

**Code No: 153AK****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year I Semester Examinations, September - 2021****DATA STRUCTURES****(Common to CSE, IT, ITE)****Time: 3 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

- - -

- 1.a) Write an algorithm of Push and Pop operations on a stack.  
b) Differentiate between stack and queue. [8+7]
2. Insert the following list of elements into the hash table by using Quadratic probing (size of Hash table is 13) 65, 34, 79, 114, 26, 85, 55, 89, 22, 98. [15]
3. Insert the following list of elements from the Red- Black tree. Delete the elements 18, 2 and 30 from the Red-Black tree 12, 30, 36, 18, 25, 9, 4, 2, 17, 14, 20, 47. [15]
4. Sort the following list of elements by using Merge sort  
30, 56, 78, 99, 12, 43, 10, 24, 85 [15]
- 5.a) Write an algorithm of Standard Trie.  
b) Explain the features that distinguish between Boyer Moore algorithm from the conventional algorithms. [7+8]
- 6.a) Write an algorithm for insertion of node at last position in Linear Linked List.  
b) Evaluate the following postfix expression using stack. Show each step  
 $5\ 3 + 6\ 2 / * 3\ 5 * +$ . [7+8]
7. Write an algorithm of skip list operations insertion and deletion. [15]
8. Explain the operations of Splay tree with an example. [15]

---ooOoo---