Q4: Let $\varepsilon > 0$. Take the open cover $\{B(\frac{\varepsilon}{3}, f)\}_{f \in \mathcal{K}}$. By compactness there is a finite subcover $\{B(\frac{\varepsilon}{3}, f_i)\}$ for some $f_1, \ldots, f_n$ Since each f_i is defined on a compact set and continuous, they are all uniformly continuous. Thus there is some δ_i such that $|x - y| < \delta_i$ implies $|f_i(x) - f_i(y)| < \frac{\varepsilon}{3}$. Any $g \in \mathcal{K}$ belongs to some open ball, so we have that for all x, $|g(x) - f(x)| < \frac{\varepsilon}{3}$. Let $\delta = \min\{\delta_1 \ldots \delta_n\}$. If we have $|x - y| < \delta$ then

$$|g(x) - g(y)| < |g(x) - f_i(x)| + |f_i(x) - f_i(y)| + |f_i(y) - g(y)| < \frac{\varepsilon}{3} + \frac{\varepsilon}{3} + \frac{\varepsilon}{3} = \varepsilon$$

Our choice of g is arbitrary, hence $\mathcal{K}$ is an equicontinuous family of functions.