Code No: R1621055 **R16** SET - 1

II B. Tech I Semester Supplementary Examinations, May - 2019
DATA STRUCTURES THROUGH C++
(Com to CSE & IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1.	a)	What are the features of C++?	(2M)
	b)	Write syntax for function template.	(2M)
	c)	Discuss various applications of stack.	(2M)
	d)	Write a short note on doubly linked list.	(2M)
	e)	What is threaded binary tree? Draw an example for it?	(3M)
	f)	What is Graph? Give Adjacency list representation of graph?	(3M)

PART –B

2.	a)	Explain about transpose of matrix? Write a C++ Function using arrays?	(8M)
	b)	Explain about various representations of arrays?	(6M)
3.	a)	Write an algorithm for evaluating arithmetic expression using stack data structure.	(8M)
	b)	Write a C++ program to implement queue using stack.	(6M)
4.	a)	Write an algorithm for reversing a singly linked list.	(6M)
	b)	Explain sparse matrix representation using linked list	(8M)
5.	a)	Write recursive traversals of the tree with an example	(7M)
	b)	Write an algorithm for inserting and deleting a node in a binary search tree	(7M)
6.	a)	Explain biconnected components in graphs?	(6M)
	b)	Obtain a C++ function to find a minimum cost spanning tree using Sollin's algorithm. What is the time complexity of your function?	(8M)
7.	a)	Explain in detail about sorting and different types of sorting techniques	(7M)
	b)	Demonstrate the Heap sort results for each pass for the following initial array of elements. 21 6 3 57 13 9 14 18 2	(7M)
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