

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MAKE UP EXAMINATION- April 2018

B.Tech/ 2nd Semester

COURSE CODE: 14B21CI211

MAX. MARKS:25

COURSE NAME: Basic Data Structures

COURSE CREDITS: 4

MAX. TIME: 1.5 Hr

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

1. Write a program to calculate length of the string using recursion. (3.0)
2. Write a program to display the smallest number of an array using pointers. (3.0)
3. How can the efficiency of an algorithm be analyzed? What do you understand by algorithmic complexity. (3.0)
4. Write the code for the following operations. (5.0)
 - I. Deletion of a node from beginning and end of a doubly linked list
 - II. Inserting a node in the beginning and end of a singly linked list
5. Answer the following. (5.0)
 - I. What is the primary advantage of a linked list?
 - II. How does dynamic memory allocation help in managing data?
 - III. What is data abstraction?
 - IV. Write an algorithm for push and pop operations in a stack?
 - V. Define the underflow and overflow conditions of a stack.
6. Convert the following expressions from Infix to postfix form. (3.0)
 - I. $(P+Q) / (M-N) - (A*B)$
 - II. $(P+Q)*(M-N)$
 - III. $(B^2 - 4 * A * C)^{(1/2)}$
7. Write an algorithm for making a circular linked list. (3.0)