1. (12 points) Define:

   (a) (2 points) Uniform convergence of a sequence of functions on a set $E \subseteq \mathbb{R}$.

   (b) (3 points) Variation of a function f on a closed, bounded interval $[a, b]$, with respect to a partition P of $[a, b]$.

   (c) (2 points) Point of closure of a subset E of a metric space X.

   (d) (2 points) Equicontinuity for a colleciton $\mathcal{F}$ of real-valued functions on a metric space X.

   (e) (3 points) State the Cantor intersection theorem.