Problem 7.1
Give a logic program $\mathcal{P}$ and its completion $C_C(\mathcal{P})$ such that the following holds:

$$\{\neg A \mid \neg A \in C(\mathcal{P})\} \neq \{\neg A \mid \neg A \in C_C(\mathcal{P})\}$$

(Justify your answer.)

Problem 7.2
Find non-stratisifiable programs $K_1$ and $K_2$ such that

- $C_C(K_1)$ is satisfiable, and
- $C_C(K_2)$ is unsatisfiable.

Problem 7.3
Consider the language $\mathcal{L}(\mathcal{R}, \mathcal{F}, \mathcal{V})$ with $\mathcal{R} = \{p/1\}$ and $\mathcal{F} = \{a/0, b/0, c/0\}$.
Let $G$ be the formula $p(a) \land (p(b) \lor p(c))$.

- Determine $\text{Circ}(G, p)$.
- Find two instantiation $G_1$ and $G_2$ of $\text{Circ}(G, p)$ such that

$$\{G, G_1, G_2\} \models (\forall X)(p(X) \rightarrow X \approx a \lor X \approx b) \lor (\forall X)(p(X) \rightarrow X \approx a \lor X \approx c).$$

Hint: Combine the ideas from Exercise 1 (slides 23-24) and Exercise 2 (slides 26-27) from the lecture.