

## Question #159

Key: A

The sample mean is  $\frac{0(2000) + 1(600) + 2(300) + 3(80) + 4(20)}{3000} = 0.5066667 = \hat{\mu} = \hat{v}$  and the

sample variance is

$$\frac{2000(0 - \hat{\mu})^2 + 600(1 - \hat{\mu})^2 + 300(2 - \hat{\mu})^2 + 80(3 - \hat{\mu})^2 + 20(4 - \hat{\mu})^2}{2999} = 0.6901856. \text{ Then,}$$

$$\hat{a} = 0.6901856 - 0.5066667 = 0.1835189, k = \frac{0.5066667}{0.1835189} = 2.760842 \text{ and}$$

$$Z = \frac{1}{1 + 2.760842} = 0.2659.$$