

Question # 32

Answer: D

N is distributed $Poisson(\lambda)$

$$\mu = E(\lambda) = \alpha\theta = 1(1.2) = 1.2.$$

$$v = E(\lambda) = 1.2; \quad a = Var(\lambda) = \alpha\theta^2 = 1(1.2)^2 = 1.44.$$

$$k = \frac{1.2}{1.44} = \frac{5}{6}; \quad Z = \frac{2}{2 + 5/6} = \frac{12}{17}.$$

Thus, the estimate for Year 3 is

$$\frac{12}{17}(1.5) + \frac{5}{17}(1.2) = 1.41.$$

Note that a Bayesian approach produces the same answer.