R18

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Supplementary Examinations, Jan/Feb-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.	What are the disadvantages and advantages of linked lists?	CO1	L2	2M
2.	Transform the infix expression into its equivalent post fix expression: (A-B)*(D/E).	CO1	L1	3M
3.	Define a Complete binary tree?	CO2	L2	2M
4.	Explain in order threading of Binary Trees?	CO2	L1	3M
5.	Discuss properties of Binary Search Tree with example?	CO3	L1	2M
6.	Define B+ tree? Give example?	CO3	L1	3M
7.	How do we represent a Graph using Linked List?	CO4	L1	2M
8.	Discuss the advantages of Priority Queues?	CO4	L2	3M
9.	Write about the partitioning of array in merge sort?	CO5	L2	2M
10.	Explain Double hashing?	CO5	L1	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)	Explain about Stacks and Its Operations? Write a C Program to implement Stack using Linked list?	CO1	L3	10M
		OR			
	B)	Explain about Double Linked List? Write an Algorithm for its Operations and Explain with example?	CO1	L3	10M
12.	A)	Convert the infix expression a / b + c - d * e – b * c into postfix expression and trace that postfix expression for given data:a = 6, b = 3, c = 5, d = 2, e = 4.	CO2	L3	10M
		OR			
	B)	Explain how trees are represented using arrays and linked lists.	CO2	L3	10M
13.	A)	Write an algorithm for insert operation in Binary Search Tree? Implement algorithm with an Example?	CO3	L3	10M
		OR			
	B)	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	L3	10M

14. A)	Explain Depth First Search (DFS) Traversal Algorithm and Traverse the following Graph using DFS algorithm.	CO4	L3	10M
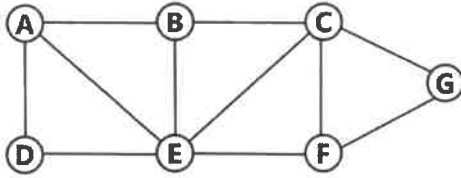
OR

B)	What is minimum cost spanning Tree? Explain the process of finding the minimum spanning tree with suitable example.	CO4	L3	10M

15. 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.	CO5	L3	10M

OR

B)	What is collision? Explain different collision resolution techniques with examples.	CO5	L3	10M