

Question #17**Answer: C**

$$\text{Var}(Z) = {}^2A_{41} - (A_{41})^2$$

$$\begin{aligned} A_{41} - A_{40} &= 0.00822 = A_{41} - (vq_{40} + vp_{40}A_{41}) \\ &= A_{41} - (0.0028/1.05 + (0.9972/1.05)A_{41}) \\ &\Rightarrow A_{41} = 0.21650 \end{aligned}$$

$$\begin{aligned} {}^2A_{41} - {}^2A_{40} &= 0.00433 = {}^2A_{41} - (v^2q_{40} + v^2p_{40}{}^2A_{41}) \\ &= {}^2A_{41} - (0.0028/1.05^2 + (0.9972/1.05^2)A_{41}) \\ {}^2A_{41} &= 0.07193 \end{aligned}$$

$$\begin{aligned} \text{Var}(Z) &= 0.07193 - 0.21650^2 \\ &= 0.02544 \end{aligned}$$

Question #18 - Removed**Question #19 - Removed**