08062

MCA (Revised)

## Term-End Examination

June, 2011

MCS-021 : DATA AND FILE STRUCTURES

Time : 3 hours   *Maximum Marks : 100*

(Weightage 75%)

Note :   *Question number 1 is* **Compulsory.** *Attempt* **any three** *questions from the rest. All algorithms should be written nearer to C language.*

1. (a) Elaborate various asymptotic notations used to evaluate the efficiency of the algorithm.   **10**

   (b) Explain in detail the push and pop operations in a stack.   **10**

   (c) Explain in brief the AVL tree rotations.   **10**

   (d) Solve the following instance of single source shortest paths problem with vertex 'a' as the source.   **10**
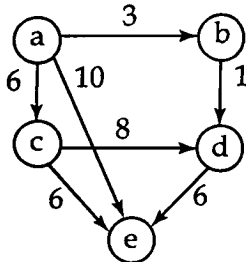
2. (a) Write a program that accepts two **10** polynomials as input and displays the resultant polynomial due to the addition of input polynomials.

(b) Explain the recursive algorithm for each of **10** the binary tree traversals. Construct the path for each of above traversals for the following example.
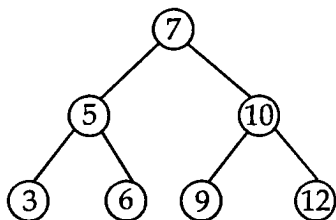
3. (a) Write an algorithm for array implementation **10** of a circular queue.

(b) Explain the concepts of breadth first search **10** with example.

4. (a) Explain in detail the binary search with **10** example.

(b) Describe the Quick sort algorithm. **10**

5. (a) Give an example for various operations of **10** AA-Trees.

(b) Write a detailed note on file organization **10** techniques.