CTSD Trading Strategy Exam **Sample Questions**

1. **If the current value of the S&P 500 Index is 1203.00 with a dividend yield of 2.34%. The risk-free interest rate is 3.02%. How would you hedge a portfolio of stocks with a value of 9,789,432.00 and a Beta of 1.34? How many S&P 500 E-mini futures with 3 months to maturity would you need to trade to reduce the Beta of your portfolio to zero (S&P 500 E-mini futures is $50.00 per point)?**

   (a) +218
   (b) -43
   (c) -218
   (d) +117
   (e) None of the above

2. **Consider two European call options on the same underlying stock. The options have the same strike price. Assume constant interest rates. One option matures in 1 year; the other option matures in 4 years. Suppose the volatility you use for the 1 year option in the Black-Scholes model is 15%. What value of volatility should you use for the 4 year option?**

   (a) 15%
   (b) 30%
   (c) 45%
   (d) 60%
   (e) None of the above.

3. **If volatility decreases, the Delta of an in-the-money American Put option will decrease while the Delta of an in-the-money European Call option will increase.**

   (a) False, the Delta of the in-the-money Put option will increase, while the Delta of the in-the-money Call option will decrease.
   (b) True, the Delta's will change as stated because of Put-Call Parity.
   (c) False, the Delta of the in-the-money Put option will increase, while the Delta of the in-the-money Call option will also increase.
   (d) True, only if both options are on Dividend paying stocks.
   (e) None of the above.

4. **What are the characteristics that one should look for when selecting a pair of stocks to trade using a Convergence Pairs Trading Method? Check all that apply.**

   (a) Low volatility in each stock
   (b) A correlation close to -1.0
   (c) A correlation close to +1.0
   (d) In the same industry Sector
   (e) Similar PE ratios
   (f) Similar PEG ratios
   (g) High volume
   (h) Low volume
   (i) PEG ratios that are higher or lower than the Sector PEG ratio.

5. **Use the Optimal F strategy to determine how many shares of stock ABC you should buy. You have $50,000.00 current capital, stock ABC is currently priced at $45.00 per share, and your Maximal Loss at trade is 30% and your Secure F factor is 0.15, how many shares of stock ABC can you buy?**

   (a) 667 shares
   (b) 167 shares
   (c) 333 shares
   (d) 556 shares
   (e) None of the above

6. **Consider the following portfolio:**

	Portfolio	C_1	C_2
Delta	-450	0.60	0.10
Gamma	-6,000	1.50	0.50
Vega	-4,000	0.80	0.60

   How can the portfolio be made delta, gamma, & vega neutral using options C_1, C_2 and the underlying stock?

   (a) C_1= —3,200 C_2=2,400 S= —1,710
   (b) C_1=2,700 C_2=3,200 S= 1,710
   (c) C_1=3,200 C_2=2,400 S= —1,710
   (d) C_1= —3,200 C_2=2,400 S= 1,710
   (e) None of the above.

7. **Using the information from Question 5, what would be the yield on the 10 year bond if the yield curve had a parallel shift up of 57 bps?**

   (a) 11.7%
   (b) 4.575
   (c) 6.57%
   (d) 9.7%
   (e) Need more information

8. **A trader's portfolio is delta neutral and has a gamma of -3000. The delta and gamma of a particular traded call option are 0.62 and 1.50 respectively. What transactions should the trader make to have a portfolio that is gamma and delta neutral?**

(a) -3000 option contracts & 0 shares of stock
(b) 3000 option contracts & 0 shares of stock
(c) -20 option contracts and 1,240 shares of stock
(d) 20 option contracts and -1,240 shares of stock
(e) None of the above.

9. **If a trader buys the yield curve with a duration neutral strategy, which choice best reflects this view in curve environment?**

(a) Buy \$25 mil 2 year bonds and sell \$25 mil 10 year bonds.
(b) Sell \$100 mil 2 year bonds and buy \$25 mil 10 year bonds.
(c) Buy \$100 mil 2 year bonds and sell \$25 mil 10 year bonds.
(d) Sell \$25 mil 2 year bonds and buy \$100 mil 10 year bonds.
(e) Need more information.

10. **Assume a Black-Scholes world without dividends. Consider a standard European call option struck at-the-money with one-year to maturity. If the interest rate is 6%, what will be the option's delta?**

(a) Greater than .5
(b) Less than .5
(c) .5
(d) Could be .5, above .5 or below .5.
(e) None of the above.