

**Question 230****Answer: B**

$$A_{\overline{51:9}|} = 1 - d\ddot{a}_{\overline{51:9}|} = 1 - \left(\frac{0.05}{1.05}\right)(7.1) = 0.6619$$

$${}_{11}V = (2000)(0.6619) - (100)(7.1) = 613.80$$

$$({}_{10}V + P)(1.05) = {}_{11}V + q_{50}(2000 - {}_{11}V)$$

$$({}_{10}V + 100)(1.05) = 613.80 + (0.011)(2000 - 613.80)$$

$${}_{10}V = 499.09$$

$$\text{where } q_{50} = (0.001)(10) + (0.001) = 0.011$$

Alternatively, you could have used recursion to calculate  $A_{\overline{50:10}|}$  from  $A_{\overline{51:9}|}$ , then

$$\ddot{a}_{\overline{50:10}|}$$

from  $A_{\overline{50:10}|}$ , and used the prospective reserve formula for  ${}_{10}V$ .