CS305 Tutorial-7

1. Give an algorithm which, for any given context free grammar G, can determine whether or not $\lambda \in \mathcal{L}(G)$.

2. Show that family of unambiguous context free languages are not closed under intersection.

3. Show that family of context free languages are closed under reversal.

4. Show that $\mathcal{L} = \{a^{n!} \mid n \geq 0\}$ is not a context free language.

5. Determine whether $\mathcal{L} = \{a^n b^i a^n b^j \mid n \geq 0, j \geq 0\}$ is a context free language or not?

6. Using pumping lemma, show that $\mathcal{L} = \{0^n \# 0^{2n} \# 0^{3n} \mid n \geq 0\}$ and $\Sigma = \{0, \#\}$ is not context free language.

7. Let $\Sigma = \{1, 2, 3, 4\}$ and $C = \{w \in \Sigma^* \mid$ in w, # of 1's = # of 2's, equal. and the # 3's equals # 4's$\}$. Show that C is not a context free language.
