R17 Regulation *Subject code: 1P3EB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech II Year I Semester Supplementary Examinations, July 2024

DATA STRUCTURES THROUGH C++

(CSE)

Maximum Marks: 70 Date:20.07.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

	Part-A	
All the following questions carry equal marks		(10X2M=20 Marks)
1	Define the term algorithm.	
2	Differentiate between recursive and iterative algorithms.	
3	Define stack.	
4	List the applications of stack.	
5	Define tree.	
6	List the applications of Trees.	
7	Differentiate linear search and Binary search.	
8	Define hashing.	
9	State the operations of binary search tree.	
10	Define balanced search tree.	
	Part-B	
Answer All the following questions.		(5X10M=50Marks)
11	Discuss various asymptotic notations and explain time and space complexities in detail. [10]	
	OR	
12	Explain different forms of inheritance. [10]	
13	Explain array and linked representation of sparse matrix with an example program. [10]	
	OR	
14	Explain the procedure to evaluate postfix expression and evaluate the following postfix expression: 6 2 3 + - 3 8 2 / + * 2 /3 + [10]	
15	Explain with an example how to insert an element to max heap. [10]	
	OR	
16	Define threaded binary tree and explain the impact of such a representation on the tree traversal procedure. [10]	
17	State and explain radix sort with an example. [10]	
	OR	
18	Define hashing and discuss the different hashing functions with an example. [10]	
19	Define binary search tree. Construct the binary search tree for the below given data. P,F,B,H,G,S,R,Y,T,W,Z [10]	
	OR	
20	Explain various rotations of AVL Trees maintaining balance factor while insertion takes place. [10]	