

37. The price of a stock is governed by the stochastic differential equation:

$$\frac{dS(t)}{S(t)} = 0.03dt + 0.2dZ(t),$$

where  $\{Z(t)\}$  is a standard Brownian motion. Consider the geometric average

$$G = [S(1) \times S(2) \times S(3)]^{1/3}.$$

Find the variance of  $\ln[G]$ .

- (A) 0.03
- (B) 0.04
- (C) 0.05
- (D) 0.06
- (E) 0.07