R16

SET - 1

I B. Tech II Semester Supplementary Examinations, December - 2020
DATA STRUCTURES
(Com. to ECE, EIE, E Com E)

Time: 3 hours   Max. Marks: 70

Note: 1. Question paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is Compulsory
3. Answer any **FOUR** Questions from **Part-B**
~~~~~~

PART –A

1.	a)	Define polynomial ADT.	(2M)
	b)	Write the applications of queues.	(2M)
	c)	Write the advantages and disadvantages of double linked lists.	(2M)
	d)	Define a full binary tree.	(2M)
	e)	What is a planar graph?	(2M)
	f)	Write about the partitioning of array in merge sort.	(2M)
	g)	How do you find the degree of a graph?	(2M)

PART -B

2.	a)	Write the pseudo code to implement transpose of a matrix.	(7M)
	b)	What is an array? Discuss different types of arrays with examples.	(7M)
3.	a)	Convert following expression X+(Y * Z) – ((N * M +O) /Q) in to post fix form.	(7M)
	b)	Write a non-recursive algorithm to convert the given infix expression into postfix expression.	(7M)
4.	a)	Write an algorithm to delete an element from doubly linked list.	(7M)
	b)	Elaborate on how linked list can be used to represent polynomials using a suitable example.	(7M)
5.	a)	Construct max heap for the following elements: 40, 80 , 30 , 20 ,10 ,40 ,30 ,60 ,100 ,70 ,160 ,50 , 130, 110, 120. Explain the technique.	(7M)
	b)	Describe in-order traversal of threaded binary tree with an example.	(7M)
6.	a)	Demonstrate Prim's algorithm with an example.	(7M)
	b)	Explain Warshall's algorithm to find transitive closure of a graph with a suitable Example.	(7M)
7.	a)	Apply heap sort on set of any ten elements and explain its working.	(7M)
	b)	Trace the steps of recursive merge sort algorithm to sort the following elements: 12, 25, 5,9, 1, 84, 63, 7, 15, 4, 3.	(7M)