Code No: 812AF **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA II Semester Examinations, January - 2018
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) Define Performance Analysis? Explain the Techniques. [4]
b) Write about Disjoint Sets. [4]
c) Explain Linear Search with an example. [4]
d) Explain Splay Trees with an example. [4]
e) Write short note on Pattern matching. [4]

PART - B

5 × 8 Marks = 40

2. Define Algorithm and Write the Algorithm to implement Queue Operations and also analyze its complexity. [8]

OR

3. Define ADT and write the procedure to convert infix to postfix expression. [8]

4.a) Write the procedure for Depth First Search.
b) Explain Binary Tree Representation methods. [4+4]

OR

5. Explain about Graph Representation methods with an example. [8]

6.a) What is Hashing? Explain in detail.
b) Write about Radix Sort with an example. [4+4]

OR

7.a) Define Divide and Conquer method. Explain Quick Sort.
b) Discuss in detail about merge sort with an example. [4+4]

8. What is B-Tree? Explain about B-Tree with an example. [8]

OR

9. Define BST. Discuss about Binary Search Tree operations with examples. [8]

10.a) Write the procedure to implement KMP algorithm.
b) Write about Minimum Cost Spanning Tree. [4+4]

OR

11.a) Explain Tries with examples.
b) Write about Kruskal's Algorithm. [4+4]

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