DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2019

Course: B. Tech in Computer Engineering **Sem: III**

Subject Name: Data Structures **Subject Code: BTCOC303**

Max Marks:60 **Date: 30/05/2019** **Duration: 3 Hr.**

Instructions to the Students:

1. *Solve **ANY FIVE** questions out of the following.*
2. *The level 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.**		
A)	What is Data Structure? Explain the various characteristics of an algorithm		**6**
B)	What is time complexity? Compute the frequency count for : for i : = 1 to n for j : = i + 1 to n for k : = j + 1 to n for *l* : = k + 1 to n x = x + 1;		**6**
C)	What is an algorithm? Write an algorithm to find Greatest common divisor (GCD).		**6**
Q.2	**Solve the following.**		
A)	Write a "C" code to find the transpose of a sparse matrix stored in this way.		**6**
B)	Using linear probing insert the following values in hash table of size 10. Elements are 28, 55,71,67,11,10,90,44.		**6**
Q. 3	**Solve the following.**		
A)	Explain sequential search. Write an algorithm for sequential search.		**4**
B)	What is skip list? Give its representation .Write an algorithm to insert new item (k,e) in the skip list S.		**8**

Q.4 Solve the following.

A) Write a program in C to create a singly linked list and perform the following operations I) Insert into list II)Search for data III)Delete from list **6**

B) Construct algorithm for following operations on a Doubly Linked List1) CREATE AT END2) DELETE AT START3) TRAVERSE **6**

Q. 5 Solve the following.

A) With the help of suitable example, explain following operation, Enqueue and Dequeue and traverse operation of circular queue **6**

B) Convert the A*B+C/D expression into postfix using stack **6**

Q.6 Solve the following.

A) Explain breadth first search technique for graph traversal. **6**

B) What is a Binary Tree.Explain inorder and postorder traversals with example **6**

***** End *****