Silicon

Silicon Institute of Technology
Silicon Hills, Bhubaneswar
[An Autonomous Institute]

2nd Semester B.Tech. Mid Term Examination 2019-2020
DATA STRUCTURE AND ALGORITHM(18ES1T05)

Duration: 01:30   Full Marks: 25

1 Answer All

a What is a Linear Data Structure? List out two examples of it.   1

b What is the condition for stack overflow and stack underflow when a stack is implemented   1
   using an array?

c What is a linked list? Explain with suitable example.   1

2 Answer any Two

a Write a C program to convert a sparse matrix into its triplet format   3

b Find the triplet representation of the below given sparse matrix. Also, find the transpose of the   3
   obtained triplet representation.

   0 0 0 4 0 0
   0 0 0 0 6 0
   0 8 0 0 0 0
   0 0 0 9 0 2
   1 0 0 0 7 0

c Write a C program to delete an element from a specific position of an array.   3

3 Answer any Two

a Describe at least three applications of stack and queue.   3

b What is infix, postfix, and prefix expression? Explain with example   3

c What is a Priority Queue? Explain it briefly.   3

4 Answer any One

a Write a C program to implement a linear queue using an array.   5

b Write a C program to perform delete and traverse operations on a circular queue implemented   5
   using an array.

5 Answer any One

a Write a C program to delete the node containing the element X in a single linked list.   5

b Write a C program to find the smallest and largest element of a single linked list.   5

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