CS 302
QUIZ 1

8 March 2023

Duration : 15 minutes

Closed Notes , Books and all Electronic Devices

Do not forget to write your name on your paper !

QUESTION *(10 pts)*

(a) *(3 pts)* Given a *DFA* **X = (Q , Σ, δ, q₀ , F)** define the *domain* and *range* of the extended transition function **δE** of **X** and express the language **L(X)** accepted by **X** in terms of **δE,** initial state **q₀** and final state set **F**.

(b) *(7 pts)* Sketch graphically *(i)* an *NFA* **X** that accepts a language **L(X) ⊆ {0,1}*** in which each string **starts** with a **0** and **ends** with a **1** ; *(ii)* a *DFA* **Y** that accepts the complement language **L(Y) = {0,1}*-L(X)** where **L(X)** is as given in *(i)* above.