# Homework1: Chapter: 3,4

Instructions: Please hand draw all parse trees, take a picture, and embed into a Word Document for uploading. When giving answers, you may also bring your thinkings, which may earn you partial point even you final answer is not correct. **Seventy points** possible for this homework.

Exercises:

1. (30pts) Using the grammar of Example 3.2 (pictured), draw a parse tree of these statements:

Text

Description automatically generated

1. B= C \* (A \* C + B)
2. A = A \* (B + (C))
3. C = B + A \* C

2. (20pts) Describe in English, the language defined by the following grammar:

<S> → <A> <B> <C>

<A> → a <A> | a

<B> → b <B> | b

<C> → c <C> | c

Sentence can be multiple a or one a, and multiple b or one b, and multiple c or one c

3. (20pts) Consider the following grammar:

<S> → a <S> c <B> | <A> | b | ε

<A> → c <A> | c

<B> → d | <A>

Which of the following sentences are in the language generated by this grammar?

1. abcd
2. acccbd
3. acccbcc
4. acd
5. accc