



UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)  
उत्तराखण्ड मुक्त विश्वविद्यालय, हल्द्वानी (नैनीताल)

BCA-16/BCA-11 1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER ASSIGNMENT

*Last Date of Submission: 31/05/2017*

**Course Title:** Data Structure through C Language

**Course Code:** BCA-06

**Year:** 2016-17

**Maximum Marks:** 30/40

Section 'A' contains 08 short answer type questions of 4/5 marks each. Learners are required to answers 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

1. What is stack? Give an implementation of stack in 'C' language.
2. What do you mean by threaded binary tree? Write a function to traverse a threaded binary tree in postorder.
3. Explain the following terms
  - a. Time Complexity
  - b. Sparse Matrix
  - c. Algorithm
  - d. Recursion
4. List out the areas in which data structures are applied extensively?
5. What is the principal difference between the functions *malloc()* and *calloc()*?
6. What do you mean by efficiency of algorithm?
7. Compare circular linked list with doubly linked list and list the merits and demerits.
8. Write short notes on static and dynamic implementation of stack.

Section 'B' contains 04 long answer-type questions of 7/10 marks each. Learners are required to answers 02 questions only.

1. Explain linear and binary search.
2. Explain different types of sorting methods.
3. Explain the various types of binary trees.
4. What do you mean by traversing? Explain different traversal methods of binary tree.