F-56/2110 10318/NJ

Subject: Data Structure(CSM 236)
SEM-III
(Syll-Dec-2019)

NOTE: Candidates are required to attempt five questions in all. Attempt any two questions from each Section A and Section B. Section Cis compulsory.

Section – A **4*4=16**

Q1.Write an algorithm to insert and delete a node at beginning, from particular location and at end in a linked list.
Q2. Write down the algorithm to insert and delete an element from a stack.
Q3. Explain algorithm to implement bubble sort with given example and write down its complexity.

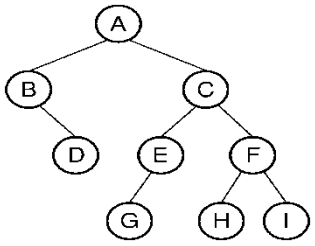
1, 65, 55, 15, 5, 10, 75, 45, 35

Q4.Define following terms with examples:

a) Path of a graph c) Degree of a graph c) Regular graph d) Multigraph
e) Null graph

Section – B **4*4=16**

Q5.Write down the pre- order, in-order, and post-order of following tree.



Q6. What is an array? What are the various operations performed on an array? Explain any two.
Q7. Write an algorithm to search an element 90 in a given list. Assume that the elements of list are:

30 45 55 60 78 90 110 118 125 130

Q8.Convert the following infix expression into postfix expression using stack:

A+(B*C-(D/E)+F)

Section-C **2*7=14**

9. a) Name various types of data structures. Also write their applications.
b) What is complete graph?
c) Write the complexity of insertion sort and bubble sort algorithm.
d) What do you mean by time and space complexity?
e) what is complete binary tree?
f) Evaluate the following postfix expression using stack:

5, 7, 8, 3, -, 8, +, *, 2, +, *

g) What is linear search? Also define linked list.