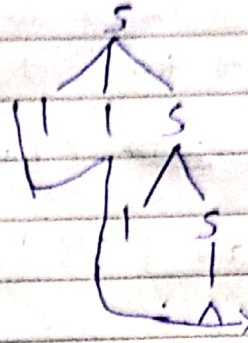
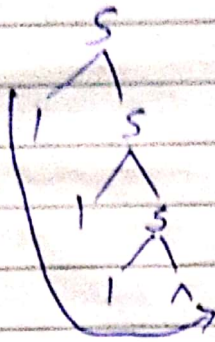


1.

(a)

$$S \rightarrow IS \mid \Lambda$$

for string  $111 \Rightarrow$



111

111

Since we got two ~~tree~~ left derivation trees for same string so the grammar is ambiguous.

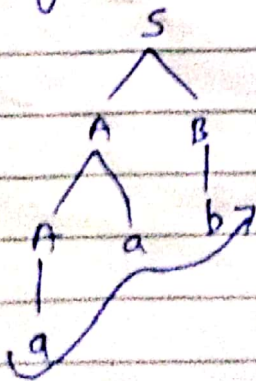
(b)

$$S \rightarrow AB \mid aqB$$

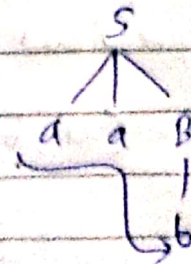
$$A \rightarrow Aa \mid a$$

$$B \rightarrow b$$

for string  $aaab \Rightarrow$



aaab



aaab

Grammar is ambiguous.







the grammar can be reduced to

$$S \rightarrow 0A \mid 1A \mid \Lambda$$

$$A \rightarrow 0B \mid 1B$$

$$B \rightarrow 0S \mid 1S$$

