R13

Code No: 812AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA II Semester Examinations, August - 2017
DATA STRUCTURES AND ALGORITHMS

Time: 3 Hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 8 marks and may have a, b, c as sub questions.

PART - A

5 × 4 Marks = 20

1.a) Explain the operations of stack with an example. [4]
b) Write an algorithm of weighted union. [4]
c) Explain the Bubble sort with an example. [4]
d) Write an algorithm of double rotation of an AVL tree. [4]
e) Explain the compressed trie with an example. [4]

PART - B

5 × 8 Marks = 40

2. Write a program to count the number of non zero values in a circular linked list. [8]

OR

3. Give linked lift representation of aqueues. [8]

4. Explain the graph traversals with an example. [8]

OR

5. Write deletion algorithm of heap and also find the time complexity of the same. [8]

6.a) Explain how to reduce the collisions in hash table.
b) Explain insertion sort algorithm. [4+4]

OR

7. Sort the following list of elements by using Quick sort
60, 56, 66, 50, 72, 17, 95, 14 [8]

8. Draw the flow chart for splaying operations of Splay tree. [8]

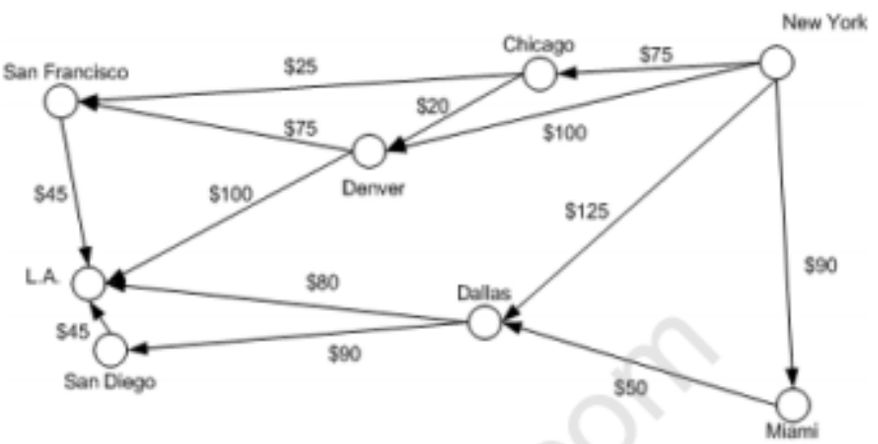
OR

9. Construct the Red – Black tree of the following instances
45, 50, 48, 40, 38, 52,55,36 [8]

10. Write an algorithm of OBST. [8]

OR

11. Find the shortest path of the following graph by using single source shortest path. [8]



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