

Indian Institute of Information Technology, Allahabad

Department of Information Technology

Theory of Computation

Date: 05-08- 2022

Marks: 10

Practical Questions:

Write a C-program for the following and check the acceptance and rejection of the strings:

- 1) Construct a DFA for the following languages?
 - (a) all strings with exactly one a , For $\Sigma = \{a, b\}$
 - (b) $L = \{w \mid w \in \{a, b\}^* \text{ and } Na(w) \bmod 3 = Nb(w) \bmod 3\}$
- 2) Design a deterministic finite automaton (DFA) with $\Sigma = \{0, 1\}$ that accepts the languages ending with "01" and does not contain consecutive 1's over the characters $\{0, 1\}$.
- 3) Design a deterministic finite automaton (DFA) for accepting the language $L = \{a^n b^m \mid n \bmod 2 = 0, m \geq 1\}$
- 4) Construct a DFA recognizing the given languages: The language of all strings containing no more than one occurrence of the string 00
- 5) Construct a FA with $\Sigma = \{0, 1\}$ accepts even number of 0's and even number of 1's.

***** ALL the Best *****