CS 302   *5 December 2017*

QUIZ 9

Duration : 15 minutes

Do not forget to write your name on your paper !

QUESTION *(10 pts)*

Consider the CFG, ***G = ({S,A,B}, {a,b,c}, R, S)*** *where productions are :*

R : S → SA | a ; A → BS | Bb ; B → cA

Compute a new CFG ***G′ = (V′,T , R′, S)*** *such that all productions of* ***G′*** *are of the form* $X \rightarrow x\alpha$ *or* $X \rightarrow e$ *where* $X \in V'$ *,* $x \in T$ *,* $\alpha \in (V' \cup T)^*$ *and* ***e*** *denotes the empty string : (i) by eliminating left recursion and common leftmost symbols and (ii) by applying all possible substitutions for nonterminal variables. In your solution* ***G′*** *eliminate all useless symbols.*