

**CS 302**  
**QUIZ 2**

15 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 an NFA  $Y = (Q, \Sigma, \delta, Q_0, F)$  express the language  $L(Y)$  accepted by  $Y$  in terms of its extended transition function  $\delta E$ , initial state set  $Q_0$  and final state set  $F$ .

**(b)** (7 pts) Sketch graphically (i) an NFA  $Y$  that accepts a language  $L(Y) \subseteq \{0,1\}^*$  in which *every string* has a *substring* '11'; (ii) an NFA  $X$  that accepts the *complement* language  $L^c(Y)$ ; i.e. the language in which '11' is **NOT** a substring of any string of the language.