

B. Tech I Year II Semester (R17) Regular Examinations, May/June - 2018

**DATA STRUCTURES**

**(CSE)**

Time: 3 hours

Max Marks: 70

**PART – A**

1. Answer any **TEN** questions (10 x 2 = 20 Marks)
- (a) Define the three asymptotic notations to represent time complexity of algorithms
  - (b) State the advantages of Circular Linked list over single linked list
  - (c) Find the value of the expression  $7532^{*}922^{-}/+64^{*}+$
  - (d) Define Queue and give example for different queue structures
  - (e) Construct tree for the Expression  $(A-B*C)/(D+E)/F$
  - (f) Mention the number of comparisons w.r.t. best, average and worst cases for linear search.
  - (g) Give example for set and linked representation of graph
  - (h) Give example for Right-to-Left rotation in AVL Tree
  - (i) What are different collision resolution strategies?
  - (j) Define Red Black Tree and give one suitable example
  - (k) Define stack and give its representations
  - (i) Name the list of hash functions

**PART - B**

Answer all **FIVE** units (5 x 10 = 50 Marks)

**UNIT-I**

2. Provide the algorithm for Binary Search and also illustrate the binary search algorithm using suitable example.

OR

3. Write the algorithm for bubble sort and trace the algorithm using the data values 5,3,8,4,6

**UNIT-II**

4. Develop algorithm for implementing the deletion operations associated with doubly linked list. Also provide suitable example for each.

OR

5. Discuss the following operations associated with single linked list giving suitable example
- Copying a list to make duplicate of it
  - Searching for an element in the list
  - Merging on list with another

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**UNIT-III**

6. Develop a C program to implement Queue Operations. Discuss its application in round robin scheduling algorithm

OR

7. Discuss the operations of stack and also the following applications of Stack with suitable examples. Postfix expression evaluation procedure using stack data structure. Computation of Factorial using stack

**UNIT-IV**

8. Define AVL Tree. Discuss the rotations of AVL Tree with suitable example

OR

9. Differentiate B Tree and B+ Tress. Construct a B Tree for the key values given below. Assume the order of the B tree as 3  
10, 20, 30, 40, 50, 60, 70, 80 and 90

**UNIT-V**

10. Write Dijkstra's shortest path Algorithm and explain with suitable example

OR

11. Discuss Breadth First Search (BFS) and Depth First Serach (DFS) graph traversal techniques with suitable examples

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