



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

Mca-II 3rd YEAR 5th SEMESTER ASSIGNMENT

Last Date of Submission: 15 Jan., 2014

Course Title: Formal Languages and Automata

Course Code: MCA-18

Year: 2013-14

Maximum Marks: 40 Marks

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

1. Define regular expression.
2. What is the Turing Machine and Multi tape Turing Machine?
3. List the four components used to form a context free grammar.
4. Define the basic model of a Turing machine.
5. Explain Church's thesis.
6. What is Automata? Discuss why study automata.
7. What is Universal Turing Machine? Explain.
8. What is Top- down Parsing – Bottom – Up parsing?

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

1. Explain with neat diagram, the working of a Turing machine model.
2. Prove that every language defined by a Regular expression is also defined by Finite automata.
3. Explain the technique for Turing machines construction.
4. Explain the following terms.
 - I. Undecidability
 - II. Halting Problem