Question #82
Answer: A

$$
\begin{aligned}
{}_5p_{50}^{(\tau)} &= {}_5p_{50}'^{(1)}\,{}_5p_{50}'^{(2)} \\
&= \left(\frac{100-55}{100-50}\right)e^{-(0.05)(5)} \\
&= (0.9)(0.7788) = 0.7009
\end{aligned}
$$

Similarly

$$
\begin{aligned}
{}_{10}p_{50}^{(\tau)} &= \left(\frac{100-60}{100-50}\right)e^{-(0.05)(10)} \\
&= (0.8)(0.6065) = 0.4852
\end{aligned}
$$

$$
\begin{aligned}
{}_{5|5}q_{50}^{(\tau)} &= {}_5p_{50}^{(\tau)} - {}_{10}p_{50}^{(\tau)} = 0.7009 - 0.4852 \\
&= 0.2157
\end{aligned}
$$