Code No: R201208 **R20** SET - 1

I B. Tech II Semester Regular Examinations, September- 2021

DATA STRUCTURES THROUGH C

(Only for EEE)

Time: 3 hours Max. Marks: 70

Answer any five Questions one Question from Each Unit
All Questions Carry Equal Marks

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UNIT-I

1. a) Define Stack ADT. Explain basic operations of a Stack ADT. (7M)
   b) Explain the procedure for converting infix expression to prefix expression. (7M)

Or

2. a) What is recursion? How it solves the problems? Explain its application in solving Towers of Hanoi problem. (7M)
   b) What is Priority Queue? Explain the implementation of Priority queue .Write an algorithm for Performing various operations on Priority queues with an example. (7M)

UNIT-II

3. a) How can we represent a polynomial using linked list? Explain. (7M)
   b) Briefly Explain Sparse Matrix. Representation. (7M)

Or

4. a) Explain Circular Linked list with an example. (7M)
   b) Differentiate the Single Linked list & Circular Linked list. (7M)

UNIT-III

5. a) Construct a binary tree having the following traversal sequences: (7M)
   Preorder Traversal: A B C D E F G H I
   Inorder Traversal: B C A E D G H F I
   b) Explain Min Heap and perform the Insert and Delete operations on Min Heap. (7M)

Or

6. a) Explain the procedure for In order and Post order traversal with an example. (7M)
   b) Briefly Explain Balanced Binary Trees. (7M)

UNIT-IV

7. a) Define Graph and explain how Graphs can be represented in Adjacency matrix and Adjacency list? (7M)
   b) Write about Transitive closure procedure with an example. (7M)

Or

8. a) Discuss Breadth First Search traversal on a graph with an example. (7M)
   b) Define Minimum Spanning Tree. Give an example to generate minimum spanning tree. (7M)

UNIT-V

9. a) Explain about Linear search and Binary search techniques. And compare their performances. (7M)
   b) Describe the Selection sort with an example. (7M)

Or

10 a) Discuss Heap sort with an example. (7M)
   b) Explain the algorithm for Quick sort. (7M)
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