1. [15 pts] Use Algorithms 19.4.1 and 19.5.1 to construct the FIRST$_2$ and FOLLOW$_2$ sets for variables of the following grammar (Problem 19.6(b), Page 592):

\[
S \rightarrow A## \\
A \rightarrow bBA \mid BcAa \mid \lambda \\
B \rightarrow acB \mid b
\]

2. [15 pts] Give the lookahead sets for each variable and rule of the following grammar (19.2(d), Page 591):

\[
S \rightarrow aAbBc \\
A \rightarrow aA \mid cA \mid \lambda \\
B \rightarrow bBc \mid bc
\]

3. [20 pts] Construct the FIRST$_3$, FOLLOW$_3$, and LA$_3$ for each of the variables in the following grammar:

\[
S \rightarrow aSA \mid aBS \mid \lambda \\
A \rightarrow aAc \mid \lambda \\
B \rightarrow bB \mid bC \\
C \rightarrow cC \mid c \mid \lambda
\]