

- 19.** Assume that the Black-Scholes framework holds. The price of a nondividend-paying stock is \$30.00. The price of a put option on this stock is \$4.00.

You are given:

(i) $\Delta = -0.28$

(ii) $\Gamma = 0.10$

Using the delta-gamma approximation, determine the price of the put option if the stock price changes to \$31.50.

- (A) \$3.40
- (B) \$3.50
- (C) \$3.60
- (D) \$3.70
- (E) \$3.80

****END OF EXAMINATION****

20. Assume that the Black-Scholes framework holds. Consider an option on a stock.

You are given the following information at time 0:

- (i) The stock price is $S(0)$, which is greater than 80.
- (ii) The option price is 2.34.
- (iii) The option delta is -0.181 .
- (iv) The option gamma is 0.035.

The stock price changes to 86.00. Using the delta-gamma approximation, you find that the option price changes to 2.21.

Determine $S(0)$.

- (A) 84.80
- (B) 85.00
- (C) 85.20
- (D) 85.40
- (E) 85.80

****END OF EXAMINATION****