Assignment # 3

Q1) Explain why the grammar below is ambiguous and draw it with the help of derivation tree.

S → 0A | 1B

A → 0AA | 1S | 1

B → 1BB | 0S | 0

Q2) Give the following ambiguous context free grammar.

S → Ab | aaB

A → a | Aa

B → b

1. Find the string s generated by the grammar that has two leftmost derivations.
2. Show the two derivation trees for the string s.
3. Find an equivalent unambiguous context-free grammar.
4. Give the unique leftmost derivation and derivation tree for the string s generated from the unambiguous grammar above.

Q3) Consider the grammar

S → abScB | λ

B → bB | b

What language does it generate?

Q4) Construct the production rules in CFG which accept a language of Σ = {0, 1};

1. {w | w starts and ends with the same symbol}
2. {w | |w| is odd}