

Question #178

Answer: C

Regular death benefit $= \int_0^{\infty} 100,000 \times e^{-0.06t} \times e^{-0.001t} 0.001 dt$

$$= 100,000 \left(\frac{0.001}{0.06 + 0.001} \right)$$

$$= 1639.34$$

Accidental death $= \int_0^{10} 100,000 e^{-0.06t} e^{-0.001t} (0.0002) dt$

$$= 20 \int_0^{10} e^{-0.061t} dt$$

$$= 20 \left[\frac{1 - e^{-0.61}}{0.061} \right] = 149.72$$

Expected Present Value = $1639.34 + 149.72 = 1789.06$