B.E.(with Credits)-Regular-Semester 2012-Computer Technology Sem V

CT501 - Advanced Data Structure

P. Pages : 2 **GUG/W/16/3709**

Time : Three Hours * 3 9 5 4 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Illustrate your answers wherever necessary with the help of neat sketches.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.

1. a) Explain the different operations that can be performed on Queue? Write algorithm for each operation. **8**

b) What is max heap? Write the methods to insert and element into max heap and to delete an element from max heap. **8**

OR

2. a) Write short note on polyphase merge and multiway merge. **8**

b) Write a C++ program to implement sparse matrix. **8**

3. a) What is dictionary? Define the abstract data type for it? Write the abstract class for the dictionary. **8**

b) What is hashing with chains? Explain compare this with linear probing. **8**

OR

4. a) Perform the insertion operation using double hashing for the following list. **8**
12, 54, 62, 45, 37, 78, 89, 28, 61, 49.

b) Explain the different methods that are used for calculate hash function. **8**

5. a) What is an AVL tree? Explain about different rotation patterns in AVL tree for balancing with appropriate example. **8**

b) Construct an AVL tree using the following data entered in sequence
64, 1, 44, 26, 13, 110, 98, 85.

OR

6. a) Explain deletion in AVL tree. **8**

b) Write insertion and deletion algorithm for binary search tree. **8**

7. a) Explain red black tree with its property. **8**

b) What do you mean by splying? Construct sply tree for the following keys 9, 2, 90, 53, 4, 64, 95, 59. **8**

OR

8. a) Explain augmenting Red-black tree. **8**

b) Explain B-tree with example. **8**

9. a) Write short note on mergeable heap. **8**

b) Construct a 2-3-4 tree for the following letters. **8**
A L G O R I T H M S

OR

10. a) Write algorithm to extract node with minimum key from binomial heap. Explain it with example. **8**

b) Write short note on Fibonacci heap. **8**

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