Derivatives

1. In contrast to over-the-counter options, futures contracts:
A. are not exposed to default risk.
B. are private, customized transactions.
C. represent a right rather than a commitment.

Answer: A
A is correct. Over-the counter options are exposed to default risk but futures contracts are standardized transactions that take place on futures exchanges and are not exposed to default risk.

2. Which of the following *best describes* how derivatives are priced?
A. A hedge portfolio is used that eliminated arbitrage opportunities.
B. The payoff of the underlying is adjusted downward by the derivative value.
C. The expected future payoff of the derivative is discounted at the risk-free rate plus a risk premium.

Answer: A
A is correct. A hedge portfolio is formed that eliminated arbitrage opportunities and implies a unique price for the derivative. The other answers are incorrect because the underlying payoff if not adjusted by the derivative value and the discount rate of the derivative does not include a risk premium.

3. Which of the following factors does *not* affect the forward price?
A. The cost of holding the underlying.
B. Dividends or interest paid by the underlying.
C. Whether the investor is risk averse, risk seeking, or risk neutral.

Answer: C
C is correct. The costs of holding the underlying, known as carrying costs, and the dividends and interest paid by the underlying are extremely relevant to the forward price. How the investor feels about risk is irrelevant, because the forward price is determined by arbitrage.

4. Which of the following best describes the forward rate of an FRA?
A. The spot rate implied by the term structure
B. The forward rate implied by the term structure
C. The rate on a zero-coupon bond of maturity equal to that of the forward contract

Answer: B
FRAs are based on Libor, and they represent forward rates, not spot rates. Spot rates are needed to determine forward rates, but they are not equal to forward rates. The rate on a zero-coupon bond of maturity equal to that of the forward contract describes a spot rate.

5. Which of the following conditions will not make futures and forward prices equivalent?
A. Interest rates are known.
B. Futures prices are uncorrelated with interest rates.
C. The volatility of the forward price is different from the volatility of the futures price.

Answer: C
C is correct. Known interest rates and the condition that futures prices are uncorrelated with forward prices will make forward and futures prices equivalent. The volatility of forward and futures prices has no relationship to any difference.

6. Based on put-call parity for European options, a synthetic put is *most likely* equivalent to a:
A. long call, short underlying asset, long bond.
B. long call, long underlying asset, short bond.
C. short call, long underlying asset, short bond.

Answer: A
A is correct. A Synthetic Put is equivalent to a Long Call + Short Underlying + Long Bond.

7. Which statement best describes option price sensitivities? The value of a:
A. call option increases as interest rates rise.
B. put option increases as volatility decreases.
C. put option decreases as interest rates decline.

Answer: A
A is correct. Call options increase in value as interest rates rise.

8. Which of the following *best* describes the binomial option pricing formula?
A. The expected payoff is discounted at the risk-free rate plus a risk premium.
B. The spot price is compounded at the risk-free rate minus the volatility premium.
C. The expected payoff based on risk-neutral probabilities is discounted at the risk-free rate.

Answer: C
C is correct. Risk-neutral probabilities are sued, and discounting is at the risk-free rate. There is no risk premium incorporated into option pricing because of the use of arbitrage.

9. With respect to American calls, which of the following statements is *most* accurate?
A. American calls should be exercised early if the underlying has reached its expected maximum price.
B. American calls should be exercised early if the underlying has a lower expected return than the risk-free rate.

C. American calls should be exercised early if there is a dividend or other cash payment on the underlying.

Answer: C

C is correct. Cash payments on the underlying are the only reason to exercise American calls early. Interest rates, the expected return on the underlying, and any notion of a maximum price is irrelevant. But note that a dividend does not mean that early exercise should automatically be conducted. A dividend is only a necessary condition to justify early exercise for calls.

10. An investor purchases ABC stock at $71 per share and executes a protective put strategy. The put option used in the strategy has a strike price of $66, expires in two months, and is purchased for $1.45. At expiration, the protective put strategy breaks even when the price of ABC *is closest* to:

A. $64.55.

B. $67.45.

C. $72.45.

Answer: C

C is correct because to break even, the underlying stock must be at least as high as the amount expended up front to establish the position. To establish the protective put, the investor would have spent $71 + $1.45 = $72.45.