Code No: 133AG **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, April/May - 2018
DATA STURCTURES THROUGH C++
(Common to CSE, IT)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	What is an array? Explain array types.	[2]
b)	Differentiate linear and non-linear data structures.	[3]
c)	What is queue ADT?	[2]
d)	Discuss about double linked list.	[3]
e)	Define a max heap.	[2]
f)	What is hash function?	[3]
g)	Differentiate between trees and binary trees.	[2]
h)	Compare insertion sort and selection sort.	[3]
i)	What is directed graph?	[2]
j)	What are the applications of graphs?	[3]

PART-B

(50 Marks)

2. What is Constructor? Explain various types of constructors with an examples. [10]

OR

3. Discuss in detail about asymptotic notations with an examples. [10]

4.a) Discuss about linked implementation of stack ADT.
b) What are the various applications of stacks? Explain infix to postfix conversion. [5+5]

OR

5.a) Define and explain about circularly linked list and it's operations with an examples.
b) Discuss about sparse matrices. [5+5]

6.a) What is a priority queue? Explain its applications.
b) Explain the array representation of a threaded binary tree. [5+5]

OR

7. Explain in detail about binary tree traversal and its various traversal techniques. [10]

8.a) Differentiate between binary search and linear search.
b) Explain in detail about linear probing and quadratic probing. [5+5]

OR

9.a) Explain about heap sorting technique with an example.
b) Compare various sorting techniques. [5+5]

10.a) What is graph? Explain types with examples.
b) Explain in detail about graph ADT. [5+5]

OR

11. Explain the following.
a) Depth-First-search method b) AVL tree properties. [5+5]

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