LO.a: Define a derivative, and distinguish between exchange-traded and over-the-counter derivatives.

1. Which of the following is *not* a derivative?
   A. A contract to purchase shares of Infosys, a technology company, at a fixed price.
   B. An asset backed security.
   C. A global equity mutual fund.

2. Which of the following statements is *most likely* to be correct about derivatives?
   A. A derivative is a financial instrument that derives its value based on the performance of the underlying.
   B. Derivatives are standardized financial instruments and cannot be customized.
   C. The performance of a derivative is derived by replicating the performance of the underlying.

3. Which of the following statements about derivatives is *least accurate*?
   A. They derive their value from an underlying.
   B. They have low degrees of leverage.
   C. They involve two parties – a buyer and a seller.

4. Which of the following statements about derivatives is *not* true?
   A. They are used for risk management.
   B. They are created in the form of legal contracts.
   C. They are created in the spot market.

5. Which of the following statements about exchange-traded derivatives is *least accurate*?
   A. They are more transparent than over-the-counter derivatives.
   B. All terms of the contract except the price are standardized.
   C. They have more credit risk than over-the-counter derivatives.

6. Which of the following *least likely* describes over-the-counter (OTC) derivatives relative to exchange-traded derivatives? OTC derivatives are:
   A. more customized.
   B. less liquid.
   C. less transparent.

7. Which of the following *best* describes a characteristic of exchange-traded derivatives?
   A. They are customized financial instruments.
   B. A clearing house effectively guarantees against default risk.
   C. They are characterized by a low degree of regulation.

8. Which of the following statements about over-the-counter derivatives is *least accurate*?
   A. They are less liquid than exchange-traded derivatives.
   B. They are less regulated than exchange-traded derivatives.
   C. They offer more flexibility than exchange-traded derivatives.

9. Analyst 1: Market makers earn a profit in both exchange and over-the-counter derivatives markets by charging a commission on each trade.
   Analyst 2: Market makers earn a profit in both exchange and over-the-counter derivatives markets by buying at one price, selling at a higher price, and hedging any risk.
   Which analyst's statement is *most likely* correct?
   A. Analyst 1.
   B. Analyst 2.
   C. Neither of them.

10. As compared to exchange-traded derivatives, over-the-counter derivatives are *more likely* to have:
    A. lower credit risk.
    B. customized contract terms.
    C. lower risk management uses.

11. As compared to over-the-counter options, futures contract:
    A. are private, customized transactions.
    B. represent a right rather than a commitment.
    C. are not exposed to default risk.

LO.b: Contrast forward commitments with contingent claims.

12. Which of the following statements is *least accurate*?
    A. An asset backed security is a contingent claim.
    B. An interest rate swap is a forward commitment.
    C. A credit default swap is a forward commitment.

13. Which of the following is *not* a forward commitment?
    A. Futures contracts.
    B. Interest rates swaps.
    C. Asset backed securities.

14. Which of the following statements is *least accurate* about contingent claims?
    A. The payoffs are not linearly related to the underlying.
    B. The most the short can gain is the premium paid for the contingent claim.
    C. Either party can default to the other.

15. Which of the following is *best* classified as a forward commitment?
    A. A convertible bond.
    B. A swap agreement.
    C. An asset-backed security.

LO.c: Define forward contracts, futures contracts, options (calls and puts), swaps, and credit derivatives, and compare their basic characteristics.

16. Which of the following statements about futures is *least accurate*?

A. They are standardized.
B. They are subject to daily price limits.
C. Their payoffs are received at settlement.

17. Which of the following statements is *most accurate*?
    A. Forwards are customized whereas swaps are standardized.
    B. Forwards are subject to daily price limits whereas swaps are not.
    C. Swaps have multiple payments, whereas forwards have only a single payment.

18. Analyst 1: During daily settlement of futures contract the initial margin deposits are refunded to the two parties.
    Analyst 2: During daily settlement of futures contract losses are charged to one party and gains credited to the other.
    Which analyst's statement is *most likely* correct?
    A. Analyst 1.
    B. Analyst 2.
    C. Neither of them.

19. Which of the following statements about options is *most accurate*?
    A. An option is the right to buy or the right to sell the underlying.
    B. An option is the right to buy and sell, with the choice made at expiration.
    C. An option is an obligation to buy or sell, which can be converted into the right to buy or sell.

20. Which of the following is a characteristic of a put option on the stock?
    A. A guarantee that the stock price will decrease.
    B. A specified date on which the right to sell expires.
    C. A fixed price at which the put holder can buy the stock.

21. Analyst 1: A credit derivative is a derivative contract in which the seller provides protection to the buyer against the credit risk of a third party.
    Analyst 2: A credit derivative is a derivative contract in which the exchange provides a credit guarantee to both the buyer and the seller.
    Which analyst's statement is *most likely* correct?
    A. Analyst 1.
    B. Analyst 2.
    C. Neither of them.

22. A corporation has issued 10-year, floating-rate bonds. The treasurer realizes that the interest rates are going to rise and enters into an agreement to receive semi-annual payments based on the 6-month LIBOR and to make semi-annual payments at a fixed rate. This agreement is *best* described as a (an):
    A. option.
    B. futures contract.
    C. swap.

23. While dealing with futures contracts, the maintenance margin requirement *most likely* refers to:
    A. collateral to ensure fulfillment of obligation.
    B. amount sufficient to bring ending account balance back to initial margin.
    C. the minimum account balance a trader must maintain after the trade is initiated.

24. In which of the following contracts would the buyer face the *least* default risk?
    A. Cotton futures.
    B. Currency forwards.
    C. Over-the-counter interest rate options.

25. Microsoft issues 10-year fixed-rate bonds. Its treasurer expects interest rates to increase for all maturities for at least the next 2 years. He enters into a 2-year agreement with SCB to receive semi-annual floating-rates payments benchmarked on 6-month LIBOR and to make payments based on a fixed-rate. This agreement is *best* described as a:
    A. Swap.
    B. Futures contract.
    C. Forward contract.

26. Ali takes a long position in 50 futures contracts on Day 1. The futures have a daily price limit of €10 and closes with a settlement price of €105. On Day 2, the futures trade at €115 and the bid and offer move to €116 and €118, respectively. The futures price remains at these price levels until the market closes. The marked-to-market amount the trader receives in his account at the end of Day 2 is closest to:
    A. €500.
    B. €550.
    C. €650.

27. A market participant has a view regarding the potential movement of a stock. He sells a customized over-the-counter put option on the stock when the stock is trading at $46. The put has an exercise price of $44 and the put seller receives $2.5 in premium. The price of the stock is $43 at expiration. The profit or loss for the put seller at expiration is:
    A. $(1.5).
    B. $1.5.
    C. $2.5.

28. Keene Smith, an investor, aims to invest in derivatives that can be classified as forward commitments. Which of the following is she least likely to consider?
    A. Credit default swaps.
    B. Futures contracts
    C. Interest rate swaps.

29. Which of the following is *most likely* to be correct regarding interest rate swaps?
    A. Interest rate swaps provide the right to buy or sell the underlying asset in the future.
    B. Interest rate swaps provide the promise to provide credit protection in the event of a default.

C. Interest rate swaps involve the obligation to lend or borrow at a given rate in the future at a fixed rate.

30. Tim has a portfolio comprising of derivatives, which provide payoffs that are linearly related to the payoffs of the underlying. Which of the following is least likely to be a part of Tim's portfolio?
    A. Forwards.
    B. Interest-rate swaps.
    C. Options.

31. Which of the following statements is *least likely* correct about interest rate swaps?
    A. Interest rate swaps are derivatives where two parties agree to exchange a series of cash flows.
    B. Interest rate swaps might require one party to make payments based on a fixed rate.
    C. Interest rate swaps give the buyer the right to purchase the underlying from the seller.

32. Which of the following is *least likely* to be subject to default?
    A. Forwards.
    B. Futures.
    C. Interest rate swaps.

33. Klaus, Veronica, and Liam deal in derivatives. Liam and Veronica have a value of zero at the initiation of the contract, while Klaus doesn't. Which of the following correctly describes the derivative that each of these are dealing in?

	Klaus	**Veronica**	**Liam**
A.	Futures	Options	Forwards
B.	Forwards	Futures	Options
C.	Options	Forwards	Futures

34. Which of the following accurately describes a credit derivative?
    A. In a credit derivative, the seller provides the buyer with protection against credit risk of a third party.
    B. At the initiation of the contract of a credit derivative, the buyer and seller provide a performance bond.
    C. The buyer and seller of a credit derivative are provided with a credit guarantee by the clearinghouse.

35. Which of the following statements is *most* accurate?
    A. A forward contract is default free, whereas a futures contract is not.
    B. A forward contact allows parties to enter into a customized transaction, whereas a futures contract does not.
    C. A forward contract can easily be offset prior to expiration, whereas it is difficult to offset a futures contract prior to expiration.

36. Joe is a futures trader. If on a given day his balance falls below the maintenance margin, he should add funds so as to meet the:
    A. Initial margin.
    B. Maintenance margin.
    C. Variation margin.

37. One way to describe the margin in a futures market is:
    A. A good faith deposit that covers possible future losses.
    B. A loan to the futures trader.
    C. The difference between the futures price and the spot price.

LO.d: Describe purposes of, and controversies related to, derivative markets.

38. Which of the following is an advantage of the derivatives market?
    A. They are less volatile than spot markets.
    B. They make it easier and less costly to transfer risk.
    C. They incur higher transaction costs than spot markets.

39. Which of the following statements about derivatives is *least accurate*?
    A. Options convey the volatility of the underlying.
    B. Swaps convey the price at which uncertainty in the underlying can be eliminated.
    C. Futures convey the most widely used strategy of the underlying.

40. While responding to criticism that derivatives can be destabilizing to the market, an analyst makes the following statements:
    Statement 1: Market crashes and panics have occurred since long before derivatives existed.
    Statement 2: Derivatives are sufficiently regulated that they cannot destabilize the spot market.
    Which statement is *most likely* correct?
    A. Statement 1.
    B. Statement 2.
    C. Both.

41. Which of the following is *most likely* to be greater for derivative markets compared to underlying spot markets?
    A. Capital requirements.
    B. Liquidity.
    C. Transaction costs.

42. Sebastian is planning to invest in derivatives. Which of the following is *least likely* to be an advantage that he should consider?
    A. Effective risk management.
    B. Greater opportunities to go short compared to the spot market.
    C. Similar payoffs to those of underlying.

43. The benefits of derivatives can result in a destabilizing consequence. Which of the following is this *most likely* to be?
    A. Arbitrage activities due to market price swings.
    B. Asymmetric performance as a result of trading strategies created.
    C. Defaults on the part of speculators and creditors.

44. Compared to the underlying spot market, the derivatives market is *least likely* to have:
    A. lower liquidity.
    B. lower transaction costs.
    C. lower capital requirements.

45. Analyst 1: Derivatives can be combined with other derivatives or underlying assets to form hybrids.
    Analyst 2: Derivatives can be issued on weather, electricity, and disaster claims.
    Which analyst's statement is *most likely* correct?
    A. Analyst 1.
    B. Analyst 2.
    C. Both.

LO.e: Explain arbitrage and the role it plays in determining prices and promoting market efficiency.

46. Arbitrage is often referred to as the:
    A. law of one price.
    B. law of similar prices.
    C. law of limited profitability.

47. When an arbitrage opportunity exists, the combined action of all arbitrageurs:
    A. results in a locked-limit situation.
    B. results in sustained profit to all.
    C. forces the prices to converge.

48. Analyst 1: An arbitrage is an opportunity to make a profit at no risk and with the investment of no capital.
    Analyst 2: An arbitrage is an opportunity to earn a return in excess of the return appropriate for the risk assumed.
    Which analyst's statement is *most likely* correct?
    A. Analyst 1.
    B. Analyst 2.
    C. Both.

49. Which of the following statements about arbitrage is *most accurate*?
    A. Arbitrage imposes penalty on rapid trading.
    B. Arbitrage redistributes risk among market participants.
    C. Arbitrage helps prices to converge to their relative fair values.

50. David is studying the law of one price. Which of the following statements is *most likely* to be correct?
    A. The law of one price explains that two assets producing equal future cash flows would sell for equal prices.
    B. The law of one price describes how a risk-free profit can be earned without capital commitments.
    C. The true fundamental value of the asset can be described by the law of one price.

51. Which of the following *most likely* represents an arbitrage opportunity?
    A. A risk free rate is earned by the combination of the underlying asset and a derivative.
    B. Sale of the shares of a takeover target and purchase of shares of the potential acquirer.
    C. Two identical assets or derivatives are sold for different prices in different markets.

52. Which of the following is *most likely* to be a criticism of the derivatives market?
    A. Derivatives provide price information but only at a cost of increasing transaction costs.
    B. Derivatives are highly speculative instruments and effectively permit legalized gambling.
    C. Default risk exists within all instruments of the derivative market.

Solutions

1. C is correct. Mutual funds do not transform the value of a payoff of an underlying asset; they merely pass those payoffs through to their holders. Hence they are not derivatives.

2. A is correct. The value of a derivative is based on the performance of the underlying.

3. B is correct. Derivatives have high degrees of leverage.

4. C is correct. Derivatives are not created in the spot market, which is where the underlying trades.

5. C is correct. Exchange-traded contracts have less credit risk than OTC derivatives.

6. B is correct. Over-the-counter derivatives are customized and less transparent relative to exchange traded derivatives. There is tendency to think that OTC market is less liquid relative to the exchange market, but this is not necessarily true.

7. B is correct. Exchange-traded derivatives are guaranteed by a clearinghouse against default. A is incorrect because the exchange traded derivatives are standardized. C is incorrect because they are characterized by a high degree of regulation.

8. A is correct. Because of the customization of OTC derivatives, there is a tendency to think that the OTC market is less liquid than the exchange market. However, this is not necessarily true. Many OTC instruments can easily be created and then essentially offset by doing the exact opposite transaction, often with the same party.

9. B is correct. Market makers buy at one price (the bid), sell at a higher price (the ask), and hedge whatever risk they otherwise assume. They do not charge a commission.

10. B is correct. Customization of contract terms is a characteristic of over-the-counter derivatives.

11. C is correct. Futures contract are not exposed to default risk.

12. C is correct. A credit default swap is a contingent claim.

13. C is correct. An asset backed security is a contingent claim not a forward commitment.

14. C is correct. Only one party, the short, can default.

15. B is correct. A swap agreement is equivalent to a series of forward agreements, which are described as forward commitments.

16. C is correct. Payoffs for future contracts are received daily.

17. C is correct. A swap is a series of multiple payments at scheduled dates, whereas a forward has only one payment, made at its expiration date.

18. B is correct. During daily settlement losses and gains are collected and distributed to the respective parties.

19. A is correct. An option is strictly the right to buy (a call) or the right to sell (a put). It does not provide both choices. Similarly, the right to convert is an obligation, not a right.

20. B is correct. A put option on a stock provides no guarantee of any change in the stock price. It has an expiration date, and it provides for a fixed price at which the holder can exercise the option, thereby selling the stock.

21. A is correct. A credit derivative is a class of derivative contracts between two parties, a credit protection buyer and a credit protection seller, in which the latter provides protection to the former against a specific credit loss.

22. C is correct. It is a swap because two parties agree to exchange cash flows in the future.

23. C is correct. Futures position holders are required to maintain a minimum level of account balance which is called the maintenance margin requirement. The amount sufficient to bring ending account balance back to initial margin requirement is called the variation margin. Initial margin is the collateral or performance bond that ensures the fulfillment of the obligation.

24. A is correct. While forward contracts and over-the-counter options are customized private contracts between parties with a presence of default risk, futures contracts have the least risk of default because of the presence of a clearinghouse as an intermediary guaranteeing the parties against default through the practice of daily settlement.

25. A is correct. A swap is an agreement between two parties to exchange a series of future cash flows. Microsoft receives floating interest rate payments and makes fixed interest rate payments. The given agreement is a swap.

26. A is correct. Because the future has a daily price limit of €10, the highest possible settlement price on Day 2 is €115. Therefore, the marked to market value would be (€115-€105) * 50 = €500.

27. B is correct. Profit = max (0, premium – value of put at expiration) = max (0, premium-(X-S)) = 2.5 – 1 = 1.5.

28. A is correct. A credit default swap (CDS) is a derivative in which the seller provides credit protection to the buyer against the credit risk of a separate party. It is hence classified as a contingent claim. B and C are incorrect because futures contracts and interest rate swaps are classified as forward commitments.

29. C is correct. Interest rate swaps are forward commitments that require one party to pay a fixed rate and the other party to pay floating rate during the life of the swap. A and B are incorrect because they are characteristics of credit default swaps.

30. C is correct. Options are contingent claims that provide a one-sided payoff.

31. C is correct. Interest rate swaps are derivatives where two parties agree to exchange a series of cash flows. Typically, one set of cash flows is variable and the other set is variable. Option C is a true statement with respect to call options, not swaps.

32. B is correct. Futures are exchange traded contracts with a credit guarantee and a protection against default. Interest rate swaps and forwards are over-the-counter contracts that are privately negotiated and are subject to default.

33. C is correct. Options require the payment of an option premium to the seller of the option at the initiation of the contract. The premium can be thought of as the value of the option contract. Futures and forwards have a value of zero at the initiation of the contract. Futures contracts do require an initial deposit (initial margin) but this can thought of as a down payment or a performance bond. The initial margin does not represent the value of the futures contract.

34. A is correct. A credit derivative is a derivative contract in which the seller provides credit protection to the buyer against the credit risk of a third party. B and C are incorrect because these are characteristics of futures, not credit derivatives.

35. B is correct. Unlike futures contracts, which have standardized features, forward contracts can be customized to suit the needs of the parties involved.

36. A is correct. In the futures markets the investor must top up to the initial margin. In the stock market an investor only needs to top up to the maintenance margin.

37. A is correct. The initial margin can be thought of as a good faith deposit or performance bond. It covers possible future losses.

38. B is correct. Derivatives facilitate risk allocation by making it easier and less costly to transfer risk.

39. C is correct. Derivatives do not convey any information about the use of the underlying in strategies.

40. A is correct. Derivatives regulation is not more and is arguably less than spot market regulation. However, market crashes and panics have a very long history, much longer than that of derivatives.

41. B is correct. Derivative markets have greater liquidity than underlying spot markets with lower capital requirements and lower transaction costs.

42. C is correct. Derivative markets provide for effective risk management and thus result in payoffs different than those of the underlying. Therefore similar payoffs are least likely to be an advantage to consider. An operational advantage of derivative markets is the ease of going short in comparison to the underlying spot market.

43. C is correct. The benefits of derivatives can result in excessive speculative trading and hence cause defaults on the part of creditors and speculators. A is incorrect because arbitrage tends to bring about convergence of prices to the intrinsic value. B is incorrect because asymmetric information is not itself destabilizing.

44. A is correct. Compared to the underlying spot market, the derivatives market will have higher liquidity.

45. C is correct. Derivatives can be combined with other derivatives or underlying assets to form hybrids. Derivatives can be issued on a variety of such diverse underlyings such as weather, electricity, and disaster claims

46. A is correct. Arbitrage forces equivalent assets to have a single price. There is nothing called the law of similar prices or the law of limited profitability.

47. C is correct. Prices converge because of the heavy demand for the cheaper asset and the heavy supply of the more expensive asset.

48. A is correct. Arbitrage is risk free and requires no capital because selling the overpriced asset produces the funds to buy the underpriced asset.

49. C is correct. Arbitrage results in an acceleration of price convergence to fair values relative to instruments with equivalent payoffs.

50. A is correct. The law of one price occurs when participants in the market engage in arbitrage activities so that identical assets sell for the same price in different markets.
    B refers to arbitrage and C does not account for identical assets.

51. C is correct. Arbitrage opportunities exist when the same asset or two equivalent assets, producing the same result, sell for different prices. A and B are incorrect because they do not define arbitrage opportunities.

52. B is correct. The criticism to derivatives is that they are ‘too risky’ especially to investors with limited knowledge of complicated instruments. Derivative markets do provide price information but also lower transaction costs. Moreover, default risk is not existent in all instruments. With exchange traded instruments such as options and futures there is virtually no default risk.