Name: ________________________ **ID:** ______________________

Birla Institute of Technology & Science, Pilani
FIN F311 / `ECON F354 Derivatives and Risk Management
Mid-semester Test (OB) - 07 Oct 2018 Weight-age 30% (90 Marks) Time 90 Min.

I. There are **43 multiple choice questions**.
II. All questions carry 2 marks each. There are ***four surprise questions*** that carry 3 marks.
III. 2 marks will be **deducted** for every 3 wrong answers.
IV. For each question, choose only **ONE answer** and write it in the table given below. Answers written elsewhere will **NOT** be evaluated.
V. Use supplementary sheets for rough work.

Table for Multiple Choice Questions

Write the answers in the table below (overwritten/ambiguous answers may attract penalty)

1	2	3	4	5	6	7	8	9	10
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
41	**42**	**43**	**Total Correct Answers -** ______						
			Total Incorrect Answers - ______ **Questions not attempted -** ______ **Total Marks** _______						

Imp. Note: Expiry month is same for futures and options contracts unless specified otherwise. Interest rates are on per annum basis. The futures and options given in the questions are on the same underlying; do not make any assumption that cannot be reasonably supported given the information. Net profit calculation for options must include option premium if the option premium is given.

1. A trader has a portfolio worth $5 million that mirrors (follows) the performance of a stock index. The stock index is currently $1,250. Futures contracts trade on the index with one contract having a lot size of 250 shares of index. To remove market risk from the portfolio the trader should
A. Buy 16 contracts
B. Sell 16 contracts
C. Buy 20 contracts
D. Sell 20 contracts

2. You are long on 10 call options with strike price of Rs 100. To completely square off your position you will

A. Short 10 put options with strike price of Rs 100
B. Long 10 put options with strike price of Rs 100
C. Short 10 call options with strike price of Rs 110
D. None of the above

3. A silver mining company has used futures markets to hedge the price it will receive for everything it will produce over the next 5 years. Which of the following is true?
A. It is likely to receive margin call if the price of silver falls dramatically
B. **It is likely to receive margin call if the price of silver rises dramatically**
C. It is liable to experience liquidity problems if the price of silver rises dramatically or falls dramatically
D. The operation of futures markets protects it from receiving any margin call

4. Which of the following is a reason for hedging a portfolio with an index futures?
A. **The investor believes the stocks in the portfolio will perform better than the market but is uncertain about the future performance of the market**
B. The investor believes the stocks in the portfolio will perform better than the market and the market is expected to do well
C. The portfolio is not well diversified and so its return is uncertain
D. All of the above

5. On March 1 the price of a commodity is $1,000 and the December futures price is $1,015. On November 1 the price is $980 and the December futures price is $981. A producer of the commodity entered into a December futures contracts on March 1 to hedge the sale of the commodity on November 1. It closed out (squared-off) its position on November 1 and sold the commodity. What is the effective (or, net) price received by the company for the commodity in this strategy?
A. $1,016
B. $1,001
C. $981
D. $1,014

6. Which of the following is true?
A. When interest rates in the economy increase, all bond prices increase
B. As its coupon rate increases, a bond's price decreases
C. Longer maturity bonds are always worth less that shorter maturity bonds when the coupon rates are the same
D. None of the above

7. Which of the following is true?
A. A long call is the same as a short put
B. A short call is the same as a long put
C. A long call on a stock plus a long stock is the same as a short put
D. None of the above

8. With an increasing strike price, all else remaining constant, which of the following is most likely?

A. Only puts increases in value and calls remain same
B. Only calls increases in value and puts remain same
C. Calls increase in value while puts decrease in value
D. Puts increase in value while calls decrease in value

9. Which of the following best describes the intrinsic value of an option?

A. The value it would have if the owner had to exercise it immediately or not at all
B. The theoretical price of the option
C. The difference between expected exercise price and the current spot price
D. The amount paid for the option

10. Which of the following combination can used to create a resultant position <u>similar</u> to long position in a European put option on a stock?

A. Buy a call option on the stock and buy the stock
B. Buy a call on the stock and short the stock
C. Sell a call option on the stock and buy the stock
D. Sell a call option on the stock and sell the stock

11. When a trader expects significant price movement in the stock on account of either a favourable or unfavourable court ruling, he/she is most likely to

A. Buy a call option on the stock and buy the stock
B. Buy a call option and sell a put option on the stock
C. Buy a call option and buy a put option on the stock
D. Sell a call option and sell a put option on the stock

12. The yield on a coupon bond of with face value *P*, coupon *C* per year, and maturity *T* is equal to:

A. The expected return on the bond
B. The ratio of coupon amount to current price of the bond
C. The market rate of interest
D. The internal rate of return on the coupon bond

13. Which of the following statements is INCORRECT?

A. Derivatives trade in zero net supply markets
B. A derivatives trade is a zero-sum game in the absence of market imperfections like transactions costs
C. Derivatives are powerful financial tools that can be used for speculation as well as hedging
D. Derivatives have a history of always causing significant losses to any trader who trades these contracts
E. Derivatives can help traders to reduce price risk from economic activities

14. An investor has exchange-traded put options to sell 100 shares for \$20. There is a \$1 cash dividend. Which of the following is then the position of the investor?

A. **The investor has put options to sell 100 shares for \$20**
B. The investor has put options to sell 100 shares for \$19
C. The investor has put options to sell 105 shares for \$19
D. The investor has put options to sell 105 shares for \$19.05

15. Which of the following describes a short position in an option?

A. A position in an option lasting less than one month
B. A position in an option lasting less than three months
C. A position in an option lasting less than six months
D. **A position where an option has been sold**

16. Which of the following must provide cash in the margin account?
A. **The seller of an option**
B. The buyer of a put option
C. The seller and the buyer of a call option
D. Neither the seller nor the buyer of an option

17. The price of a stock is $67. A trader sells 5 put option contracts on the stock with a strike price of $70 when the option price is $4. The lot size is 100. What is the trader's net profit or loss if the stock reaches $69 on expiry?
A. Loss of $1,500
B. Loss of $500
C. **Gain of $1,500**
D. Loss of $1,000

18. A trader buys a call and sells a put with the same strike price and maturity date. What is the position equivalent to?
A. A long forward
B. A short forward
C. Buying the asset
D. None of the above

19. The price of a stock is $64. A trader buys 1 put option contract on the stock with a strike price of $60 when the put option price is $10. When does the trader make a net profit?
A. When the stock price is below $60
B. When the stock price is below $64
C. When the stock price is below $54
D. When the stock price is below $50

20. A short forward contract on an asset plus a long position in a European call option on the asset with a strike price equal to the forward price is equivalent to
A. A short position in a call option
B. A short position in a put option
C. A long position in a put option
D. None of the above

21. A company knows it will have to pay a certain amount of a foreign currency to one of its suppliers in the future. Which of the following is true
A. A forward contract can be used to lock in the exchange rate
B. A forward contract will always give a better outcome than an option
C. An option will always give a better outcome than a forward contract
D. An option can be used to lock in the exchange rate

22. A speculator can choose between buying 100 shares of a stock for $40 per share ***or*** *buying 1000 European call options on the stock with a strike price of $45 for $4 per option. For which of the following prices will the trader be indifferent between the given choices with respect to the net profit?*
A. $45

B. $46
C. $55
D. $50

23. The price of a stock on February 1 is $48. A trader sells 200 put options on the stock with a strike price of $40 when the option price is $2. At expiry the stock price is $39. The trader's net profit or loss is

A. Loss of $800
B. Loss of $200
C. Gain of $200
D. Loss of $900

24. Which of the following is NOT true about call and put options:

A. An American option can be exercised at any time during its life
B. A European option can be exercised only on the maturity date
C. Investors must pay an upfront price (the option premium) for buying an option contract
D. The price of a call option increases as the strike price increases

25. An investor sells a futures contract on an asset when the futures price is $1,500. Each contract is on 100 units of the asset. The contract is closed out when the futures price is $1,540. Which of the following is true

A. The investor has made a gain of $4,000
B. The investor has made a loss of $4,000
C. The investor has made a gain of $2,000
D. The investor has made a loss of $2,000

26. A call option on a stock with a strike price of $30 costs $3; a put option on the stock with a strike price of $30 costs $4. Suppose that a trader buys two call options and one put option. The breakeven stock price below which the trader makes a profit is

A. $25
B. $28
C. $26
D. $20

27. Which of the following is NOT true

A. **On NSE, when a call option on ICICI Bank is exercised, ICICI Bank issues more stocks**
B. An American option can be exercised at any time during its life
C. A call option will always be exercised at maturity if the underlying asset price is greater than the strike price
D. A put option will always be exercised at maturity if the strike price is greater than the underlying asset price.

28. A company will buy 1000 units of a certain commodity in one year. It decides to hedge 80% of its exposure using futures contracts. The spot price and the futures price are currently $100 and $90, respectively. The spot price and the futures price in one year turn out to be $112 and $110, respectively. Calculate the net cash paid by the company at the time of buying the commodity? 1 lot size = 1000 units.

A. $92000
B. $96000
C. $94400
D. $106000
E. None of the above

29. Which statement is INCORRECT about futures contracts?
   A. Futures contracts are regulated
   B. **Futures require counterparties to know each other**.
   C. Futures trades require margins.
   D. Performance of futures contracts are guaranteed by the exchange

30. A stock is currently trading at Rs 70. The put and call options on the stock have a strike price of Rs 55. You are most likely to conclude that, all else equal
   A. Call option is likely to be expensive than put option
   B. Put option is in-the-money
   C. Put option is likely to be expensive than call option
   D. Both options are likely to have same prices

31. A stock is currently trading at Rs 90. If there are four put options with a strike price of (a) Rs 83, (b) Rs 87, (c) Rs 90 and (d) Rs 93. You conclude that
   A. Put option premium is highest for (a) and lowest for (d)
   B. Put option premium is highest for (d) and lowest for (a)
   C. Put option premium is highest for (c)
   D. Put option premium for (a) plus (b) will be greater than put option premium for (c) plus (d)

32. Marking-to-market refers to
   A. Adjusting a futures trading account for the day's trading gains and losses
   B. Issuing a bond with a coupon rate equivalent to the market interest rate
   C. Adjusting a forward's price so that the forward contract has zero value
   D. Issuing an option with a strike price the same as the underlying asset's market price

33. Suppose that the July gold futures has increased \$4 by today's close. The holder of a long position in three contracts (contract size = 100 oz.):
   A. Will have her margin account increase by \$400 today
   B. Will have her margin account decrease by \$1,200 today
   C. Will have her margin account increase by \$1,200 today
   D. Nothing will happen now, she will be rewarded in July.

34. Which of the following positions are based on similar anticipation about the market:
   A. Long call and long put with the same strike price
   B. Short call and long put
   C. Short call and short put
   D. Short call and a long call with a higher strike price

35. Consider a put option and a call option with the same strike price and time to maturity. Which of the following is true?
   A. It is possible for both options to be in the money
   B. It is possible for both options to be out of the money
   C. One of the options must be in the money
   D. One of the options must be either in the money or at the money

36. When the stock price increases with all else remaining the same, which of the following is true?
   A. Both calls and puts increase in value
   B. Both calls and puts decrease in value
   C. Calls increase in value while puts decrease in value

D. Puts increase in value while calls decrease in value

37. In financial markets, a coupon refers to:
   A. The detachable part of a stock that entitles the holder to get dividends from the company
   B. The market rate of interest that is used to discount the cash flows from the bond
   C. The discount from the principal amount at which a zero-coupon bond is sold in the market
   D. None of the above

38. The market for short-term securities is commonly referred to as
   A. Primary market
   B. Money market
   C. Secondary market
   D. Capital market

39. The price of a bond and its yield
   A. Share a positive relation
   B. Share an inverse relation
   C. Are not sensitive to market sentiments
   D. None of the above

40. If the discount rate is 5% per annum. The present value of following dollar annual cash flows (starting t=0 to t=3): ($) -105, 7, 9, 106 is closest to:
   A. $-3.78
   B. $0.53
   C. $1.06
   D. $1.40

41. The simple interest rate is 5 percent per year. What is the dollar return after 9 months?
   A. $1.0312
   B. $1.0375
   C. $1.0381
   D. $1.0450

42. Suppose that you bought a stock for $40, received a dividend of $0.50, and sold it for $41 after 91 days. Your annualized arithmetic rate of return equals (assume a non-leap calendar year)
   A. 5.01%
   B. 10.03%
   C. 15.04%
   D. 16.07%

43. Which of the following is true?
   A. When investing in coupon bonds the bond with the highest yield is preferred
   B. The yield measures the expected return on a coupon bond
   C. The yield should not be used as the sole determinate for selecting among bonds for investment purposes
   D. A coupon bond's yield always exceeds the spot rate of interest

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