V.R. Siddhartha Engineering College 520 007 VIJAYAWADA

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14IT3303

II/IV B.Tech. DEGREE EXAMINATION, NOVEMBER, 2015

Third Semester

INFORMATION TECHNOLOGY

DATA STRUCTURES

Time: 3hours ***Max. Marks: 70***

Part-A is compulsory

Answer One Question from each Unit of Part-B

PART-A

10 x 1 = 10M

1. a. Define an algorithm.
   b. Define space complexity.
   c. What is polynomial?
   d. Define Binary search tree.
   e. Define AVL Tree.
   f. Difference between tree and binary tree.
   g. What is Graph ADT?
   h. What are priority queues?
   i. Give an example for inorder traversal.
   j. What is hash function?

PART-B

4 x 15 = 60M

UNIT-I

2. a. Differentiate Stack and Queue. Also, discuss various applications of Queues. **7M**

   b. Write a procedure to evaluate infix expression into postfix expression. **8M**

(or)

3. a. Define single linked list and its representations with suitable example. **7M**

   b. Write an algorithm to create, insert and delete an element in Double Linked List. **8M**

UNIT-II

4. a. Write about Circular List representation of polynomials with an example. **8M**

   b. Write recursive algorithms to traverse a binary tree in inorder and postorder. **7M**

(or)

5. a. Write the properties of binary tree and its representations. **7M**

   b. Write a C program to insert and delete a particular node in a binary search tree. **8M**

UNIT-III

6. a. Explain the operations of AVL Tree with suitable example. **8M**

   b. Explain the procedure to insert a node into B-Tree with suitable example. **7M**

(or)

7. a. What is Max Heap? Discuss the procedure to insert an element into Max Heap with an example. **8M**

   b. Write short notes on m-way search tree. **7M**

UNIT-IV

8. a. Discuss about various graph representations. **7M**

   b. Write a procedure for Breadth First Search(BFT) along with an example. **8M**

(or)

9. a. Write a procedure for Heap sort with an example. **8M**

   b. Classify various Hashing Functions. Explain each of them briefly. **7M**

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