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CSCI 3236 Homework #4

**1)**

1. **Construct a context-free grammar over {a, b, c} whose language is {a^n b^2n c^m | n, m > 0}.**

S → aSbbC | ABC

A → aA | ε

B → bBc | bc

C → cC | ε

1. **Construct a context-free grammar over {a, b} whose language is {a^n b^m | 0 ≤ n ≤ m ≤ 3n}.**

S → A ∣ B ∣ C

A → aAb ∣ ab

B → aBbb ∣ abb

C → aCbbb ∣abbb

A →ϵ

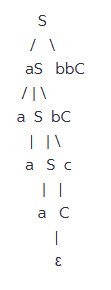
**2)   
  
<identifier> ::= <letter> <id\_tail>**

**<id\_tail> ::= ε | <letter> <id\_tail> | <digit> <id\_tail> | '\_' <id\_tail> | '$' <id\_tail>**

**<letter> ::= 'a' | 'b' | ... | 'z' | 'A' | 'B' | ... | 'Z'**

**<digit> ::= '0' | '1' | '2' | ... | '9'**

**3)**

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