R18

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Supplementary Examinations, June/July – 2024
### DATA STRUCTURES
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 Hours   Max. Marks: 75

Section – A (Short Answer type questions)   (25 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	Write the syntax to define double linked list node?	CO1	L1	2M
2.	List out the applications of stack and explain them?	CO1	L2	3M
3.	List out the advantages and disadvantage of linked list?	CO2	L2	2M
4.	Define prefect binary tree, complete binary tree, full binary with an example	CO2	L3	3M
5.	Define the properties of B+ tree?	CO3	L4	2M
6.	Write the steps to delete the elements from Binary search tree?	CO3	L1	3M
7.	List out the various representations from a graph?	CO4	L2	2M
8.	Explain the Depth First Search algorithm with an example?	CO4	L1	3M
9.	Explain the need of hashing?	CO5	L3	2M
10.	Explain double hashing with an example?	CO5	L2	3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   (5 X 10M = 50M)

			Course Outcome	B.T Level	Marks
11.	A)	Write a C program to implement stack using linked list	CO1	L3	10M
		OR			
	B)	Write a C program to implement insert at begin, end, after a particular position in single linked list	CO1	L3	10M
12.	A)	Write a C program to implement in order traversal in a binary tree?	CO2	L3	10M
		OR			
	B)	Write a C program to implement binary tree using linked list?	CO2	L3	10M
13.	A)	List and explain the cases for LL, RR, LR, RL of AVL Tree? Build an AVL tree with the following values: {15, 20, 24, 10, 13, 7, 30, 36, 25, 42, 29}	CO3	L2	10M
		OR			
	B)	Write a C program to implement insertion and deletion in a Binary search tree?	CO3	L3	10M

14. A) Find the minimum spanning tree for the given graph using prims algorithm?   CO4   L2   10M
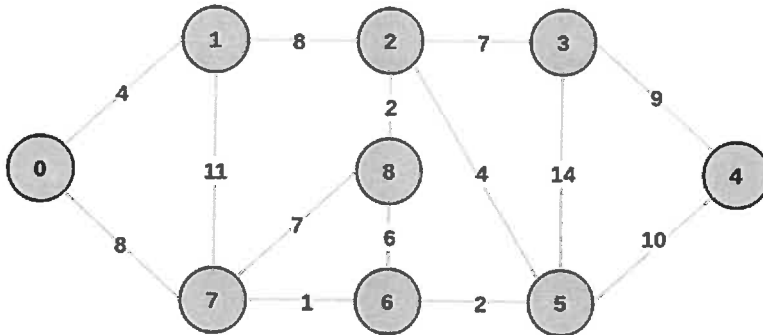
OR

B) Explain the process of Dijkstra Algorithm with an example and list out its applications?   CO4   L3   10M

15. A) Apply Selection sort Technique on the following elements: {21, 11, 5, 78, 49, 54, 72, 88} and Print the Sorting Order?   CO5   L3   10M

OR

B) Keys 9,19,29,39,49,59,69 are inserted into a hash Table of size 10 using the hash function H= Kmod10 and **Quadratic Probing** is used for collision resolution. What is the index into which 59 will be inserted and draw the hash table after inserting all the keys?   CO5   L3   10M