

Assumptions underlying the Model Test Paper for BCDE

1. Unless otherwise mentioned specifically, assume the following product specifications with respect to index futures :
 - a. The contract multiplier for Sensex futures is 50
 - b. All the derivative contracts will expire on the last Thursday of the month
 - c. The life of one series of Sensex futures contract is three months and at any point of time, we have three series open for trading.
2. Unless otherwise mentioned all figures denoting value are in terms of Rupees only. The abbreviation INR stands for Indian Rupees.
3. The value of securities contributed towards liquid assets are to be considered net of hair-cut.
4. With reference to the positions taken in the market, the “+” symbol is used to denote long positions and the “-“ symbol to denote short positions.
5. For calculating margins on spread positions, a calendar spread will be treated as naked positions in the far month contract 3 trading days before the near month contract expires.

MODEL TEST PAPER FOR BCDE

1. The margining for the derivatives is based on :
 - (a) Profit-at-risk method
 - (b) Volume-at-risk method
 - (c) Value-at-risk method
 - (d) Variable-at-risk method
2. The Black-Scholes model is used for the pricing of:
 - (a) Index futures
 - (b) Options
 - (c) Swaps and debt derivatives
 - (d) Equity shares
3. The base year of the BSE-30 Sensitive index (Sensex) is:
 - (a) 1978-79 = 100
 - (b) 1975-76 = 100
 - (c) 1985-86 = 1000
 - (d) 1972-73 = 100
4. For the derivatives exchange, the trading member's net-worth shall be fixed by
 - (a) SEBI
 - (b) The Stock Exchange
 - (c) SCRA
 - (d) The clearing member
5. On which of the following can you have a futures contract?
 - (a) Share-Index
 - (b) Commodities
 - (c) Currency
 - (d) All of the above
6. If the price of the underlying asset rises sharply after the initiation of a futures contract :
 - (a) the value of a long position in the futures contract becomes positive
 - (b) the value of a long position in the futures contract becomes negative
 - (c) the value of a short position in the futures contract becomes positive
 - (d) None of the above
7. Which of the following items in a futures contract is standardized?
 - (a) Total number of contracts available for sale and purchase
 - (b) Size – the amount of the underlying covered by the contract
 - (c) Price of the underlying asset
 - (d) All of the above
8. Minimum networth for a clearing member of the derivatives clearing corporation/ house shall be:
 - (a) Rs. 1 crore
 - (b) Rs. 2 crore
 - (c) Rs. 5 crore
 - (d) None of the above

9. Beta of less than one means :
- (a) Delta of the option is equal to one
 - (b) The expected percentage change in stock price will be less than the percentage change in the index
 - (c) Sigma will be greater than one
 - (d) None of the above
10. You own 100 shares of ABC at a share price of Rs. 100. The stock has a beta of 2. What should be your hedge?
- (a) Sell index futures of Rs. 10,000
 - (b) Buy index futures of Rs. 10,000
 - (c) Buy index futures of Rs. 20,000
 - (d) Sell index futures of Rs. 20,000
11. To hedge a portfolio of Rs.100,000 with a beta of 2, you have sold index futures worth Rs. 100,000. What will be your approximate gain/loss if the markets went up by 10%?
- (a) Gain of Rs. 10,000
 - (b) Loss of Rs. 10,000
 - (c) Gain of Rs. 20,000
 - (d) No gain no loss
12. If you were holding a stock with a beta of 1.2 for value of Rs. 30,00,000, how many BSE index futures contracts would you sell for the perfect hedge index at 3100?
- (a) 20
 - (b) 25
 - (c) 23
 - (d) 30
13. If you buy a call option on a share with a strike price of Rs.105, market price of Rs. 103, expiry 6 months from now and a premium of Rs.6, how much is the maximum that you may gain on expiry of this position?
- (a) 6
 - (b) 8
 - (c) 2
 - (d) Unlimited
14. If you sell a put option on a share with a strike price of Rs.105, market price of Rs.103, expiry 6 months from now and a premium of Rs.6, how much is the maximum loss that you may incur on expiry of this position?
- (a) 6
 - (b) 105
 - (c) 99
 - (d) 103
15. On BSE, for its index futures what would be the opening day of its March series of index futures contracts :
- (a) First trading day after last Thursday in December
 - (b) First trading day after last Thursday in February
 - (c) First trading day after last Thursday in January
 - (d) First trading day after last Friday in February

16. The amount of initial margin to be collected should be enough to cover the fluctuations on :
- (a) 90% of the days
 - (b) 95% of the days
 - (c) 97% of the days
 - (d) 99% of the days
17. In an index futures contract, if the tick size is 0.1 of an index point and the index multiple is set at 50 then a 'tick' is valued at :
- (a) Rs. 0.1
 - (b) Rs.50
 - (c) Rs.5
 - (d) Rs.500
18. For the initial six months of futures trading, minimum initial margin as prescribed by the J. R. Verma Committee Report was :
- (a) 2.5%
 - (b) 5%
 - (c) 10%
 - (d) 15%
19. If on a stock with a market price of Rs.150, a call option is purchased with a premium of Rs. 16 and a strike price of Rs.150, what is the intrinsic value of the option?
- (a) Zero
 - (b) Rs.16
 - (c) Rs.134
 - (d) Rs.150
20. If on a stock with a market price of Rs.150, a call option is purchased with a premium of Rs.16 and a strike price of Rs.150. What is the time value of the option?
- (a) Zero
 - (b) Rs.6
 - (c) Rs.16
 - (d) Rs.20
21. In terms of which of the following criteria, futures are not an improvement over forwards.
- (a) Credit-risk
 - (b) Liquidity
 - (c) Flexibility
 - (d) Transparency
22. Which of the following is closest to the forward price of a share if cash price is Rs.100, forward contract maturity is 6 months, dividend due is Rs.4, dividend payout date is 3 months from now, and market interest rate is 10% p.a.
- (a) Rs.99
 - (b) Rs.103
 - (c) Rs.101
 - (d) Rs.105

23. According to the SEBI prescribed criteria of networth, the networth of a Clearing Member shall not include :
- (a) Fixed Assets
 - (b) Pledged Securities and value of membership card
 - (c) Unlisted Securities
 - (d) All of the above
24. If you have bought a Sensex future at 3500 and sold it at 3900, what is your payoff on this futures transaction?
- (a) Loss of Rs. 20,000
 - (b) Gain of Rs. 20,000
 - (c) Loss of Rs. 2,000
 - (d) Gain of Rs. 2,000
25. If you are exposed to price-risk in an underlying, hedging helps you to:
- (a) Make the outcome more profitable
 - (b) Make the outcome more certain
 - (c) Make the outcome more compliant with regulations
 - (d) None of the above
26. Over-the-Counter (OTC) option holders have to :
- (a) pay MTM margins daily
 - (b) pay MTM margins weekly
 - (c) pay MTM margins periodically depending on the exchange where they trade
 - (d) do not have to pay MTM margins
27. A clearing member has deposited eligible liquid assets of Rs. 51 Lacs. The exchange has minimum liquid net worth requirement of Rs. 50 Lacs and initial margin rate of 6% (computed based on Price Scan Range). He has not transacted so far. What is the maximum exposure, the Member can take in futures market?
- (a) Rs. 13.67 Lacs
 - (b) Rs. 16.67 Lacs
 - (c) Rs. 19.67 Lacs
 - (d) None of the above
28. An investor had a long open position of 8 contracts a Sensex Futures February series that was marked to market at previous day's closing price at Rs 16,00,000. Today, the closing price of the series is 4,050. How much mark to market margin will the investor have to pay or receive?
- (a) Rs. 20,000
 - (b) Rs. 160,000
 - (c) Rs. 3,200
 - (d) None of the above
29. A member has two clients C1 and C2. C1 has purchased and sold 250 and 350 contracts respectively and C2 has purchased and sold 550 and 350 contracts respectively in a Sensex Future series. What is the outstanding liability (open position) of the member?
- (a) 300
 - (b) 250
 - (c) 350
 - (d) None of the above

30. You bought January Satyam Futures @ Rs 268 and the lot size is 1,200. What is your profit (+) or loss(-) if you sell at Rs 270 ?
- (a) Rs. 3,400
 - (b) Rs. 2,400
 - (c) Rs. 1,400
 - (d) None of the above

SOLUTIONS FOR THE MODEL TEST PAPER FOR BCDE

1. As per the recommendations of Prof. J. R. Varma committee, the Value-at-risk methodology is being used for margin calculations in derivatives.
2. Black - Scholes model is used for the pricing of Options.
3. $1978-79 = 100$
4. The Stock Exchange.
5. All of the above.
6. the value of a long position in the futures contract becomes positive
7. Size – the amount of the underlying covered by the contract
8. The minimum networth for the clearing member is kept as Rs. 3 crores. So the correct answer is none of the above.
9. The expected percentage change in stock price will be less than the percentage change in the index
10. As you have a long position in Cash market worth Rs. 100×100 i.e. Rs. 10,000 with beta of 2, you should sell index futures worth Rs. 20,000 to hedge your portfolio.
11. Long on portfolio worth 100,00 with a beta of 2 and short on the Sensex futures worth Rs. 100,000.

When markets move up 10%, the portfolio gains 20% i.e. Rs. 20,000, whereas the Sensex futures register a loss of 10% i.e. Rs. 10,000. Hence the net gain is Rs. 10,000.

12. Value of portfolio $\times$ Beta = Sensex value $\times$ multiple $\times$ no. of futures to be purchased
Applying this formula, we have $30 \text{ Lacs} \times 1.2 = 3100 \times 50 \times n$
The value of n works out to be approx. = 23.23
13. As a buyer of the call option, you profit potential is unlimited.
14. The seller of an option receives a premium for the option sold. He does not enjoy right of performance and is under an obligation to perform.

Strike/Exercise price of the put option = Rs. 105

Market price of the share = Rs. 103

Premium received = Rs.6

Maturity/time to expiry = 6 months

The writer of a put option starts losing money when the underlying asset price starts falling. The maximum that the price can fall is till a level that stock price = 0. But considering the fact that the premium has already been received by the option writer, his maximum loss can be calculated as: $105 - 6 = \text{Rs. } 99$

15. First trading day after last Thursday in December

16. As per the recommendations of Prof. J. R. Varma committee, the amount of initial margin to be collected should be enough to cover the fluctuations on 99% of the days.
17. The tick value = tick size x index multiple
= $0.1 \times 50 = \text{Rs. } 5$
18. 5%
19. As the strike price and the market price are Rs. 150 each, the intrinsic value will be zero.
20. As the strike price and the market price are Rs. 150 each, the intrinsic value will be zero. So, the total value of the premium will be only the time value. Thus, the time value in this case will be Rs. 16.
21. The flexibility is missing in futures because of standardized nature of the contracts.
22. Cash price of the share = Rs. 100
Maturity of forward contract = 6 months
Dividend due = Rs. 4 and is due three months from now
Interest rate = 10%
The forward price of this share is calculated as follows:
- $$100 + (100 \times 0.10 \times 0.5) - 4 + (4 \times 10 \times 0.25) = \text{Rs. } 100.9$$
- That is very close to the alternative Rs. 101.
23. All of the above
24. The gain/loss would be (Sell price – Buy Price) x Contract Multiple
So, the gain would be = $(3900 - 3500) \times 50$
= Rs. 20,000
25. Make the outcome more certain.
26. OTC options are not the exchange traded products and the parties do not have to pay MTM margins
27. Margin available = $51 - 50 = \text{Rs } 1 \text{ Lakh}$. Margin rate is 6%. Accordingly, total exposure of $1,00,000/6\% = \text{Rs } 16.67 \text{ Lacs}$ is available.
28. As yesterday's closing price must have been $\text{Rs. } 16,00,000/(8 \times \text{Rs. } 50) = 4000$. Today's price is 4,050. Hence the difference of 50 index points on 8 contracts of 50 units each makes the MTM margin = $\text{Rs. } 50 \times 50 \times 8 = \text{Rs. } 20,000$.
29. Client C1 : Net 100 Positions
Client C2 : Net 200 Positions
Total : 300 Positions
30. The gain/loss would be (Sell price – Buy Price) x Contract Multiple
So, the gain would be = $(270 - 268) \times 1200$
= Rs. 2,400