



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

MCA-16/MCA-17  
1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER ASSIGNMENT

*Session - 2017-18, Summer Last Date of Submission: 31st October 2017*

*Session - 2017-18, Winter Last Date of Submission: 30th April 2018*

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

**Course Code:** MCA-06

**Maximum Marks:** 30/20

Section 'A' contains 08 short answer type questions of 4/2.5 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 data and information? Explain with example.
2. What is algorithm? Differentiate between **Time** and **Space** complexity.
3. What is Circular Linked List? Write an algorithm insertion of a new node into the first position in a circular linked list
4. Write an algorithm insertion of a new node into the last position in a circular linked list.
5. Write short note on the following.
  - i. Graph
  - ii. Degree of a vertex
  - iii. Weighted Graph
  - iv. Path
6. Define Binary Tree and Binary Search Tree.
7. Compare the performance of quick sort and selection sort.
8. Differentiate between linear and binary search.

Section 'B' contains 04 long answer-type questions of 7/5 marks each. Learners are required to answers 02 questions only.

1. Explain different types of sorting methods.
2. What is data structure? Explain linear and nonlinear data structure

3. What is Stack? What are the basic operations performed on stack? Explain.
4. Explain Queue, Circular Queue, Deque, and Priority Queue with an example.

