information Technology and Computer Science & Systems Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What do you mean by Data abstraction?
(b) Difference between “C structure” and “C++ structure”.
(c) Difference between a “assignment operator” and a “copy constructor”.
(d) What is the difference between “overloading” and “overriding”? [4+4+4+4]
2. (a) Explain about the function overloading in C++ with suitable examples.
(b) Explain about the operator overloading in C++ with suitable examples . [8+8]
3. (a) Explain about the formatted I/O in C++.
(b) Explain about the console I/O in C++. [8+8]
4. Write an algorithm for matrix addition a given matrix of $n \times m$ size and determine the time complexity of the algorithm by using frequency method. [16]
5. (a) What is a dictionary? Define the abstract data type for it? Write the abstract class for the dictionary?
(b) Give the applications of dictionary or dictionary with duplicates in which sequential access is desired. [8+8]
6. What is an AVL Tree? Explain about the different rotation patterns in AVL trees for balancing with appropriate examples? [16]
7. (a) Write and explain the Breadth first generation of a solution AND/OR tree.
(b) Explain when quick sort is preferred to merge sort and vice-versa. [10+6]
8. (a) Show how Prim’s algorithm can be implemented using heap. What would be the time complexity of the algorithm.
(b) What is the time complexity of traveling sales person problem using dynamic programming. [10+6]
