Problem 1. (10 points) Do Problem 6.5.

Problem 2. (10 points) Do Problem 6.6.

Problem 3. (10 points) Do Problem 6.7.

Problem 4. (20 points) Do Problem 6.8. 

Hint: Show that if $f$ is discontinuous then there is a sequence $\{x_n\}_{n=1}^{\infty}$ in $E$ such that $\|x_n\| \to 0$ but $f(x_n) = 1$.

Problem 5. (20 points) Do Problem 6.9.