ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Regular Examinations, Jan/Feb–2024
DATA STRUCTURES
(COMMON TO CSE, IT & AIML)

Time: 3 Hours **Max. Marks: 60**

Section – A (Short Answer type questions)
Answer All Questions **(10 Marks)**

	Course Outcome	B.T Level	Marks
1. Differentiate linear and non-linear data structures.	CO1	L2	1M
2. Demonstrate the use of linked lists over arrays.	CO1	L2	1M
3. Write the properties of a good hash function.	CO2	L1	1M
4. Write the purpose of rehashing.	CO2	L1	1M
5. What is AVL tree.	CO3	L1	1M
6. Define height of a tree.	CO3	L1	1M
7. Compare the best-case time complexity of merge sort with quick sort.	CO4	L2	1M
8. Define in degree and out degree of a graph.	CO4	L1	1M
9. What is trie data structure?	CO5	L1	1M
10. List the applications of pattern matching.	CO5	L1	1M

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 an algorithm to perform insertion, deletion and display operations on stack data structures.	CO1	L3	10M
	OR			
B)	Illustrate the polynomial representation using linked list. Write procedure to multiply two polynomials and explain with example.	CO1	L2	10M
12. A)	What is a skip list? Explain traversing operation in skip list.	CO2	L3	10M
	OR			
B)	Define collision? Explain about collision resolution techniques.	CO2	L3	10M
13. A)	What is tree traversal. Explain the in-order, preorder and post-order traversal.	CO3	L2	10M
	OR			
B)	Explain B+ tree insertion operation with example and write B+ tree insertion algorithm.	CO3	L3	10M
14. A)	Write an algorithm for quick sort and explain with example.	CO4	L3	10M
	OR			
B)	Write an algorithm for the depth first search of a graph? State its advantages and disadvantages?	CO4	L3	10M
15. A)	Write Knuth-Morris-Pratt algorithm for pattern matching and explain.	CO5	L3	10M
	OR			
B)	Explain about pattern searching using suffix tries.	CO5	L2	10M