



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

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

*Last Date of Submission: 15 July 2015*

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

**Course Code:** MCA-06

**Year:** 2014-15

**Maximum Marks:** 40 Marks

**Section 'A' contains 08 short answer type questions of 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 the help of example.
2. What is a stack? What different operations can be performed on stacks?
3. Distinguish between static and dynamic implementation of stack.
4. Describe two applications of stack.
5. Differentiate between linear and binary search.
6. What is searching? What are the advantages and disadvantages of sequential search technique?
7. Compare the performance of quick sort and selection sort.
8. How many binary trees are possible with three nodes?

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

1. What is data structure? Explain the types of data structure.
2. Write down algorithms for insert and delete operation on a queue.
3. Define
  - i. Graph
  - ii. Degree of a vertex
  - iii. Weighted Graph
  - iv. Path
4. Write an algorithm to sort elements by bubble sort algorithm. What are the time and space complexities?