

II B.Tech I Semester Regular Examinations, November 2007
ADVANCED DATA STRUCTURE
(Common to Computer Science & Engineering and Electronics & Computer Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What do you mean by Stack unwinding?
(b) What is the difference between `const char *myPointer` and `char *const my pointer`
(c) Define precondition and post-condition to a member function.
(d) What are the conditions that have to be met for a condition to be an invariant of the class? [4+4+4+4]
2. (a) What are the different types of polymorphism?
(b) What are Virtual Functions? How to implement virtual functions in “C++” [8+8]
3. (a) Write a program to merge the contents of two given files ?
(b) Write a program to count the no of lines in the given file ? [8+8]
4. Define the Abstract data type for Queue. Write a C ++ program to implement Queue ADT using arrays. [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. (a) State the conditions under which insertion of a vertex in a Red-Black tree will result in a sequence of recolouring steps that terminate with the root changing colour.
(b) Will the root of a Red-Black tree always be black after performing a deletion operation? Justify with an example? [8+8]
7. (a) Prove that net T be a B-tree of order m and height h. Let $d = \lceil m/2 \rceil$ and let n be the number of elements in T.
 - i. $2d^{h-1} - 1 \leq n \leq m^n - 1$
 - ii. $\log_m(n+1) \leq h \leq \log_d\left(\frac{n+1}{2}\right) + 1$
(b) Explain the advantages of splay tree in representation of dictionaries. [10+6]
8. (a) Describe about search engine and inverted files.

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Set No. 2

(b) Explain the main features of Boyer-Moore algorithm.

[10+6]

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