Code No:153AK **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, March - 2022
DATA STRUCTURES
(Common to CSE, IT, ECM, CSBS, CSIT, ITE, CSE(SE), CSE(CS), CSE(AIML), CSE(DS), CSE(IOT), CSEN)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Define a single linked list. Write the structure of the linked list with a neat sketch.
b) Explain the operations of queue. [8+7]

2.a) Write a program to implement stack operations.
b) What are the applications of the queue? Explain. [8+7]

3.a) Explain the operations of the skip list representation.
b) Is linear probing and open addressing same? Justify your answer. [10+5]

4.a) Discuss the hash functions.
b) List and explain the advantages of extendible hashing. [10+5]

5.a) Construct a Red-Black tree with the following elements 40, 16, 36, 54, 18, 7, 48, 5. Delete element 18 and add element 66.
b) Write an algorithm of single rotation and double rotation of an AVL tree. [9+6]

6.a) Explain the splaying operations of splay tree with an example.
b) Define Binary search tree. [12+3]

7.a) Write an algorithm to implement a depth-first search with an example.
b) Perform heap sort algorithm for (10 15 6 2 25 18 16 2 20 4). [12+3]

8.a) Difference between tree and tries.
b) Illustrate the Brute force algorithm. [5+10]

---oo0oo---