Q1 §13.5 Problem 4.

Q2 §13.5 Problem 6.

Q3 Let F be a field and K be a splitting field of $f(x) \in F$. Show that if $f(x)$ is separable, then K/F is separable.

Q4 Show that $\mathbb{F}_2[x]/(x^3 + x + 1) \cong \mathbb{F}_2[y]/(y^3 + y^2 + 1)$ and find an explicit isomorphism.

Q5 Let F be a field of characteristic p. Show that if F is perfect, then $F = F^p$.