1. (40 points) Name:

CS 315 - Programming Languages
Spring 2018-2019
Section 2
Quiz 1

Consider the following grammar:

<assign> → <id> = <exp>
<id> → X | Y | Z
<exp> → <id> + <exp>
      | ( <exp>)
      | <id>

2. (30 points) Give a leftmost derivation for the string: X = ( X + Z )

<assign> => <id> = <exp>
  => X = <exp>
  => X = ( <exp>)
  => X = ( <id> + <exp>)
  => X = ( X + <exp>)
  => X = ( X + <id>)
  => X = ( X + Z )

3. (30 points) Draw the corresponding parse tree.

Answer: