1. Problem 1.19 parts (a) and (c) from the textbook.

2. Problem 1.46 parts (a) and (c) from the textbook.

3. For the alphabet $\Sigma = \{a, b, c\}$, let language $A$ be the set of all strings that contain at least one of each alphabet symbols.
   
   (i) Prove that this language is regular.
   
   (ii) Prove that there is a subset $B$ of this language (i.e., $B \subseteq A$) that is not regular.

4. Problem 2.1 from the textbook.

5. Problem 2.4 parts (b), (c), (e), and (f) from the textbook.

6. Let $C$ be a CFL generated by the CFG $G = (V, \Sigma, R, S)$. Define another CFG as follows. $G^{ss} = (V, \Sigma, R^{ss}, S)$, where $R^{ss} = R \cup \{S \rightarrow SS\}$. Is it the case that $L(G^{ss}) = C^{*}$? If so, give a proof of this fact. If not, give a counter-example.