Ege University
Department of Computer Engineering
Automata Theory
2020-2021 Fall
HOMEWORK-2

Date Given: 04.12.2020
Due Date: 10.12.2020

QUESTIONS

1. Build a deterministic finite automata that accepts the language defined by the regular expression **(b*ab*ab*ab*)*** . The alphabet is Σ={a,b}.

2. Build a deterministic finite automata that accepts the language defined by the regular expression **(a+b)*a(Λ+bbbb)**. The alphabet is Σ={a,b}.

3. Build a deterministic finite automata that accepts the language of all strings of a's and b's such that the next-to-last letter is an a. The alphabet is Σ={a,b}.

4. A deterministic finite automata with four states was sitting unguarded one night when vandals came and stole an edge labeled a. What resulted was a FA that accepted exactly the language b * . In the morning the FA was repaired, but the next night vandals stole an edge labeled b and what resulted was a TG that accepted a*. The FA was again repaired, but this time the vandals stole two edges, one labeled a and one labeled b, and the resultant TG accepted the language a* + b*. What was the original FA? Please draw it. The alphabet is Σ={a,b}.

5. Let L be a language that accepts only the word aaba. Build a transition graph that accepts L. Show all the possible transitions although they may end in a "dead" state. Then construct the transition graph for the complement language of L. The alphabet is Σ={a,b}.

Evaluation : Each question is 20 pts.