PART – B (50 Marks)

11.a) Write a function void Dblist : : concatenate (Dblist m) to concatenate 2 lists ∗this and 'm'. The resulting list should be stores in ∗this and the list m should contain the empty list.

b) Write a C++ function to traverse the doubly linked with from left to right, printing out the contents of data field of each node.

12.a) Develop and test a complete C++ template class for linked stacks.

b) Write a C++ template class that implements the queue ADT using a circularly linked list.

13.a) Write a C++ function to evaluate a polynominal at the point x, where 'x' is a real number. Assume that polynomial is represented as a circularly linked list with a header node.

b) Explain the linked representation of sparse matrix.

14.a) Given the following list of numbers

  16 12 2 6 80 20 9 15 5 79 6

Use quick sort algorithm to sort them. Show different passes indicating the pivot and the partitions formed.

b) Write C++ code to implement Prim's algorithm.

15.a) Write a C++ function that implements linked insertion sort. What is Worst-case number record moves made.

b) Write a complete C++ function for depth first search under the assumption that the graphs are represented using adjacency lists. Test the correctness of your function using suitable graphs.

16. Write short notes on :
    a) Red black trees
    b) B-trees
    c) on-way search trees

17.a) Discuss the various forms of graph representations with examples.
    b) Define a maximal subgraph with an example.

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