

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular & Supplementary Winter Examination-2023

Course: B. Tech. Branch : Computer Engineering / Computer Science Engineering / Computer Science & Engineering (Artificial Intelligence) / Computer Science & Design / Computer Science & Engineering (Artificial Intelligence & Machine Learning) **Semester : III**

Subject Code & Name: Data Structure (BTCOC303)

Max Marks: 60

Date:06-01-24

Duration: 3 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
Q. 1 Solve Any Two of the following.		12
A) What is Data Structure? Explain the various characteristics of an algorithm.	Understand	6
B) What is sparse matrix? Explain the representation of it.	Understand	6
C) What is primitive data structure? Enlist the differences between primitive and non-primitive data structures.	Analyze	6
Q.2 Solve Any Two of the following.		12
A) Explain various stack operations with example.	Understand	6
B) Write Algorithms for enqueue and dequeue operations on queue with example.	Evaluate	6
C) Convert the following infix expression to postfix expression. $A / B \wedge C + D * E - A * C$	Create	6
Q. 3 Solve Any Two of the following.		12
A) What are advantages and disadvantages of linked list?	Understand	6
B) Write differences between array and linked list.	Analyze	6
C) Describe doubly link list (DLL) operations.	Evaluate	6
Q.4 Solve Any Two of the following.		12
A) What are the properties of binary search tree?	Knowledge	6
B) Illustrate the binary tree traversal with example.	Analyze	6
C) Explain Heap in binary tree with basic operations on binary heap.	Understand	6

Q. 5 Solve Any Two of the following.

12

A) What is skip list? Explain the representation of it in detail.

Understand

6

B) What is radix sort? Explain in detail with example.

Analyze

6

C) Apply the insertion sort on following list.

Create

6

25	79	41	9	34	60
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