

Roll Number and Name:

Section:

Note: Justify your answers.

Recall that $\mathbb{R}_+^* \stackrel{\text{def}}{=} (0, +\infty)$ is the set of positive real numbers (i.e. $\mathbb{R}_+^* = \{x : x \in \mathbb{R}, x > 0\}$).
Let $a, b \in \mathbb{R}_+^*$ ($a > 0, b > 0$).

Consider the set $E = \left\{ (-1)^n a + \frac{b}{n} : n \in \mathbb{N}^* \right\}$. (Of course $E \subset \mathbb{R}$.)

Determine (if they exist) the **maximum**, the **supremum**, and *one upper bound* of E .

Answer: