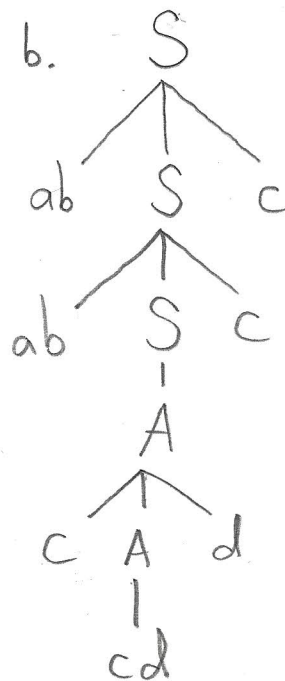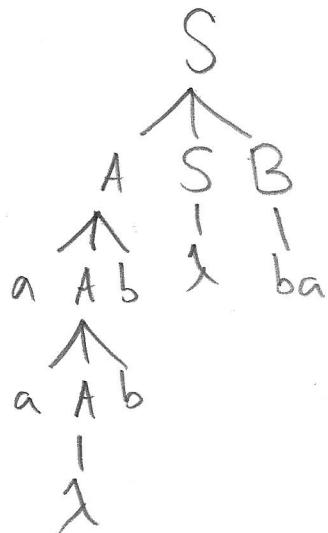1.)

a. $S \rightarrow abSc$
$\rightarrow ababScc$
$\rightarrow ababAcc$
$\rightarrow ababcAdcc$
$\rightarrow ababccddcc$
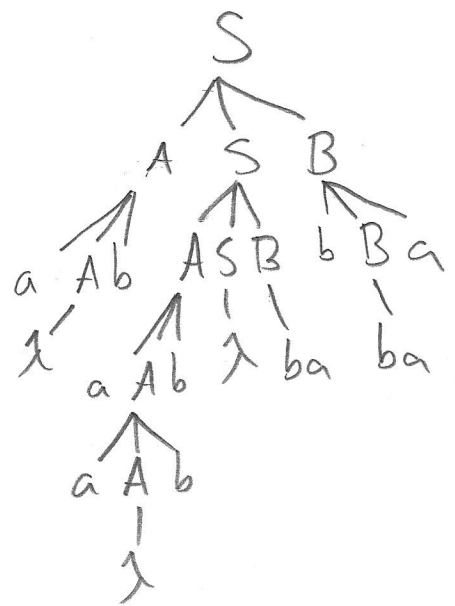
b.

c.
$\{(ab)^n c^m d^m c^n \mid 0 \le n, 1 \le m\}$

2.

a. $S \rightarrow ASB$
$\rightarrow aAbSB$
$\rightarrow aa\lambda bbSB$
$\rightarrow aabb\lambda B$
$\rightarrow aabbba$

b. $S \rightarrow ASB$
$\rightarrow ASBa$
$\rightarrow ASbbaa$
$\rightarrow AASBbbaa$
$\rightarrow AASbabbaa$
$\rightarrow AA\lambda babbaa$
$\rightarrow AaAbbabbaa$
$\rightarrow AaaAbbbabbaa$
$\rightarrow Aaa\lambda bbbabbaa$
$\rightarrow aAbaabbbabbaa$
$\rightarrow a\lambda baabbbabbaa$

4.)

a. $S \to AB$
$\to aAB$
$\to aaB$
$\to aaAB$
$\to aaaB$
$\to aaab$

b. $S \to AB$
$\to AAB$
$\to AAb$
$\to Aab$
$\to aAab$
$\to aaab$

12.)

$S \to aSb \mid bSa \mid \lambda$

15.)

$A \to aB \mid aA \mid \lambda$
$B \to bC \mid bB \mid \lambda$
$C \to cC \mid \lambda$

21.)

$S \to aB \mid bS \mid \lambda$
$B \to aB \mid bA \mid \lambda$
$A \to bS \mid \lambda$

25.)

$S \to aB \mid bA$
$A \to aC \mid bS \mid \lambda$
$B \to aS \mid bC$
$C \to aA \mid bB$