Question #215
Answer: D

$$\bar{A}_x = \bar{A}^1_{x:\overline{5}|} + {}_5E_x\,\bar{A}_{\overline{x+5}:\overline{7}|}^{\,1} + {}_{12}E_x\,\bar{A}_{x+12}$$

where

$${}_5E_x = e^{-5(0.04+0.02)} = 0.7408$$

$$\bar{A}^1_{x:\overline{5}|} = \frac{0.04}{0.04+0.02}\times\left(1-0.7408\right) = 0.1728$$

$${}_7E_{x+5} = e^{-7(0.05+0.02)} = 0.6126$$

$$\bar{A}_{\overline{x+5}:\overline{7}|}^{\,1} = \left(\frac{0.05}{0.05+0.02}\right)\left(1-0.6126\right) = 0.2767$$

$${}_{12}E_x = {}_5E_x \times {}_7E_{x+5} = 0.7408\times 0.6126 = 0.4538$$

$$\bar{A}_{x+12} = \frac{0.05}{0.05+0.03} = 0.625$$

$$\bar{A}_x = 0.1728 + \left(0.7408\right)\left(0.2767\right) + \left(0.4538\right)\left(0.625\right)$$

$$= 0.6614$$