Programme	: B.Tech.	Semester	: Fall 2023-24 / Trimester I & IV 2023-24
Course Title/ Course Code	: Data Structures and Algorithms / CSE2002	Slot	: B11+B12+B13+B14
		Max. Marks	: 50
Time	: 1 ½ hours		

Answer all the Questions

Q.No.	Sub. Sec.	Question Description	Marks
1		Differentiate the following 1. linear and non-linear data structure 2. Primitive and non-primitive 3. Static and Dynamic Allocation	10
2		Define an Algorithm and list the methods to analysis the efficiency of the algorithm. Write the algorithm to find the factorial of the given number.	10
3		Write the algorithm of Quick sort. Arrange the following elements with a detail explanation using Quick sort 90,77,60,99,55,88,66.	10
4	(a)	Write the pseudo code for Insertion sort. Apply the insertion sort algorithm to sort the weights of 11 players. The weights are given as(in kgs) 82.3, 67.8, 96.2, 56.3, 86.2, 78.3, 68.4,80.6, 86.0, 91.9, 83.4.	5
	(b)	Apply step by step procedure to search 25 from the list of elements using binary search: 32, 14, 18, 36, 28. Also write the pseudo code for the same.	5
5	(a)	Write an algorithm for addition and subtraction of the following two polynomials using linked list representation. $4x^5 + 45 x^4 - 12x^2 + 12x + 35$ $56 ^ 4 + 22x^3 + 24x - 67$	5
	(b)	Differentiate between linked list and array. Also, discuss the types of linked list with the diagrammatic representation.	5

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