

**CS 302**  
**QUIZ 8**

**8 December, 2016**

**Duration : 15 minutes**

***Do not forget to write your name on your paper !***

**QUESTION**

*Consider the CFG,  $G = (\{S,A,D\}, \{a,b\}, P, S)$  where productions are :*

**$P : S \rightarrow AD \mid b ; D \rightarrow SA ; A \rightarrow a$**

**(a) (5 pts)** *Compute the Chomsky Normal Form (CNF) for  $G$  and draw the binary parse tree for the terminal string  **$aabaa$***

**(b) (5 pts)** *Compute CNF's for the CFG's where only the **start symbol** of  $G$  is changed :  $G1 = (\{S,A,D\}, \{a,b\}, P, \textcolor{red}{A})$  and  $G2 = (\{S,A,D\}, \{a,b\}, P, \textcolor{red}{D})$  and compute the CFL's  $L_{G1}$  and  $L_{G2}$*