(Please Write Your Enrolment. No. Immediately)

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Mid Term Examination- NOV. 2022

Programme: B. Tech(AI&DS, AI&ML, IIOT)   **Semester:** III

Paper Code : AIDS 201/AIML 201/IIOT 201   **Subject:** Data Structure

Time: 1.5 hours   **Max. Marks:** 30

Note:
- Q. No. 1 is compulsory.
- Attempt any two questions from the remaining questions.
- All Questions carry equal marks.
- Only scientific calculator is allowed.

Question 1.		Marks	CO	BL
1(a)	Explain Space and Time Tradeoff.	[2.5]	1	Understand
1(b)	Differentiate between Singly, circular and doubly Linked list.	[2.5]	2	Analyze
1(c)	Assume that 4 byte of storage is required to store each element of an array of integers A[12][15]. What will be the actual address of the element at A[6][5]. Assume Base address is 1000.	[2.5]	1	Evaluate
1(d)	Write an algorithm to search an element in an array using Linear Search.	[2.5]	2	Create

Question 2.		Marks	CO	BL
2(a)	Using stack translate the infix expression A*(B+C)/D-E*(F+G/H) into equivalent Postfix expression.	[5]	1	Apply
2(b)	Explain insertion and deletion process in a Queue with an example.	[5]	1	Understand

Question 3.		Marks	CO	BL
3(a)	Write an algorithm to add a node at the end of Circular Linked List. Explain with the help of an example.	[5]	2	Create
3(b)	Sort the following list using Quick Sort. Show the step by step process 44, 25, 76, 13, 67, 60, 96, 38, 98, 89	[5]	2	Evaluate

Question 4.		Marks	CO	BL
4(a)	Write an algorithm to reverse a singly linked list.	[5]	2	Understand
4(b)	Write an algorithm to add an element in an array. Explain with the help of an example.	[5]	1	Remember