

Date: 13/02/15

THEORY OF COMPUTATION
(ETCS-206)

Submission Date:
20/02/15

Batch: IT 4th Sem.

ASSIGNMENT-1

- Q.1 What do you mean by the term language? Define the different entities of language.
- Q.2 What is a formal language? How it is different from 'language' mentioned above?
- Q.3 Define the terms: (a) Symbol (b) Alphabet (c) String
(d) length of string (e) Empty string
- Q.4 What is concatenation of string? How it is done?
- Q.5 What are the properties of string when they are concatenated? Also explain the term 'Substring'.
- Q.6 Explain: (a) Prefix & Suffix of String
(b) Reverse of String
(c) Lexicographic Ordering
(d) What is Palindrome?
- Q.7 What do you mean by Kleene Closure? Also define KLEENE star.

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ASSIGNMENT - 2

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Q:1: Let $\Sigma = \{0, 1\}$, give DFA's accepting the following strings:

- the set of all strings beginning with 101.
- the set of all strings containing 1101 as substring.
- the set of all strings that begin with 01 and end with 11.

Q:2: Construct a DFA accepting all strings over $\{0, 1\}$:

- having odd no. of zeroes; (b) having even no. of zeroes, (0's)
- having even no. of 1's and even no. of 0's both.

Q:3: Construct a DFA accepting all strings over $\{a, b\}$ ending in 'ab'.

Q:4: Draw a DFA for each of the following languages. None of your DFA's may contain more than 4 states.

- All strings which do not contain the substring 'ba'.
- All strings that contain an even no. of b's.
- All strings that do not end with 'aa'.

Q:5: Construct a DFA that accepts the set of natural nos. which are divisible by 3.

Q:6: Design a DFA that reads strings made up of letters in the 'CHARIOT' and recognize those strings that contain the word 'CAT' as substring.