Let B be the minimum bid of the other participating company, $B \sim V(70, 140)$ Let x be the bid, then the profit can be denoted as

$$\text{profit } P = \begin{cases} x - 100 & \text{if } x < B \\ 0 & \text{otherwise} \end{cases}$$

$$\begin{aligned} E[P] &= (x-100) \cdot P(x \leqslant B) + 0 \cdot (1 - P(x \leqslant B)) \\ &= (x-100)(1 - P(x > B)) \\ &= (x-100) \cdot (1 - \sqrt[F]{3}(x)) \\ &= (x-100)\left(1 - \int_x^{140} \frac{1}{70} dx\right) \\ &= (x-100)\left(1 - \frac{1}{70} \cdot (140 - x)\right) \\ &= (x-100) \cdot \frac{x-70}{70} \\ &= \frac{-x^2 + 240x - 14000}{70} \end{aligned}$$

To maximize $E[P]$, wefind $\left(\frac{-x^2+290x-19000}{70}\right)' = 0$

$\Rightarrow x = 120, f''(x) < 0$, which shows its the maximum value

Thus, you should bid 120,000 for a maximized profit