

Code No: RT21042

R13**SET - 1****II B. Tech I Semester Supplementary Examinations, Oct/Nov- 2017****DATA STRUCTURES**

(Com. to ECE, CSE, EIE, IT, ECC)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
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PART -A

1. a) Write an algorithm for factorial of a given number (4M)
- b) What are the applications of Queue (3M)
- c) What are the advantages of double linked list (4M)
- d) What is the maximum length and height of a tree with 32 nodes (4M)
- e) Explain the searching operation of binary search tree with an example (4M)
- f) What is spanning tree (3M)

PART -B

2. a) Sort the following list of elements by using merge sort (8M)
39, 16, 45, 11, 55, 18, 43, 88
- b) Explain about the Towers of Hanoi problem (8M)
3. a) Write an algorithm to convert an infix expression into prefix expression (8M)
- b) Explain the operations of a Queue with an example (8M)
4. a) Write a program for the implementation of circular linked list (10M)
- b) Explain the operations of singly linked lists (6M)
5. a) Write an algorithm for post order traversal (8M)
- b) Explain the operations of binary tree with an example (8M)
6. a) Write deletion algorithm of binary search tree (8M)
- b) Define Binary tree. Explain how to represent the Binary tree with an example (8M)
7. a) Write an algorithm of BFS (8M)
- b) Explain about the Prim's minimum cost spanning tree with an example (8M)