IIIT Vadodara

CS 305 (Autumn 2023-24)

Tutorial 1

Design Deterministic Finite Automata (DFA) with that accept the following Languages.

1. The language over $\Sigma = \{a\}$ of any odd number of a's.

2. The language over $\Sigma = \{a,b\}$ of length exactly three.

3. The language over $\Sigma = \{a,b\}$ of length at least three.

4. The language over $\Sigma = \{a,b\}$ of length at most three.

5. The language over $\Sigma = \{a,b\}$ which starting with a and ending with b.

6. Let $L = \{w|n_a(w) \bmod 4 = 3\}$ (where $n_a(w)$ represents number of a's in string w) over $\Sigma = \{a,b\}$.

7. The language over $\Sigma = \{a,b\}$ of any even number of a's and any odd number of b's.

8. The language over $\Sigma = \{a,b\}$, where number of a's are even and number of b's are divisible by 3.

9. The language over $\Sigma = \{0,1\}$ whose decimal equivalent is an odd integer.

10. The language over $\Sigma = \{0,1\}$ whose decimal equivalent is divisible by 3.