

Question #113**Answer: B**

$$\begin{aligned}\bar{a} &= \int_0^{\infty} \bar{a}_{\overline{t}|} f(t) dt = \int_0^{\infty} \frac{1 - e^{-0.05t}}{0.05} \frac{1}{\Gamma(2)} t e^{-t} dt \\ &= \frac{1}{0.05} \int_0^{\infty} (t e^{-t} - t e^{-1.05t}) dt \\ &= \frac{1}{0.05} \left[-(t+1)e^{-t} + \left(\frac{t}{1.05} + \frac{1}{1.05^2} \right) e^{-1.05t} \right]_0^{\infty} \\ &= \frac{1}{0.05} \left[1 - \left(\frac{1}{1.05} \right)^2 \right] = 1.85941\end{aligned}$$

$$20,000 \times 1.85941 = 37,188$$