

Dr Ruchi

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- June 2018

B.Tech/ 2nd Semester

COURSE CODE: 14B21CI211

MAX. MARKS: 50

COURSE NAME: Basic Data Structures

COURSE CREDITS: 4

MAX. TIME: 2.0 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. What do you understand by recursion? Differentiate between recursion and iteration. Write the code for factorial of a number using recursion. (5.0)
2. Write a program to display the smallest number of an array using pointers (3.0)
3. Differentiate between linear and non linear data structures. Define the various types of linear and non linear data structures. (5.0)
4. Write the code for the following operations: (5.0)
 - I. Inserting a node in the beginning and end of a singly linked list
 - II. Inserting of a node at the end of a doubly linked list
5. What do you understand by : (6.0)
 - I. Algorithmic complexity
 - II. Time space tradeoff
 - III. Dynamic memory allocation
 - IV. Data Abstraction
6. Write the code for push ,pop and peek operations on stack. List the applications of stacks. (5.0)
7. What is a circular linked list? List the properties of circular linked list and write the code for creating a circular linked list (5.0)
8. Convert the following expressions from Infix to postfix and form (3.0)

$A/B^{\wedge}C+D^{\wedge}E-A^{\wedge}C$

$(B^{\wedge}2-4^{\wedge}A^{\wedge}C)^{\wedge}(1/2)$
9. Write the algorithms for pre order, in order and post order traversals. (3.0)

10. What are the properties of a priority queue? Explain the various operations a priority queue supports.

(5.0)

11. Define the following :

(5.0)

Linear Linked List

Doubly Linked List

Header Linked List

MID TERM EXAM SUMMER SEMESTER JUNE-2018