# NATIONAL INSTITUTE OF SECURITIES MARKETS

# SCHOOL FOR SECURITIES EDUCATION

# **EQUITY DERIVATIVES**

Frequently Asked Questions (FAQs)

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# I. INTRODUCTION TO DERIVATIVES

#### 1. What are Derivatives?

**Ans.** A Derivative is a financial instrument whose value is derived from the value of an underlying asset. The underlying asset can be equity shares or index, precious metals, commodities, currencies, interest rates etc. A derivative instrument does not have any independent value. Its value is always dependent on the underlying assets. Derivatives can be used either to minimize risk (hedging) or assume risk with the expectation of some positive pay-off or reward (speculation).

#### 2. What are some common types of Derivatives?

Ans. The following are some common types of derivatives:

- a) Forwards
- b) Futures
- c) Options
- d) Swaps

# 3. What is Forward?

A forward is a contractual agreement between two parties to buy/sell an underlying asset at a future date for a particular price that is pre-decided on the date of contract. Both the contracting parties are committed and are obliged to honour the transaction irrespective of price of the underlying asset at the time of delivery. Since forwards are negotiated between two parties, the terms and conditions of contracts are customized. Forwards contracts are negotiated bilaterally between two parties in Over the counter (OTC) markets and are not traded on the Stock Exchange.

# 4. What are Futures?

A futures contract is similar to a forward, except that the deal is made through an organized and regulated stock exchange rather than being negotiated directly between two parties.

Forwards and Futures contracts are discussed in detail in Part II of the document

#### 5. What are Options?

An Option is a contract that gives the right, but not an obligation, to buy or sell the underlying on or before a stated date and at a stated price. While buyer of option pays the premium and buys the right so write off the contract at any time whereas the writer/seller of option receives the premium with an obligation to sell/ buy the underlying asset, if the buyer exercises his right.

#### 6. What are the types of Options?

There are two types of Options, Call Options and Put Options

A call option gives, the holder, the right to buy a specified quantity of the underlying asset at the strike price on a predetermined date.

A put option, on the other hand, gives, the holder, the right to buy a specified quantity of the underlying asset at the strike price on a predetermined date.

Options are discussed in detail in Part III of the document

#### 7. What are various underlying asset classes on which Derivatives contracts exist?

**Ans.** The following are some popular underlying asset classes on which Derivatives contracts exist:

- Equity
- Commodities
- Interest rates
- Currencies

# **Popular Derivatives Contracts**



#### 8. What are major segments on which Derivatives are traded?

Ans.

- i) Exchange Traded Markets Exchange-traded Market is platform where the contracts are standardized, traded on organized exchanges with prices determined by the interaction of buyers and sellers through anonymous auction platform. A clearing corporation, guarantees contract performance (settlement of transactions).
- ii) **Over the Counter (OTC markets) -** Over the Counter (OTC) derivative contracts are signed between the two parties without going through the platform of a stock exchange or any other intermediary. OTC is the term used to refer stocks that trade through a separate dealer. These are well known as unlisted stocks where the securities are traded by broker-dealers through over the counter negotiations.



#### 9. What is the history of evolution of Global Derivatives markets?

#### 10. How big the Derivatives markets are globally?

The global financial derivatives markets are estimated to be over 4,500 trillion U.S. dollars, for the year 2019, based on the yearly turnover on notional value basis. (*Source: Bank of International Settlements and World Federation of Exchanges*).

Annexure 1 of the document contains key statistics with regard to the size and growth of global financial derivatives markets.

# 11. How big are Equity Derivatives markets in India?

**Ans.** The total turnover in exchange traded equity derivatives markets stand at over Rs. 3,400 lakh crores, on the basis of Notional Value of the contracts, for the F.Y. 2019-20. (*Source: SEBI Annual Report*).

Annexure 2 of the document contains key statistics with regard to the size and growth of Indian equity derivatives markets.

# 12. How have the Equity Derivatives grown in India over last 15 years? Between year x and year Y

**Ans.** Over the last 15 years, the total turnover in exchange traded equity derivatives markets has grown exponentially at a CAGR of 33% from Rs. 48 lakh crores in F.Y. 2005-06 to Rs. 3,450 lakh crores in F.Y. 2019-20.

Annexure 2 of the document contains key statistics with regard to the trend of Indian equity derivatives markets.

# 13. How does the size of Exchange traded Equity Derivatives compare with the size in the Equity Cash market? How has it changed over past few years?

**Ans.** For F.Y. 2019-20, the yearly turnover on exchanges in equity derivatives markets (based on notional value) is approximately 35 times the yearly turnover in equity cash markets. The trend has been more or less same for last few years. The equity derivatives market and equity cash market has grown with a CAGR growth of 39.24% and 19.42% respectively since F.Y. 2013-14 till F.Y. 2019-20. The data with regard to same is captured in Annexure 2 of the document.

#### 14. What is the significance and impact of Derivatives markets?

**Ans.** Like other segments of Financial Market, Derivatives Market serves following specific functions:

- Derivatives market helps in improving price discovery of the underlying based on actual valuations and expectations.
- Derivatives market helps in transfer of various risks from those who are exposed to risk but have low risk appetite to participants with high risk appetite. For example, hedgers want to give away the price risk of the underlying where as traders are willing to take this risk.
- Derivatives market helps shift of speculative trades from unorganized market to organized market. Risk management mechanism and surveillance of activities of various participants in organized space provide stability to the financial system.

# 15. What are the factors contributing to growth of Derivatives markets globally?

**Ans.** Over the last four decades, financial derivatives markets have seen a phenomenal growth. Many new derivative products and contracts have been launched at exchanges across the world. Some of the factors driving the growth of financial derivatives are:

- Increased fluctuations in underlying asset prices in financial markets.
- Integration of financial markets globally.
- Use of latest technology in communications has helped in reduction of transaction costs.

- Enhanced understanding of market participants on sophisticated risk management tools to manage risk.
- Frequent innovations in derivatives market and newer applications of products.

# 16. What are some major contributors in growth of Derivatives markets in last 5 decades?

**Ans.** Besides other developments in global economy and financial markets, the following are some of the major events and developments which lead to immense growth of Derivatives markets:

# • End of Bretton woods System

In August 1971, U.S. President Richard Nixon announced the "temporary" suspension of the dollar's convertibility into gold. While the dollar had struggled throughout most of the 1960s within the parity established at Bretton Woods, this crisis marked the breakdown of the system. Since the collapse of the Bretton Woods system, IMF members have been free to choose any form of exchange arrangement they wish (except pegging their currency to gold): allowing the currency to float freely, pegging it to another currency or a basket of currencies, adopting the currency of another country, participating in a currency bloc, or forming part of a monetary union. (*Source : IMF Website*)

# • Free flow of Capital

As countries has opened up their economies for the global players to enter the market. This move has increased the flow of capital in the derivatives market significantly.

# • Advent of Technology

The advent of technology has helped in minimizing the footfall on the physical exchange platform and increase in participation through virtual platforms in order

to reach the mass potential market players with an ease. It not only helps in reduces time and cost for everyone but also helps in better price discovery of the financial derivatives.

#### • Introduction of new products

Introduction of products in the derivatives market have played a major role in development of global derivatives market as people get more opportunities to participate in the derivatives market. Products like Swaps & Swaptions, Index Derivatives, Credit Derivatives and other complex derivative products are some of the key introductions to the global derivatives market.



# **II. FUTURES & FORWARDS**

### 17. What are forward contracts?

**Ans.** A forward contract is a customized contract between two parties to buy or sell an asset at a specified price on a future date. A forward contract can be used for hedging or speculation, although its non-standardized nature makes it particularly apt for hedging. Now, let us take an example to furthermore explain this:

Suppose you are a farmer and you want to sell wheat at the current rate of Rs.18 per kg, but you know that wheat prices will fall in the coming months ahead.

In this case, you enter a contract with a grocery for selling them a particular amount of wheat at Rs.18 in three months. By entering into the said contract, you are able to eliminate the uncertainties of your revenues on account of prices of wheat in futures.

Now, if the price of wheat falls to Rs.16 after three months, then you are protected from the potential losses since you will still be able to sell the wheat at the agreed price of Rs. 18 per kg. However, on the other hand, if the price of wheat rises to Rs. 20 after three months, then you will be devoid of the potential profits because you will still sell the wheat at the agreed price of Rs. 18 per kg as per the forward contract.

# 18. Why is forward contracting important?

**Ans.** Forward contracting is very valuable in hedging and speculation. If a speculator has information or analysis which forecasts an upturn in a price, then he can go long on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to rise, and then take a reversing transaction making a profit.

#### 19. What are futures contracts?

**Ans.** A futures contract is an agreement to either buy or sell an asset on a publicly-traded exchange. The contract specifies when the seller will deliver the asset, and what the price will be. The underlying asset of a futures contract is commonly either a commodity, stock, bond, or currency.

Futures markets are exactly like forward markets in terms of basic economics. However, contracts are standardized and trading is centralized (on a stock exchange). There is no counterparty In futures markets, unlike in forward markets, increasing the time to expiration does not increase the counter party risk. Futures markets are highly liquid as compared to the forward markets.

# 20. What are standardized contracts?

**Ans.** Futures contracts are standardized. In other words, the parties to the contracts do not decide the terms of futures contracts; but they merely accept terms of contracts standardized by the exchange.

#### 21. What are customized contracts?

**Ans.** Forward contracts (other than a futures) are customized. In other words, the terms of forward contracts are individually agreed between two counter-parties.

BASIS FOR COMPARISON	FORWARD CONTRACT	FUTURES CONTRACT
Meaning	Forward Contract is an agreement between parties to buy and sell the underlying asset at a specified date and agreed rate in future.	A contract in which the parties agree to exchange the asset for cash at a fixed price and at a future specified date, is known as future contract.
What is it?	It is a tailor made contract.	It is a standardized contract.
Traded on	Over the counter, i.e. there is no secondary market.	Organized stock exchange.
Settlement	On maturity date.	On a daily basis.
Risk	High	Low

# 22. What are the key differences between forwards and futures?

BASIS FOR COMPARISON	FORWARD CONTRACT	FUTURES CONTRACT	
Default	As they are private agreement, the chances of default are relatively high.	No such probability.	
Size of contract	Depends on the contract terms.	Fixed	
Collateral	Not required	Initial margin required.	
Maturity	As per the terms of contract.	Predetermined date	
Regulation	Self-regulated	By stock exchange	
Liquidity	Low	High	

# 23. What are the major specifications of a futures contract?

Ans.

# **Expiration**

Expiration (also known as maturity or expiry date) refers to the last trading day of the futures contract. After the expiry of a futures contract, final settlement and delivery is made according to the rules laid down by the exchange in the contract specifications document.

# **Contract Size**

Contract size, or lot size, is the minimum tradable size of a contract. It is often one unit of the defined contract.

# Initial Margin

Initial margin is the minimum collateral required by the exchange before a trader is allowed to take a position. Initial margins can be paid in various forms as laid down by the exchange and varies from assets to assets as well as from time to time. The level of initial margin is dependent on the price volatility of the contract. More volatile commodities generally have higher margin requirements.

### **Price Quotation**

Price Quotation is the units in which the traded price of a contract is displayed. It can be different from the trading size of a contract and is often based on industry practices and conventions.

# Tick Value

Tick Value refers to the minimum profit or loss that can arise from holding a position of one contract. Tick value depends on the size of the contract and its tick size. While it is often explicitly mentioned in contract specifications, it can be calculated by the formula:

# Tick Value = Contract Size x Tick Size

# Mark to Market

Mark to market refers to the process by which the exchange calculates and values all open positions according to pre-defined rules and regulations. Mark-to-market is an essential feature of exchange-traded futures contracts whereby the exchange ensures that all profit and losses are recognized by pricing them according to accurate market conditions. It is also an important feature for the risk management of positions of participants.

# **Delivery Date**

Delivery date or delivery period refers to the time specified by the exchange during or by which the seller has to make delivery according to contract specifications and regulations. Delivery date is often later than expiry date of a contract, especially in case of physically delivered commodities.

#### **Daily Settlement**

Daily settlement refers to the process whereby the exchange debits and credits all accounts with daily profits and losses as calculated by the mark-to-market process.

Daily settlement is necessary in order to recover losses and pay profits to respective accounts.

# 24. What are the limitations of forward contracts?

Ans. Forward markets worldwide are afflicted by several problems:

- (a) Lack of centralisation of trading,
- (b) Illiquidity, and
- (c) Counterparty risk.

# 25. What are the limitations of futures contracts?

Ans.

- Some investment strategies can lead to high risks due to the leverage provided by future contracts
- It usually follows set standards for defined amounts and terms giving less flexibility options in investing
- Only partial hedging is facilitated by future contracts
- The consequence of low commission charges can be over-trading by traders

# 26. Which are the two positions one can take in a futures contract?

Ans. One can take Long and Short positions in futures contract.

Having a "long" position in a security means that you intend to buy the security in future. Investors maintain "long" security positions in the expectation that the stock will rise in value in the future. The opposite of a "long" position is a "short" position.

A "short" position means that you intend to sell the security in future. Investors maintain short position in an expectation that the price of the stock will decrease in value in future.

# 27. What are the payoffs and profits for a long futures holder?

**Ans.** A payoff is the likely profit loss that would accrue to a market participant with change in the price of the underlying asset. Futures contracts have linear payoffs. In simple words, it means that the losses as well as profits, for the buyer and the seller of futures contracts, are unlimited. Further, the profits of one party is exactly equivalent to the losses of the other party.

The payoff for a person who buys a futures contract is similar to the payoff for a person who holds an asset. He has a potentially unlimited upside as well as a potentially unlimited downside.

Take the case of a speculator who buys a two-month Nifty index futures contract when the Nifty stands at 11600.

The underlying asset in this case is the Nifty portfolio. When the index moves up, the long futures position starts making profits, and when the index moves down it starts making losses.



Chart 2.1

The figure above shows the profits/losses for a long futures position. The investor bought futures when the index was at 11600. If the index goes up, his futures position starts making profit. If the index falls, his futures position starts showing losses.

#### 28. What are the payoffs and profits for a short futures holder?

**Ans.** The payoff for a person who sells a futures contract is similar to the payoff for a person who shorts an asset. He has a potentially unlimited upside as well as a potentially unlimited downside. Take the case of a speculator who sells a two-month nifty index futures contract when the nifty stands at 11600. The underlying asset in this case is the nifty portfolio. When the index moves down, the short futures position starts making profits, and when the index moves up, it starts making losses.





The figure shows the profits/losses for a short futures position. The investor sold futures when the index was at 11600. If the index goes down, his futures position starts making profit. If the index rises, his futures position starts showing losses.

# 29. Which stocks are eligible for futures trading? Why is the stock list restricted to specific scrips only?

**Ans.** At present, we have enabled selected stocks for trading in the futures segment. Only those stocks, which meet the criteria on liquidity and volume, and which are proposed by Stock Exchanges and approved by SEBI based on such criteria, are made available for trading in derivatives segment.

# **30.** What are the benefits of trading in index futures compared to any other security?

**Ans.** Investor can trade the 'entire stock market' by buying index futures instead of buying individual securities with the efficiency of a 'risk diversification'. The advantages of trading in Index Futures are:

- The contracts are highly liquid
- Index Futures provide higher leverage than any other stocks
- It has lower risk than buying and holding stocks
- It is just as easy to trade the short side as the long side
- Only have to study one index instead of 100s of stocks
- Indices, as underlying, are relatively less volatile than single stocks.

• Also, Indices, in some cases, can be used to hedge for a portfolio exposure, provided the portfolio has good correlation with the Index

#### **31.** What determines the fair price of a futures contract?

**Ans.** The pricing of a futures contract depends upon the underlying's price, the cost of carry, and expected dividends. For simplicity, suppose no dividends are expected, Nifty is at 10,000 and the one-month interest rate is 1%. Then the fair price of an index futures contract that expires in a month is 10,100.

#### 32. What is a contract cycle? What is bull spread (futures)?

**Ans.** In most commodities and financial derivatives market, the term refers to buying contracts maturing in nearby month, and selling the deferred month contracts, to profit from the wide spread which is larger than the cost of carry.

#### 33. What is bear spread (futures)?

**Ans.** In most of commodities and financial derivatives market, the term refers to selling the nearby contract month, and buying the distant contract, to profit from saving in the cost of carry.

#### 34. What is 'Contango'?

**Ans.** Contango means a situation, where futures contract prices are higher than the spot price and the futures contracts maturing earlier.

In the chart below, the spot price is lower than the futures price which has generated an upward sloping forward curve. This market is in contango - the futures contracts are trading at a premium to the spot price. Futures contracts may be in a contango because of fundamental factors like storage, financing (cost to carry) and insurance costs.



Chart 2.3

Source: CME Group

# 35. What is 'Backwardation'?

**Ans.** Backwardation means a situation, where futures contract prices are lower than the spot price and the futures contracts maturing earlier.

In the chart below, the spot price is higher than future prices and has generated a downward sloping forward, or inverted, curve which is in backwardation.

Chart 2.4



Source: CME Group

#### 36. What is Basis?

**Ans.** It is normally calculated as cash price minus the futures price. A positive number indicates a futures discount (Backwardation) and a negative number, a futures premium (Contango). Unless otherwise specified, the price of the nearby futures contract month is generally used to calculate the basis.

For example, when Nifty futures trades at 12,120 and the spot Nifty is at 12,000, "the basis" is said to be 100 points or 1%.

# **37. What is Cash settlement?**

**Ans.** It is a process for performing a futures contract by payment of money difference rather than by delivering the physical commodity or instrument representing such physical commodity

# 38. What is Offset?

**Ans.** It refers to the liquidation of a futures contract by entering into opposite (purchase or sale, as the case may be) of an identical contract.

#### **39.** What is settlement price?

**Ans.** The settlement price is the price at which all the outstanding trades are settled, i.e, profits or losses, if any, are paid. Normally it is a weighted average of prices of transactions both in spot and futures market during specified period.

#### 40. What is convergence?

**Ans.** This refers to the tendency of difference between spot and futures contract to decline continuously, so as to become zero on the date on maturity.

#### 41. Do futures price converge to the spot prices closer to the date of expiry? Why?

**Ans.** As the futures get closer to expiry, the prices will naturally converge. This is because the futures price is in effect a price in the future (the price at expiry) that takes into account the cost of carry. If this premium or discount gets out of equilibrium the forces of supply and demand will react.

For example if a physical commodity is way above the futures price, this will bring in arbitragers, speculators and hedgers who will buy the "cheap" futures contract, rather than the physical commodity; this will create demand for the futures contract pushing the price up towards the physical. In addition the high price of the physical will be under pressure due to the fact that users can buy the "cheaper" futures. Less demand for the physical means the price comes down again pushing the markets towards convergence or prior to expiry a form of "balance".

# **III. OPTIONS**

#### 42. What are Call Options?

**Ans.** A call option gives the holder (buyer/ one who is long call), the right to buy a specified quantity of the underlying asset at the strike price on the expiration date. The seller (one who is short call) however, has the obligation to sell the underlying asset if the buyer of the call option decides to exercise his option to buy.

Example: An investor buys One European call option on Stock "A" at the strike price of Rs. 3500 at a premium of Rs. 100. If the market price of Stock "A" on the day of expiry is more than Rs. 3500, the option will be exercised. The investor will earn profits once the share price crosses Rs. 3600 (Strike Price + Premium i.e. 3500+100). Suppose stock price is Rs. 3800, the option will be exercised and the investor will buy 1 share of Stock "A" from the seller of the option at Rs 3500 and sell it in the market at Rs 3800 making a profit of Rs. 200 {(Spot price - Strike price) - Premium}.

In another scenario, if at the time of expiry stock price falls below Rs. 3500 say suppose it touches Rs. 3000, the buyer of the call option will choose not to exercise his option. In this case the investor loses the premium (Rs 100), paid which shall be the profit earned by the seller of the call option.

# 43. What are Put Options?

**Ans.** A Put option gives the holder (buyer/ one who is long put), the right to sell a specified quantity of the underlying asset at the strike price on or the expiry date. The seller of the put option (one who is short put) however, has the obligation to buy the underlying asset at the strike price if the buyer decides to exercise his option to sell.

Exa-mple: An investor buys one European Put option on Stock 'B' at the strike price of Rs. 300, at a premium of Rs. 25. If the market price of Stock 'B', on the day of expiry is less than Rs. 300, the option can be exercised as it is 'in the money'. The investor's Break-even point is Rs. 275 (Strike Price - premium paid) i.e., the investor will earn profits if the market

falls below 275. Suppose stock price is Rs. 260, the buyer of the Put option immediately buys Stock 'B' from the market @ Rs. 260 & exercises his option selling the Stock 'B' at Rs 300 to the option writer thus making a net profit of Rs. 15 {(Strike price - Spot Price) - Premium paid}.

In another scenario, if at the time of expiry, market price of Stock 'B' is Rs 320; the buyer of the Put option will choose not to exercise his option to sell as he can sell in the market at a higher rate. In this case the investor loses the premium paid (i.e. Rs 25), which shall be the profit earned by the seller of the Put option.

#### 44. What is option premium?

**Ans**. Option Premium is the price paid by the buyer to the seller to acquire the right to buy or sell. The Option Premium paid is the maximum loss a Buyer can ever make and represents the maximum profit the Seller can ever make. In simpler terms, the price of options contract is known as Option Premium.

#### 45. What is strike price?

**Ans.** The strike or exercise price of an option is the specified/ predetermined price of the underlying asset at which the same can be bought or sold if the option buyer exercises his right to buy/ sell on or before the expiration day.

Suppose you buy a call of Nifty at the strike of Rs. 12,500 at a premium of Rs. 50. Nifty is currently trading at 12,300. You believe that the Nifty will cross 12,500 before expiry. So at the point when it crosses 12500, you will exercise your right. Also, since you have paid a premium of Rs. 50 for buying the call, you start making profits when Nifty crosses 12,550 (12,500 + 50).

#### 46. What is an expiration date?

**Ans.** The date on which the option expires is known as the Expiration Date. On the Expiration date, either the option is exercised or it expires worthless.

#### 47. What is the exercise date?

**Ans.** The date on which the option is actually exercised is called the Exercise Date. In case of European Options, the exercise date is the same as the expiration date while in case of American Options, the options contract may be exercised any day between the purchase of the contract and its expiration date (see European/ American Option)

#### 48. What is Open Interest?

**Ans.** Open Interest is the total number of derivatives (futures & options) contracts outstanding in the market at any given point of time. It is the total number of F&O contracts that are not closed or delivered on a particular day.

#### 49. How open interest is different from the traded volumes?

**Ans.** Open Interests is not the same as the traded volumes. Volumes are the quantity traded for a specific period and gives us an idea about the activity for that given period. Open interests are outstanding positions and hence tells us about the level of interest in a particular counter. Open interests tells us about the depth in the market.

#### 50. What do you mean by an option holder or buyer?

**Ans.** Option Holder: is the one who buys an option, which can be a call, or a put option. He enjoys the right to buy or sell the underlying asset at a specified price on or before specified time. His upside potential is unlimited while losses are limited to the premium paid by him to the option writer.

#### 51. What do you mean by option writer or seller?

**Ans.** Option seller/ writer: is the one who is obligated to buy (in case of put option) or to sell (in case of call option), the underlying asset in case the buyer of the option decides to exercise his option. His profits are limited to the premium received from the buyer while his downside is unlimited.

#### **52.** What is an American Option?

**Ans.** An American Option is an option contract that can be exercised i.e. bought or sold at any time until the expiry date.

# 53. What is a European Option?

Ans. A European option is an option contract that can only be exercised on its expiry date.

# 54. How are options different from futures?

Ans. The significant differences in Futures and Options are as under:

- Futures are agreements/contracts to buy or sell a specified quantity of the underlying assets at a price agreed upon by the buyer and seller, on or before a specified time. Both the buyer and seller are obligated to buy/sell the underlying asset.
- In case of options the buyer enjoys the right & not the obligation, to buy or sell the underlying asset.
- Futures Contracts have a symmetric risk profile for both the buyer as well as the seller, whereas options have an asymmetric risk profile. In case of Options, for a buyer (or holder of the option), the downside is limited to the premium (option price) he has paid while the profits may be unlimited. For a seller or writer of an option, however, the downside is unlimited while profits are limited to the premium he has received from the buyer.

• The Futures contracts prices are affected mainly by the prices of the underlying asset. The prices of options are however; affected by prices of the underlying asset, time remaining for expiry of the contract, interest rate & volatility of the underlying asset.

# 55. Explain "In the Money", "At the Money" & "Out of the money" Options?

**Ans.** An option is said to be "at-the-money", when the option's strike price is equal to the underlying asset price. This is true for both puts and calls.

A call option is said to be "in the money" when the strike price of the option is less than the underlying asset price. For example, a Stock A" call option with a strike of 3900 is "in-the-money", when the spot price of Stock "A" is at 4100 as the call option has a positive exercise value. The call option holder has the right to buy the Stock "A" at 3900, no matter by what amount the spot price exceeded the strike price. With the spot price at 4100, selling Stock "A" at this higher price, one can make a profit.

On the other hand, a call option is out-of-the-money when the strike price is greater than the underlying asset price.

	CALL OPTIONS)	PUT OPTIONS
In-the- money	Strike Price< Spot Price	Strike Price > Spot Price
At-the- money	Strike Price = Spot Price	Strike Price = Spot Price
Out-the- money	Strike Price > Spot Price	Strike Price< Spot Price

# 56. What happens if an option expires out of the money?

Ans. There can be two scenarios:

- When Call Option expires out of the money
- When Put Option expires out of the money

When a Call Option expires out of the money: A call option is said to be Out of the Money (OTM) if the strike price is higher than the current market price of the underlying instrument. In such a case, the buyer loses the premium paid to buy the contract and the seller earns the profit.

When a Put Option expires out of the money: A put option is said to be Out of the Money (OTM) if the strike price is lesser than the current market price of the underlying security. In such a case, the buyer loses the premium paid to buy the contract and the seller earns the profit.

# 57. Is there any Margin payable in Options?

**Ans.** When you buy an Options contract, you don't need to pay a margin as your loss is limited. You need to pay a premium amount. Your loss will be limited to the value of premium.

When you sell an Options contract, you need to pay a margin requirement as there is a chance of unlimited loss and limited profit. So you need to maintain the margin amount as decided by the exchange.

Suppose stocks of ABC company is currently trading at ₹48. You expect the price to go downwards and so decide to sell a Call Option at strike price 50. The premium for the contract is ₹3 and lot size is 100 shares. For selling the Call option, you will receive a premium of 100 \* 3 = ₹300

Now let's discuss the possible scenarios:

(a) When stock price remains unchanged at ₹48. The Options expires worthless and you keep the premium received. The premium of ₹300 is your profit.

(b) When the stock price goes down to ₹38. The Options expires worthless and you keep the premium received. The premium of ₹300 is your profit.

(c)When the stock price, against expectations, goes up to ₹58, the Call contract would be exercised by the buyer and you have to pay ₹58-₹50=₹8\*100= ₹800. Taking into account ₹300 you received as premium, your loss would be ₹500.

(d) When the stock price, against expectations, goes up to ₹68. The Call contract would be exercised by the buyer and you have to pay ₹68-₹50=₹18\*100= ₹1800. Taking into account ₹300 you received as premium, your loss would be ₹1500.

So, Option sellers have a potential for unlimited loss and to cover this loss, they are asked to deposit margins.

#### 58. How are the Options contracts settled?

**Ans.** All Options contracts on indices are settled in cash on the expiration date. Whereas for single stock contracts, the option contracts are settled via delivery.

#### 59. What is the difference between square off and exercise an Option?

Ans. When you take exactly the opposite of your existing position, it is called squaring off.

Let's say, your existing position is BUY Call Option on Nifty. Now if you SELL back the same Call Option on Nifty with the same strike price, lot size and expiry then you're squaring off your position.

You exercise an Option, when you want to take delivery of the underlying stocks, commodities or currency of the Option.

#### 60. Do Option buyers have the same rights as stock buyers?

Ans. If you are owning equities of a company then you have following rights-

- You're a part owner of the company
- You have right to receive dividend
- You have voting right in the company
- You have right to capital

Option buyers have no such right on the company. Their right is limited to the Option contract with the right to obligate the contract or not. In other words, options will help gaining benefit equal to difference in the price of underlying where as in the case of stock, one will own the stock, and will get additional benefits as well related to voting, dividends, etc.

#### 61. What is the contract cycle for Options in India?

Ans. Options in India, except for long-dated contracts, have a maximum of the 3-month trading cycle - 1 month, 2 months and 3 months.

New option contracts are introduced on the next trading day of the expiration of the monthly contracts. The expiration day is the last trading Thursday of the month. So, at any time, buyers have the option to choose from 3 contracts with different expiry dates.

For example, on May 14, 2018, there would be 3 Option contracts i.e. Contracts expiring on May 31, June 28 and July 26. On June 1st, new contracts with the expiry of August 30 would be available for trading.

# 62. What are Covered and Naked Calls?

**Ans.** A call option position that is covered by an opposite position in the underlying instrument (for example shares, commodities etc.), is called a covered call. Writing covered calls involves writing call options when the shares that might have to be delivered (if the option holder exercises his right to buy), are already owned. For example, a writer writes a call on SBI and at the same time holds shares of SBI so that if the call is exercised by the buyer, he can deliver the stock.

Covered calls are far less risky than naked calls (where there is no opposite position in the underlying), since the worst that can happen is that the investor is required to sell shares already owned at below their market value. When a physical delivery uncovered/ naked call is assigned on exercise, the writer will have to purchase the underlying asset to meet his call obligation and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

# 63. What is the "Underlying asset"?

**Ans**. The Underlying asset is whichever asset the Option contract is deriving its value from. E.g. Stock, Commodity, Index, Currency.

# 64. How Volatility affects the Options?

**Ans.** Volatility is the most vital of all option trading concepts. Volatility provide traders with an estimate of how much change a stock can be expected to make over a given time period. This is critical in determining whether an option is likely to expire " in the money" or "out of the money" by the expiration date.

There are two types of volatility to be considered: Implied Volatility and Historical Volatility.



Historical Volatility is a statistical calculation that tells option traders how quick price movements have been over a given time period. The most common method of calculating historical volatility is called the Standard Deviation.

Implied volatility is the expected volatility in the future. To determine an option's implied volatility, the trader must use a pricing model. Historical Volatility tells us how volatile an asset has been in the past. Implied Volatility is the market's view on how volatile an asset will be in the future.

# 65. What can be the possible risks and rewards in various positions in options?

The below table shows how the Payoff of buying or selling the Call/Put options look like.

Options	Action	Outlook	Risk	Reward	Premium	Exercise
Call Option	Buy	Bullish	Limited	Unlimited	Pays	Right
	Sell	Bearish	Unlimited	Limited	Receives	Obligation
Put Options	Buy	Bearish	Limited	Unlimited	Pays	Right
	Sell	Bullish	Unlimited	Limited	Receives	Obligation

# **IV. OPTION PROPERTIES**

#### 66. What is the Intrinsic Value of an option?

**Ans.** The intrinsic value of an option is defined as the amount, by which an option is inthe-money, or the immediate exercise value of the option when the underlying position is marked-to-market.

For a call option: Intrinsic Value = Spot Price - Strike Price

For a put option: Intrinsic Value = Strike Price - Spot Price

The intrinsic value of an option must be a positive number or 0. It cannot be negative. For a call option, the strike price must be less than the price of the underlying asset for the call to have an intrinsic value greater than 0. For a put option, the strike price must be greater than the underlying asset price for it to have intrinsic value.

#### 67. Why The Intrinsic Value Of Options Contracts Can Never Be Negative?

**Ans.** Intrinsic value can never be negative. It is positive when the option is in the money (ITM) and it is zero when the option is out of the money (OTM). It cannot be lower than zero. It is because options contracts give traders a choice to exercise or not exercise the contract. A trader will only exercise the option or the choice when it is profitable to him. If he is in a loss he would allow the options to expire worthlessly and lose the premium paid for buying the option. He won't be losing any more money than the premium paid at the time of buying the contract.

Let's take an example to understand it better. Let's say you buy a call option of ABC stock with a strike price of  $\gtrless$  200. You paid  $\gtrless$  10 per share as the premium for the option. The ABC stock is currently trading at  $\gtrless$ 195, but you expect it to go up. It must go above  $\gtrless$  200 to be profitable.

Now, say at the end of the month, it doesn't go up and is at  $\gtrless$  196. Will any trader exercise it? No, because who would pay  $\gtrless$  200 for a stock which is available at  $\gtrless$  196? The trader will exercise his option or choice to not exercise the contract and will allow the option to expire worthlessly.

Yes, he will lose the premium of  $\gtrless$  10 paid and so one can say that his trade is negative but the intrinsic value of the options never goes below zero.

#### 68. Explain Time Value with reference to Options?

**Ans.** Time value is the amount option buyers are willing to pay for the possibility that the option may become profitable prior to expiration due to favourable change in the price of the underlying. An option loses its time value as its expiration date nears. At expiration an option is worth only its intrinsic value. Time value cannot be negative.

All Options at Out of the Money (OTM) and At the Money (ATM) have time value. Time Value = Premium - Intrinsic Value.

For Call option

Intrinsic value = Current price of underlying - Strike Price

For Put Option

Intrinsic value = Strike Price - Current price of underlying

The longer the time to expiration, the higher will be an Option's time value. The time value at expiration is zero.

#### 69. What are the factors that affect the value of an option (premium)?

Ans. Factors affecting the value of an option are:

**Current Price of the underlying asset (S):** When the market price begins to approach the strike price the options start becoming more and more expensive. When the strike price moves away from the market price the options start becoming cheaper. Option price depends on where the underlying is trading with respect to the strike price.

**Exercise Price of the option** (**K**): In-the-money call and put options will be more expensive than at-the-money options. At-the-money call and put options will be more expensive than out-of-the-money options. Out-of-the-money call or put options will always have lesser value compared to the other two types of options.

**Interest Rates** ( $\mathbf{R}_{f}$ ): When interest rates rises in the economy, call options start becoming expensive. When interest rates rises in the economy, put options start becoming less and less expensive.

**Time to Expiry (t):** Options with longer time to maturity will have greater values than options with shorter time frame. INFY SEP 900 CE/PE will have a greater value than INFY AUG 900 CE/PE. Options have large time values at the beginning of the series. Option gradually loses its value because of time value decay. The time value decay is very sharp or exponential as we approach expiry.

Volatility of prices of the underlying asset ( $\sigma$ ): Volatility plays a very important role in options pricing. The value of both the call and put options rises with increase in volatility. Option prices can fluctuate wildly under different volatility condition in the markets.

**Dividend (d):** Dividends have the effect of reducing the stock price on the ex-dividend date. This is bad news for the value of call options and good news for the value of put options. Consider a dividend whose ex-dividend date is during the life of an option. The value of the option is negatively related to the size of the dividend if the option is a call and positively related to the size of the dividend if the option is a put.

Factor	Effect on Call Option	Effect on Put Option	
Factor	Price	Price	
Increase in the value of the underlying instrument	Increase	Decrease	
Increase in intrinsic value	Decrease	Increase	
Increase in Time Value	Increase	Increase	
Increase in Volatility	Increase	Increase	
Increase in Interest rates	Increase	Decrease	
Increase in Dividends	Decrease	Increase	

#### 70. Who decides on the premium paid on options & how is it calculated?

**Ans.** Options Premium is not fixed by an Exchange. The fair value/ theoretical price of an option can be known with the help of pricing models and then depending on market conditions the price is determined by competitive bids and offers in the trading environment. An option's premium / price is the sum of intrinsic value and time value (explained above). If the price of the underlying stock is held constant, the intrinsic value portion of an option premium will remain constant as well. Therefore, any change in the price of the option will be entirely due to a change in the option's time value. The time value component of the option premium can change in response to a change in the volatility of the underlying, the time to expiry, interest rate fluctuations, dividend payments and to the immediate effect of supply and demand for both the underlying and its option.

# 71. What are Option Greeks?

**Ans.** The price of an Option depends on certain factors like price and volatility of the underlying, time to expiry etc. The Option Greeks are the tools that measure the sensitivity of the option price to the above-mentioned factors. They are often used by professional traders for trading and managing the risk of large positions in options and stocks. These Option Greeks are:

**Delta:** is the option Greek that measures the estimated change in option premium/price for a change in the price of the underlying.

**Gamma:** measures the estimated change in the Delta of an option for a change in the price of the underlying.

**Vega:** measures the estimated change in the option price for a change in the volatility of the underlying.

**Theta:** measures the estimated change in the option price for a change in the time to option expiry.

**Rho:** measures the estimated change in the option price for a change in the risk free interest rates.

**Volatility:** A measure of stock price fluctuation. Mathematically, volatility is the annualized standard deviation of a stock's daily price changes.

**Premium:** is the price of an option and is equal to its intrinsic value plus time value.

Theoretical value: The estimated value of an option derived from a mathematical model.

# 72. Who are the likely players in the Options Market?

**Ans.** Developmental Institutions, Mutual Funds, Domestic and Foreign Institutional Investors, Brokers and Retail Investors are the likely players in the Options Market.

# 73. What are the risks for an Options buyer?

Ans. The risk/ loss of an option buyer is limited to the premium that he has paid.

#### 74. What are the risks for an Options writer?

**Ans.** The risk of an Options Writer is unlimited whereas his gains are limited to the Premiums earned. When an uncovered call is exercised for physical delivery, the call writer will have to purchase the underlying asset and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

The writer of a put option bears a risk of loss if the value of the underlying asset declines below the exercise price. The writer of a put bears the risk of a decline in the price of the underlying asset potentially to zero. When put option holder exercises his option in the falling market, the put writer is bound to purchase the underlying at strike price, even if the underlying is otherwise available in the spot at lower price.

# 75. What are Stock Index Options?

**Ans.** The Stock Index Options are options where the underlying asset is a Stock Index e.g. Options on Nifty Index. Index Options were first introduced by Chicago Board of Options Exchange (CBOE) in 1983 on its Index "S&P 100". As opposed to options on Individual stocks, index options give an investor the right to buy or sell the value of an index which represents group of stocks.

#### 76. What are the uses of Index Options?

**Ans.** Index options enable investors to gain exposure to a broad market, with one trading decision and frequently with one transaction. To obtain the same level of diversification using individual stocks or individual equity options, numerous decisions and trades would be necessary. Since, broad exposure can be gained with one trade, transaction cost is also reduced by using Index Options. As a percentage of the underlying value, premiums of Index options are usually lower than those of equity options as equity options are more volatile than the Index.

#### 77. Who would use index options?

**Ans.** Index Options are effective enough to appeal to a broad spectrum of users, from conservative investors to more aggressive stock market traders. Individual investors might wish to capitalize on market opinions (bullish, bearish or neutral) by acting on their views of the broad market or one of its many sectors. The more sophisticated market professionals might find the variety of index option contracts excellent tools for enhancing market timing decisions and adjusting asset mixes for asset allocation. To a market professional, managing the risk associated with large equity positions may mean using index options to either reduce their risk or to increase market exposure.

#### 78. What are Options on individual stocks?

**Ans.** Options contracts where the underlying asset is an equity stock, are termed as Options on stocks. They are mostly American style options cash settled or settled by physical delivery. Prices are normally quoted in terms of the premium per share, although each contract is invariably for a larger number of shares, e.g. 100.

#### 79. What is the market lot size of different stock option contracts?

**Ans.** The market lots for the stocks available for trading on the Derivatives Segment of an exchange can be viewed at the Contract Specifications Section.

#### 80. What is Over the Counter Options?

**Ans.** OTC ("over the counter") options are those dealt directly between counter-parties and are completely flexible & customized. There is some standardization for ease of trading in the busiest markets, but the precise details of each transaction is freely negotiable between buyer and seller.

#### 81. What are the components of the option value?

**Ans.** Option Value is made up of two components viz. Intrinsic Value and Time Value. Intrinsic Value is the amount the buyer would get if the option is exercised. The additional value (over and above the Intrinsic Value) is called Time Value. None of these three values can be negative. Intrinsic Value is also called .parity value. Time Value is also called premium over parity.

For example, if an HDFC Nov 1350 Call is quoting for Rs 110 while the Market Price of HDFC is Rs 1300, then the values are as under:

- Total Option Value (i.e. Option Price) : Rs. 110
- Intrinsic Value (1350 1300) = Rs. 50
- Time Value (110 50) = Rs 60

# 82. What is time decay?

**Ans.** TIME DECAY On expiry, the value of the Option will be equal to zero (if it expires Out of the Money) or become equal to Intrinsic Value (if it expires In the Money). The Time Value component of the Option will become zero. Therefore, Options are also called as Wasting Assets. Time Decay will benefit the Seller of Options and works against Buyers of Options.

# 83. What do you mean by squaring up the options?

**Ans.** A buyer can square up his position by selling a similar option (same underlying, same option type, same expiry month, same strike price). A seller can square up his position by buying a similar option. The positions which expire worthless at the expiry automatically get squared up. The option may be exercised by the buyer and thus the position extinguished.
There are currently no restrictions on who can buy or sell Options. Accordingly, all investors can buy or sell Options.

# 84. What is open interest and volume in options?

**Ans.** Open interest (OI) and volume measure the activity or interest of traders in a particular option. It is also used by traders to ascertain liquidity in an option. Options with low volume and open interest will have low buyers or sellers and hence low liquidity.

Volume- It is the total number of contracts traded between buyers and sellers in the options market. It is calculated on daily basis. For example, say a buyer buys 10 lots of an option and a seller sells 10 lots of options. So the volume for that day will be 10.

Open Interest- It is the total number of contracts that are held by traders. It excludes exercised and expired contracts. For example, say 3 traders are holding 10 lots of contract. So the open interest for that day would be 30.

# 85. What are options trading hours in India?

**Ans.** The market timings to trade Index and single stock options in NSE and BSE is 9.15 **Ans.**m. to 3.30 p.m. on trading days (Monday to Friday excluding holidays). You can place orders to buy and sell Options in this period.

# 86. What is the option expiry time and date for equity options in Indian?

**Ans.** All 1-month Option contracts expire on the last Thursday of the month. In case the last Thursday of the month is a trading holiday, the previous trading day is the expiry day. All option contracts expire at the normal market closing time i.e. 3:30 pm on the expiry day.

Weekly option contracts expire on the last Thursday of the week. In case the last Thursday of the week is a trading holiday, the previous trading day is the expiry day.

# 87. What is the difference between selling a call option and buying a put option?

**Ans.** A Call Option gives you the right but not the obligation to buy the underlying at a specified price and within a specified period. A Put Option, on the other hand, gives you the right to sell the underlying at a specified price and within a specified period.

You sell a Call Option or buy a Put Option when you are bearish on the market and want to profit from the downward movement in prices of the underlying.

Difference between selling a Call Option and buying a Put Option

You get premium for selling a Call Option.	You pay a premium to buy a Put Option.
Your profit is limited to the premium received.	Your profit is unlimited.
You can incur unlimited losses if there is a significant	Your losses are limited to the premium
increase in the price of the underlying.	paid plus brokerage paid.

# 88. What is the difference between selling a put option and buying a call option?

**Ans.** A Put Option gives you the right but not the obligation to sell the underlying at a specified price and within a specified period. A Call Option, on the other hand, gives you the right to buy the underlying at a specified price and within a specified period.

You sell a put Option or buy a Call Option when you are bullish on the market and want to profit from the upward movement in prices of the underlying.

Difference between selling a Put Option and buying a Call Option

You get premium for selling a Put Option.	You pay a premium to buy a Call Option.
Your profit is limited to the premium received.	Your profit is unlimited.
You can incur unlimited losses if there is a significant decrease in the price of the underlying.	Your losses are limited to the premium paid plus brokerage paid.

#### 89. What are options trading advantages?

**Ans.** Options trading has gained significant traction in recent years because of the many advantages it offers like-

**Low Investment:** Options require low capital to invest than directly purchasing stocks. You need to pay the full price of the stock to trade and profit from it whereas in Options you pay a premium which is a fraction of the price of the stock.

Acts as an Insurance: Options work like an Insurance if you are holding a particular stock for the long term. Suppose you are holding 100 shares of ABC limited. You can sell a Call Option for the period and protect yourself against any downward movement in the price of the underlying.

**Higher Profit Percentage:** While you are investing less in Options, the profit percentage due to movement in the price of the underlying is same as investing in equities.

**May profit in all market scenarios:** With Options, you can make a profit in all scenariosbullish, bearish or neutral. You can execute option strategies as per the market outlook and may earn profit from it.

# **90.** How to identify if a particular option contract is American or European style? Also state whether we have both in our markets or not.

**Ans.** One way to quickly identify whether an Option is a European and American style is to look at the nomenclature of the Option contract. If there is CE in the contract name then it means CALL European style option. Similarly, CA in the contract name means CALL American style, PE means PUT European style and PA means PUT American style option. However, as far as Equity Options traded on Indian Stock Exchanges are concerned, there are only European Style options traded in Indi**Ans.** 

# V. Option Pricing and Valuation

#### 91. What are the COMMON MATHEMATICAL OPTION PRICING MODELS?

Ans. The most common mathematical Option Pricing Models are:

• Binomial Model (this model assumes that share prices and index values follow a Binomial Distribution)

• Black-Scholes Model (this model assumes that share prices and index values follow a Log-Normal Distribution)

#### 92. What is Black-Scholes Model?

**Ans.** Black-Scholes is a pricing model used to determine the fair price or theoretical value for a call or a put option based on six variables such as volatility, type of option, underlying stock price, time, strike price, and risk-free rate. The model assumes that percentage change in the price of the underlying follows a lognormal distribution.

# 93. What is the formula for calculating theoretical option price using Black-Scholes Model?

**Ans.** OP = SN (d1)-XertN (d2) Where, D1=  $[In(s/n) + (r + (v2/2) t]/v\sqrt{t}]$ 

 $D2 = d1 - v\sqrt{t}$ 

And the variables are

S = stock price

- X = strike price
- t = time remaining until expiration, expressed in years
- r = current continuously compounded risk-free interest rate

- In = natural logarithm
- N(x) = standard normal cumulative distribution function

<sup>•</sup> v = annual volatility of stock price (the standard deviation of the short-term returns over one year)

• e = the exponential function

#### 94. What are the assumptions of Black and Scholes Pricing Model?

Ans.

- 1. The stock pays no dividends during the option's life
- 2. European exercise terms are used
- 3. Markets are efficient
- 4. No commissions are charged
- 5. Interest rates remain constant and known
- 6. Returns are log-normally distributed

#### 95. What is Binomial Model?

**Ans.** The simplest method to price the options is to use a binomial option pricing model. This model uses the assumption of perfectly efficient markets. Under this assumption, the model can price the option at each point of a specified time frame.

Under the binomial model, we consider that the price of the underlying asset will either go up or down in the period. Given the possible prices of the underlying asset and the strike price of an option, we can calculate the payoff of the option under these scenarios, then discount these payoffs and find the value of that option as of today.







Expected value of call option at node 1A

= 0.5778 \* 56.25 + 0.4222 \* 0 = 32.48

At t =1 the value at node 1A will be 32.48/1.06 = 30.65

Expected value of call option at node 1B

= 0.5778 \* 0 + 0.4222 \* 0 = 0.00

At t = 1 the value at node 1B will be 00.00

From the values at node 1A and 1B at t=1, we trace back to node 0A and the get the value of call as:

$$= 0.5778 * 30.65 + 0.4222 * 0 = 17.71/1.06 = 16.71$$

1.06

Why unequal Up and Down moves?

The return relatives for the rise and the fall have to be reciprocal

I.e. 1/1.25 = 0.80 and 1/0.80 = 1.25

This kind of rise and fall selection would lead to recombining symmetrical trees

Use of recombining symmetrical trees facilitates development of a model for reiterative calculations.

#### Valuing European Call

Consider a binomial tree for three periods of four months each for an asset selling at 100, which can move 25% up or 20% down in each period.

The risk neutral probability of an up movement

 $P = \underline{e^{rt} - d} = \underline{e^{0.06/3} - 0.80} = \underline{1.0202 - 0.80} = 0.4893$ u - d 1.25 - 0.80 0.45

1 - P = 0.5171 (probability of down move)

At t= 8 months

Upper node = $0.4893 * 120$ .	31 + 0.5107 * 50 =	58.87 + 25.53 = 82.73
	1.0202	1.0202
Middle node = $0.4893 * 5$	00 + 0.5107 * 5.00 =	$\underline{24.47} + \underline{2.55} = 26.48$
	1.0202	1.0202
Lower node = $0.4893 * 5.00$	+0.5107 * 0.00 =	2.45+0 = 2.40
	1.0202	1.0202
At $t = 4$ months		
Upper node = $0.4893 * 82.7$	3 + 0.5107 * 26.48 =	40.48+13.52 = 52.93
	1.0202	1.0202
Lower node = $0.4893 * 26.4$	8+0.5107 * 2.40 =	$\underline{12.96+1.22} = 13.90$
	1.0202	1.0202
At $t = 0$		
Value of Call = $0.4893 * 52$	.93 + 0.5107 * 13.90	= 25.90 + 7.10 = 32.35
	1.0202	1.0202

# VI. DERIVATIVES APPLICATIONS

#### 96. What is basis risk?

**Ans.** 'Basis Risk is a type of systematic risk that arises because of the possibility that basis amount at the time of buying the contract may not remain the same as the basis amount at the time of selling/settling the contract. Because of the existence of Basis risk, perfect hedging may not remain possible.

As explained earlier, the term 'basis' means the difference between spot price of hedged underlying and hedged derivatives price of the same underlying.

#### 97. Give an example of basis risk?

**Ans.** Consider suppose Tata Motors stock is trading at a spot price of Rs 355 while March futures are quoting at Rs 355.40. Now on the date of expiry, the stock falls to Rs 340 and futures to Rs 350. So, the basis weakened as it fell from -0.40 to -15, giving a profit of Rs 9.60 ((Rs 355-340) -(Rs 355.40-Rs 350)). But had the stock price gone up to Rs 380 and the futures were at Rs 370; the basis would have strengthened from -0.40 to 10 but it would have led to a loss of -10.40 ((Rs 355-Rs 380) -(Rs 355.40-Rs 370)).

#### 98. What is hedging?

**Ans.** Hedging is a price risk management strategy employed to offset losses in investments by taking an opposite position in a related asset.

Consider a steel supplier who has to supply the material to an auto component manufacturer. He is having the risk that the prices of the steel might go down after 3 months. So he hedges his position by shorting futures of steel so that his loss in the transaction with the auto component manufacturer is offset by the profit in the futures shorted if the prices of the steel goes down after 3 months.

#### 99. Does hedging help in increasing profits?

**Ans.** No. Hedging helps preventing risk of loss; prevention of risk of loss comes with a a reduction in potential profits.

# 100. What is the underlying principle of hedging?

**Ans.** Hedging is based on the principle that the spot prices and derivatives prices tends to move in tandem

# 101. What are different type of hedgers?

Ans. Broadly, there are two types of hedgers: Long hedgers and short hedgers

- Short hedgers are those who are long in stock (spot position) and a decline in stock price is a risk to them They use derivatives to manage risk associated with bearish movement in stock price
- Long hedgers are those who wants to lock-in buying price of the shares for a forward date an increase in price is a risk to them and they use derivatives to manage that risk.

# 102. What is meant by hedge ratio?

**Ans.** The hedge ratio compares the value of a position protected through the use of a <u>hedge</u> with the size of the entire position itself.

# **103.** How to calculate the minimum hedge ratio?

**Ans.** The minimum variance hedge ratio depends on the relationship between changes in the spot price and changes in the futures price.

Delta S: Change in spot price, S, during a period of time equal to the life of the hedge

Delta F: Change in futures price, F, during a period of time equal to the life of the hedge.

The hedge ratio h is given by

 $h = \rho^*(\sigma \Delta S / \sigma \Delta F)$ 

where  $\sigma\Delta S$  is the standard deviation of delta S,  $\sigma\Delta F$  is the standard deviation of delta F, and  $\rho$  is the coefficient of correlation between change is spot price and change in futures price. Consider an example where a gold jeweller during the month of September buys 8 kgs of gold in the cash market as raw material, to create jewellery and sell the same. To manage his price risk, he decides to hedge by selling MCX Gold October Future contract. The  $\sigma\Delta CP$  of gold and  $\sigma\Delta FP$  of gold is 1.17 and 0.62 respectively and the  $\rho$  between the cash and future price of gold for 15 days is 0.60. So, the minimum/optimum hedge ratio is

$$h = 0.60 * 1.17 / 0.62 = 1.13$$

The gold jeweller should sell 1.13\*8=9.04 kgs, i.e. 9 gold futures contracts to hedge the physical exposure of 8 kgs of gold.

#### 104. What is meant by portfolio hedging?

**Ans. Portfolio hedging** describes a variety of techniques used by investment managers, individual investors and corporations to reduce risk exposure in an investment portfolio arising due to the market risk rather than the stock specific risk.

In such a scenario the fund manager of the portfolio hedges his portfolio by shorting the index contract representing the market so that the price fall of the portfolio due to the movement of the market is offset and the portfolio will be exposed only to stock specific risk relative to the market.

#### 105. How to calculate the optimum hedge ratio of a portfolio?

Ans. The optimum hedge ratio of a portfolio is given by:

$$N = (\beta * V_A) / V_F$$

VA: Current value of the portfolio

VF: Current value of one futures contract (the futures price times the contract size).

#### 106. Give an example of portfolio hedging?

**Ans.** Suppose, for example, that a portfolio worth \$5,050,000 mirrors the S&P 500. The index futures price is 1,010 and each futures contract is on \$250 times the index. In this

case VA = 5,050,000 and VF = 1,010 \* 250 = 252,500, so that 20 contracts should be shorted to hedge the portfolio.

# 107. How is beta calculated in case the portfolio does not mirror the index?

**Ans.** The parameter beta from the capital asset pricing model is the slope of the best-fit line obtained when excess return on the portfolio over the risk-free rate is regressed against the excess return of the index over the risk-free rate.

# 108. What are the reasons for hedging an equity portfolio?

Ans. The reasons for hedging an equity portfolio are :-

- A hedge using index futures removes the risk arising from market moves and leaves the hedger exposed only to the performance of the portfolio relative to the market.
- Another reason for hedging may be that the hedger is planning to hold a portfolio for a long period of time and requires short-term protection in an uncertain market situation. The alternative strategy of selling the portfolio and buying it back later might involve unacceptably high transaction costs

# 109. What is meant by cross hedge?

**Ans.** When futures contract on an asset is not available, market participants search for an asset that is closely associated with their underlying asset. They then trade in the futures market of that closely associated asset, for hedging purpose

# 110. Give an example of a cross hedge?

**Ans.** For example, United Bank stock derivatives are not available in the F&O segment as it does not qualify the selection criteria of the exchange but it may have good correlation with PNB derivatives or with derivatives on banking sectoral indices such as Bank Nifty. Hence, investors holding United Bank stock may set up a cross hedge for their underlying position using PNB derivatives or Bank Nifty derivatives

# 111. What are the risks associated with cross hedge?

**Ans.** Because cross hedging relies on assets that are not perfectly correlated, the investor assumes the risk that the assets will move in opposite directions, causing the position to become unhedged.

# **112.** Give an illustrative example of hedging using futures?

Ans. An investor buys 3000 Infosys @ Rs. 970.

- His long position in Infosys carries market risk.
- Assuming Beta of 1.2 for Infosys he needs to short 970\*3000\*1.2 = Rs. 34, 92,000 worth of index.
- NIFTY AUG FUT is trading at 11,105 and the lot size is 75.
- The investor shorts 4 lots of NIFTY i.e. 11,105 = Rs. 33,31,500
- If market corrects by 10%, Infosys will correct by 12% since it has a Beta of 1.2.
- The investor loses Rs. 3,49,200 on his long position in INFOSYS.
- The investor gains Rs. 3, 33,150 on his short position in NIFTY.
- The investor has minimized his losses (Rs. 16,050) by hedging his position using the Index futures

# **113.** Give an illustrative example of hedging using options

**Ans.** n investor wants to buy equity shares of Reliance at a price of 2000 after three months, but if the stock price increase during this period, then he has to buy shares at a higher price To manage this risk, he decided to buy a call option of three-months validity on ABC Ltd at a strike price of INR 2000 by paying a premium of INR 150

- Case 1: If spot price closes above INR 2000 on expiration (say 2300), then he will exercise his Call option as he has a right to buy at a price of INR 2000. The cost of acquisition will be 2150.
- Case 2: If spot price closes below INR 2000 on expiration (say 1700), then he will not exercise his Call option as shares are available in the spot market at a cheaper price. Therefore, his cost of acquisition of ABC Ltd shares in this scenario will be INR 1850. Case 3: If spot price closes at INR 2000 on expiration, then he may not exercise his Call option (actually, he is indifferent to exercise or not to exercise this option) He can let

his option expire and can directly buy the shares from the spot market at INR 2000 Here, his cost of acquisition of ABC Ltd shares will be INR 2150

# 114. Compare the hedging done through options with futures?

**Ans.** Unlike futures, for hedge using options, the hedger has to pay an upfront premium Hence, this may not help to completely offset the losses in spot markets with the gains in options markets

However, in case of options, since the right to exercise would lie with the hedger, in case of favorable price movements in spot markets, the hedger avoids the offsetting losses in the derivatives by simply choosing not to exercise the option

# 115. What are the limitations of hedging?

Ans. Price risk cannot be totally eliminated

- Transaction cost is to be incurred
- Margins are to be maintained leading to cash flow pressures
- Hedging is only for a short period and not forever

# **116.** Who are arbitrageurs?

**Ans.** Arbitrageurs are a class of investors who try to capture mispricing of the same or similar asset across two different markets.

# 117. What is the role of arbitrageurs in the market?

# Ans.

- Unlike the hedger, the arbitrageur does not have any view on the markets.
- An arbitrageur thrives on market inefficiencies.
- Their action helps keep the markets efficient and restore sanity whenever there is a huge deviation

#### **118.** Explain the futures price or a forward rate?

**Ans.** A futures price refers to the fixed price of the underlying asset at which the transaction would take place on future expiry date This price is agreed to on the contract initiation date, and is called the futures price or forward rate.

# 119. Why the future/ forward price is to be determined?

**Ans.** Suppose the seller has the underlying asset and he wants to sell it away at time T. If he had sold today, he would have received the cash that earns interest at the rate of r. holding the asset on behalf of the buyer earns no interest from 0 until time T. Naturally, the seller wants to be compensated for holding the asset and thus losing out on the interest.

Futures price = Spot price \*  $(1 + r_f)$  – carry returns

Consider a stock is trading at 2280 with 10 days to expiry. We take the RBI 91-day T-bill as a proxy for risk free rate and assuming the rate as 8.35% and no carry returns exist. Hence the stock's futures price should be quoted at

$$= 2280 * (1 + (8.35\% * (10/365)))$$

Futures price = 2285.216

120.What is the futures spot parity equation? $F_0 = S_0 * e^{rT}$ Where, $F_0 =$  Futures or forward price today $S_0 =$  Spot price todayT = Time until delivery dateR = risk free interest rate for maturity T

# 121. How the arbitrage is carried out?

# Ans.

- Conventional arbitrage involves taking offsetting positions across two different markets or two different locations i.e. BSE/NSE, BSE/CSE etc.
- In the futures markets, arbitrage is not across two different physical locations it is across time.

- In fact, arbitrage can be done within the same physical location.
- The arbitrageur capitalizes on the mispricing between the spot prices and the future prices or simply the futures prices across different maturities.

# 122. What is meant by arbitrage (Cash and carry arbitrage)?

- Cash-and-carry arbitrage refers to buying the stock and simultaneously selling the futures contract
- The futures position is physically settled on the expiration day
- The opportunity arises when the futures price of the commodity is more than the sum of spot price and the cost of carrying it till the expiry date

# 123. What is meant by reverse arbitrage (reverse cash and carry arbitrage)?

- Reverse cash and carry arbitrage opportunity work for those who have Equity shares with them or those who can short sell the equity share in the spot market
- The arbitrage opportunity can be explored when futures price of the stock is less than the spot price + cost of carry
- It is initiated by lending funds released from selling the equity shares in the spot market and buying futures simultaneously
- After receiving the interest income and the original funds which were lent, the equity shares are bought back to finally settle the transaction

# 124. Give an illustration as to how exploit an arbitrage opportunity?

- Consider NIFTY spot is at 11,000 at the beginning of the month.
- Assume NIFTY one-month futures is trading at 11,105.
- The arbitrageur will buy 375 units of NIFTY by buying all the 50 scrips in the same weight as they are in the NIFTY. (Basket Trading).
- The arbitrageur pays Rs. 41,25,000 (11,000 \*375) for this trade.
- He simultaneously shorts 5 lots (375 shares) of NIFTY futures @ 11,105.
- The value of the sold futures contract is Rs. 41,64,375 (11,105 \*375)

# NOTE: On expiry date the spot and future prices converge:

# Case A: NIFTY settles at 10,800 at expiry

• The arbitrageur makes a loss of Rs. 75,000 on his spot transaction.

- The arbitrageur makes a profit of Rs. 1,14,375 on his futures transaction.
- On a gross basis the arbitrageur will make a profit of Rs. 39,375

# Case B: NIFTY settles at 11,300 at expiry

- He makes a profit of Rs. 112,500 on his spot transaction and a loss of Rs. 73,125 on his futures transaction.
- On a net basis the arbitrageur will make a profit of Rs. 39,375.

# 125. Give an illustration of a reverse arbitrage scenario?

- Consider NIFTY spot is trading at 11,000 at the beginning of the month.
- NIFTY one-month futures are trading at 10,875
- The arbitrageur will sell 375 units of NIFTY by selling all the 50 scrips in the same weight as they are in NIFTY.
- The arbitrageur receives Rs. 41, 25,000 (11,000 \*375) for this trade.
- He simultaneously buys 5 lot (375 shares) of NIFTY futures @ 10,875.
- The value of futures contract is Rs. 40, 78,125 (10,875 \*375).

# Case A: NIFTY settles at 10,600 at expiry

- He makes a profit of Rs. 150,000 on his spot transaction.
- He makes a loss of Rs. 103,125 on his futures transaction.
- On a net basis the arbitrageur will make a profit of Rs. 46,875.

# Case B: NIFTY settles at 11,500 at expiry

- He makes a loss of Rs. 187,500 on his spot transaction and a profit of Rs. 234,375 on his futures transaction.
- His gross profits will be Rs. 46,875 after netting off both the transactions.

# **VII.** Options Trading Strategies

# (A) Overview

#### 126. What are Options Trading Strategies?

**Ans.** Options trading strategies are strategies employed by traders, by combining options with underlying, or options with futures, or by combining more than options of same or different types and/or same or different strikes/maturity.

# 127. On what basis can a trader identify which option trading strategy to be adopted in which scenario?

**Ans.** The strategies can be adopted based on the views of the trader on the following two fronts, with regard to the price of the underlying:

1. Directional view w.r.t. the price of the underlying:

Ans. Bullish

b. Bearish

2. View on future volatility of the price of the underlying:

Ans. Volatility would increase in future (Volatile)

b. Volatility would fall in future (Range bound)

# 128. What are some major categories in which options trading strategies be classified?

**Ans.** Based on the view on direction of underlying's price and/or the view on volatility of underlying's price, the options trading strategies can be broadly classified as:

- a) Bullish Option Strategies
- b) Bearish Option Strategies
- c) Range bound Option Strategies
- d) Volatile Option Strategies

# 129. List out some popular strategies for each of the aforementioned four categories

Bullish Option	Bearish Option	Range bound	Volatile Option
Strategies	Strategies	Option Strategies	Strategies
<ul> <li>Short put</li> <li>Bull Call spread</li> <li>Bull Put spread</li> <li>Long call ladder</li> <li>Covered call option</li> <li>Stock repair</li> <li>Call ratio spread</li> </ul>	<ul> <li>Long put</li> <li>Short Call</li> <li>Put Ratio</li> <li>Bear Call Spread</li> <li>Bear Put Spread</li> <li>Put Back - spread</li> <li>Long Put Ladder</li> </ul>	<ul> <li>Short Strangle</li> <li>Short Straddle</li> <li>Long Call Butterfly</li> <li>Short Iron Butterfly</li> <li>Long Call Condor</li> <li>Long Call Calendar Spread</li> <li>Short Strangle</li> </ul>	<ul> <li>Long Strangle</li> <li>Long straddle</li> <li>Short Put Ladder</li> <li>Short Call Ladder</li> <li>Long Iron Butterfly</li> <li>Short Call Condor</li> <li>Short Call Butterfly</li> </ul>

# (B) **Bullish Option Strategies**

#### 130. When are Bullish option strategies used?

**Ans.** Bullish options trading strategies are used when options trader expects the underlying assets to rise. It is very imperative to determine how much the underlying price will move higher and the timeframe in which the rally will occur in order to select the best options strategy.

#### Long Call

# 131. What is long call?

**Ans.** Long call is best used when you expect the underlying asset to increase significantly in a relatively short period of time. However, one should be aware of the time decay factor, because the time value of call will reduce over a period of time as you reach near to expiry.

#### 132. In what scenario, does a trader consider a long call strategy?

**Ans.** A trader considers this strategy when he is bullish on the underlying, and when he wants to limit his losses because of price fall at the same. The risk in this strategy is limited only up to the premium/cost of the call you pay, no matter how much the underlying asset drops. It also gives you the flexibility to select risk to reward ratio by choosing the strike price of the options contract you buy.

#### 133. What is the significance of long call strategy?

**Ans.** Long call strategy limits the downside risk to the premium paid which is coming around Rs. 60 per share in the above example, whereas potential return is unlimited if ABC Ltd moves higher significantly. It is perfectly suitable for traders who don't have a huge capital to invest but could potentially make much bigger returns than investing the same amount directly in the underlying security

#### **Short Put**

#### 134. What is short put option strategy?

**Ans.** A short put is the opposite of buy put option. With this option trading strategy, you are obliged to buy the underlying security at a fixed price in the future. This option trading strategy has a low profit potential if the stock trades above the strike price and exposed to high risk if stock goes down. It is also helpful when you expect implied volatility to fall, that will decrease the price of the option you sold.

#### 135. In what scenario, does a trader consider a short put strategy?

**Ans.** A trader considers a short put when he expects the underlying asset to stay flat or rise moderately during the contract period. It would still benefit if the underlying asset remains at the same level, because the time decay factor will always be in your favour as the time value of put will reduce over a period of time as you reach near to expiry.

This is a good option trading strategy to use because it gives you upfront credit, which will help to somewhat offset the margin.

# 136. What is the significance of short put strategy?

A. A short put options trading strategy can help in generating regular income in a rising or sideways market but it does carry significant risk and it is not suitable for beginner traders. It's also not a good strategy to use if you expect underlying assets to rise quickly in a short period of time; instead one should try long call trade strategy.

# Call Bull Spread

# 137. What is a Call Bull spread option strategy?

**Ans.** A Call Bull Spread is an option strategy wherein a lower strike call option is bought, and a higher strike call option is sold, simultaneously.

# 138. What kind of strategy is call bull spread?

Ans. It is a net debit strategy. i.e. there is a premium outflow.

# 139. In what scenario, does a trader consider a call bull spread strategy?

**Ans.** It is generally done when the outlook on the market is mild to moderately bullish and also with the intention of bringing down the cost of acquisition of the bought call.

# 140. What is the payoff profile of call bull spread strategy?

Ans. The strategy has a limited profit and limited loss type of a profile

# **Bull Put Spread**

# 141. What is Bull Put Spread Option strategy?

**Ans.** A Bull Put Spread involves one short put with higher strike price and one long put with lower strike price of the same expiration date

# 142. In what scenario, does a trader consider a call bull spread strategy?

**Ans.** A trader can consider Bull Put Spread Option strategy when the option trader believes that the underlying assets will rise moderately or hold steady in the near term. It consists of two put options – short and long put. Short put's main purpose is to generate income, whereas long put is bought to limit the downside risk.

# 143. How to Construct the Bull Put Spread?

**Ans.** Bull Put Spread is implemented by selling At-the-Money (ATM) Put option and simultaneously buying Out-the-Money (OTM) Put option of the same underlying security with the same expiry. Strike price can be customized as per the convenience of the trader.

# 144. What is the Probability of making money in Bull Put spread?

**Ans.** A Bull Put Spread has a higher probability of making money as compared to Bull Call Spread. The probability of making money is 67% because Bull Put Spread will be profitable even if the underlying assets holds steady or rise. While, Bull Call spread has probability of only 33% because it will be profitable only when the underlying assets rise.

# 145. What do you understand by 'bull put spread?

**Ans.** A Bull Put Spread Options strategy is limited-risk, limited-reward strategy. This strategy is best to use when an investor has neutral to Bullish view on the underlying assets. The key benefit of this strategy is the probability of making money is higher as compared to Bull Call Spread.

#### 146. How to manage Risk for Bull Put spread?

**Ans.** A Bull Put Spread is exposed to limited risk; hence carrying overnight position is advisable.

#### Long Call Ladder Options Strategy

# 147. What is Long call ladder Option strategy?

**Ans.** A Long Call Ladder is the extension of bull call spread; the only difference is of an additional higher strike sold. The purpose of selling the additional strike is to reduce the cost. It is limited profit and unlimited risk strategy. It is implemented when the investor is expecting upside movement in the underlying assets till the higher strike sold.

# 148. In what scenario, does a trader consider a long call ladder strategy?

**Ans.** A trader can consider Long Call Ladder when they are moderately bullish on the underlying assets and if it expires in the range of strike price sold then you can earn from time value factor. Also, another instance is when the implied volatility of the underlying assets increases unexpectedly and they expect volatility to come down then they can apply Long Call Ladder strategy.

# 149. How to construct a Long Call Ladder?

**Ans.** A Long Call Ladder can be created by buying 1 ITM call, selling 1 ATM call and selling 1 OTM call of the same underlying security with the same expiry. Strike price can be customized as per the convenience of the trader.

#### 150. How to manage Risk for long call ladder option strategy?

**Ans.** A Long Call Ladder is exposed to unlimited risk; it is advisable not to carry overnight positions. Also, one should always strictly adhere to Stop Loss in order to restrict losses.

#### 151. What do you understand by long call ladder spread?

**Ans.** A Long Call Ladder spread is best to use when you are confident that an underlying security will not move significantly and will stays in a range of strike price sold. Another scenario wherein this strategy can give profit is when there is a decrease in implied volatility.

# **Covered call option strategy**

# 152. What Is Covered Call Options Trading Strategy?

**Ans.** A covered call options trading strategy is an Income generating strategy which can be initiated by simultaneously purchasing a stock and selling a call option. It can also be used by someone who is holding a stock and wants to earn income from that investment. Generally, the call option which is sold will be out-the-money and it will not get exercised unless the stock price increases above the strike price.

# 153. In what scenario, does a trader consider a covered call option strategy?

**Ans.** Choosing between strikes involves a trade-off between priorities. An investor can select higher out-the-money strike price and preserve some more upside potential. However, more out-the-money would generate less premium income, which means that there would be a smaller downside protection in case of stock decline. The expiration month reflects the time horizon of his market view.

# 154. What do you understand by covered call trading strategy?

**Ans.** The covered call strategy is best used when an investor wishes to generate income in addition to any dividends from shares of stocks he or she owns. However, it may not be a very profitable strategy for an investor whose main interest is to gain substantial profit and who wants to protect downside risk.

#### Call backspread option strategy

# 155. What is Call Backspread?

**Ans.** The Call Backspread is reverse of call ratio spread. It is bullish strategy that involves selling options at lower strikes and buying higher number of options at higher strikes of the same underlying stock. It is unlimited profit and limited risk strategy.

# 156. In what scenario, does a trader consider a call backspread strategy?

**Ans.** The Call Backspread is used when an option trader thinks that the underlying asset will experience significant upside movement in the near term.

# **157.** How to construct the Call Backspread?

**Ans.** The Call Backspread is implemented by selling one In-the-Money (ITM) or At-the-Money (ATM) call option and simultaneously buying two Out-the-Money (OTM) call options of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader.

# **158.** Explain with example call backspread strategy.

**Ans.** Suppose Nifty is trading at Rs.9300. If Mr. A believes that price will rise significantly above Rs 9400 on or before expiry, then he initiates Call Backspread by selling one lot of 9300 call strike price at Rs.140 and simultaneously buying two lot of 9400 call strike price at Rs.70. The net premium paid/received to initiate this trade is zero. Maximum profit from the above example would be unlimited if underlying assets break upper breakeven point. However, maximum loss would be limited to Rs.7,500 (100\*75) and it will only occur when Nifty expires at 9400.

# 159. How to manage Risk for call backspread strategy?

**Ans.** The Call Backspread is exposed to limited risk; hence one can carry overnight position.

#### 160. What do you understand by call back spread?

**Ans.** The Call Backspread is best to use when an investor is extremely bullish because investor will make maximum profit only when stock price expires above higher (bought) strike.

#### **Stock Repair Strategy**

#### 161. What is Stock Repair strategy?

**Ans.** As the name suggests, the Stock Repair strategy is an alternative strategy to recover from loss that a stock has suffered due to fall in price. The Stock Repair strategy helps in recovering losses with just a moderate rise in the price of the underlying stock.

# 162. Why to Initiate Stock Repair strategy?

**Ans.** Stock Repair strategy is initiated to recover from the losses and exit from loss making position at breakeven of the underlying stock.

# 163. In what scenario, does a trader consider a Stock Repair strategy?

**Ans.** A Stock Repair strategy should be implemented by investors who are looking forward to average their position by buying additional stocks in cash when the underlying stock price is falling. Instead of buying additional stock in cash one can apply stock repair strategy.

# 164. What is Stock Repair strategy?

**Ans.** A Stock Repair strategy should be initiated only when the stock that you are holding in your portfolio has corrected by 10-20% and only if you think that the underlying stock will rise moderately in near term.

# 165. How to Construct the Stock Repair strategy?

Ans. Buy 1 ATM call

Sell 2 OTM calls

Stock Repair strategy is implemented by buying one At-the-Money (ATM) call option and simultaneously selling two Out-the-Money (OTM) call options strikes, which should be closest to the initial buying price of the same underlying stock with the same expiry.

#### 166. What do you understand by Stock Repair strategy?

**Ans.** The Stock Repair strategy is suitable for an investor who is holding a losing stock and wants to reduce breakeven at very little or no cost. This strategy helps in minimizing the loss at very low cost as compared to "Doubling Down" of position.

# **Call Ratio Spread**

# 167. What is Call Ratio Spread?

**Ans.** The Call Ratio Spread is a premium neutral strategy that involves buying options at lower strikes and selling higher number of options at higher strikes of the same underlying stock.

# 168. In what scenario, does a trader consider a call ratio spread?

**Ans.** The Call Ratio Spread is used when an option trader thinks that the underlying asset will rise moderately in the near term only up to the sold strikes. This strategy is basically used to reduce the upfront costs of premium paid and in some cases upfront credit can also be received.

# **169.** How to construct the Call Ratio Spread?

# Ans. Buy 1 ITM/ATM Call

# Sell 2 OTM Call

The Call Ratio Spread is implemented by buying one In-the-Money (ITM) or At-the-Money (ATM) call option and simultaneously selling two Out-the-Money (OTM) call options of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader.

#### 170. How to manage Risk for Call Ratio Spread

**Ans.** The Call Ratio Spread is exposed to unlimited risk if underlying asset breaks higher breakeven; hence one should follow strict stop loss to limit loses.

#### 171. What do you understand by Call Ratio Spread?

**Ans.** The Call Ratio Spread is best to use when an investor is moderately bullish because investor will make maximum profit only when stock price expires at higher (sold) strike. Although investor profits will be limited if the price does not rise higher than expected sold strike.

# (C) Bearish Option Strategies

# 172. When can bearish option strategies be used?

**Ans.** Bearish Option Trading strategy is best used when an options trader expects the underlying assets to fall. It is very important to determine how much the underlying price will move lower and the timeframe in which the rally will occur in order to select the best option strategy. The simplest way to make profit from falling prices using options is to buy put options.

# 173. What are the bearish option strategies?

**Ans.** Following are the most popular bearish strategies that can be used in different scenarios.

- Long Put
- Short Call Strategy
- Put Ratio Strategy
- Bear Call Strategy
- Bear Put Strategy
- Put Back spread Strategy
- Long Put Ladder Strategy

#### **Long-Put Options strategy**

#### 174. When should you initiate a Long-Put Options Trade?

**Ans.** A Long-Put strategy is best used when you expect the underlying asset to fall significantly in a relatively short period of time. It would still benefit if you expect the underlying asset to fall gradually. However, one should be aware of the time decay factor, because the time value of put will reduce over a period of time as you reach near expiry.

#### 175. Why should you use Long Put?

**Ans.** This is a good strategy to use because the downside risk is limited only up to the premium/cost of the put you pay, no matter how much the underlying asset rises. It also gives you the flexibility to select the risk to reward ratio by choosing the strike price of the options contract you buy. In addition, Long Put can also be used as a hedging strategy if you want to protect an asset owned by you from a possible reduction in price.

#### 176. How to manage Risk for Long Put strategy?

**Ans.** A Long Put is a limited risk and unlimited reward strategy. So, carrying overnight position is advisable but one can keep stop loss to restrict losses due to opposite movement in the underlying assets and also time value of money can play spoil sports if underlying assets doesn't move at all.

# 177. What is the significance of long put strategy?

**Ans.** A Long Put is a good strategy to use when you expect the security to fall significantly and quickly. It also limits the downside risk to the premium paid, whereas the potential return is unlimited if Nifty moves lower significantly. It is perfectly suitable for traders who don't have a huge capital to invest but could potentially make much bigger returns than investing the same amount directly in the underlying security.

#### Short Call Strategy

#### 178. What is Short Call strategy?

**Ans.** A Short Call means selling of a call option where you are obliged to buy the underlying asset at a fixed price in the future. This strategy has limited profit potential if the stock trades below the strike price sold and it is exposed to higher risk if the stock goes up above the strike price sold.

#### 179. In what scenario, does a trader consider a Short Call Strategy?

**Ans.** A Short Call is best used when a trader expects the underlying asset to fall moderately. It would still benefit if the underlying asset remains at the same level, because the time decay factor will always be in the trader's favour as the time value of Call option will reduce over a period of time as you reach near to expiry. This is a good strategy to use because it gives upfront credit, which will help to offset the margin. But by initiating this position a trader is exposed to potentially unlimited losses if underlying assets goes dramatically high in price.

#### **180.** How to construct a Short Call?

**Ans.** A Short Call can be created by selling 1 ITM/ATM/OTM call of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader.

#### 181. What is the significance of short call strategy?

**Ans.** A Short Call strategy can help in generating regular income in a falling or sideways market but it does carry significant risk and it is not suitable for beginner traders. It's also not a good strategy to use if you expect underlying assets to fall quickly in a short period of time; instead one should try Long Put strategy.

# Put Ratio Spread

#### 182. What is Put Ratio Spread?

**Ans.** The Put Ratio Spread is a premium neutral strategy that involves buying options at higher strike and selling more options at lower strike of the same underlying stock.

#### 183. In what scenario, does a trader consider a Put Ratio Spread?

**Ans.** The Put Ratio Spread is used when an option trader thinks that the underlying asset will fall moderately in the near term only up to the sold strike. This strategy is basically used to reduce the upfront costs of premium and in some cases upfront credit can also be received.

#### **184.** How to construct the Put Ratio Spread?

#### Ans. Buy 1 ITM/ATM Put

#### Sell 2 OTM Put

The Put Ratio Spread is implemented by buying one In-the-Money (ITM) or At-the-Money (ATM) put option and simultaneously selling two Out-the-Money (OTM) put options of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader.

#### 185. How to manage risk for Put Ratio Spread?

**Ans.** The Put Ratio Spread is exposed to unlimited risk if underlying asset breaks lower breakeven hence one should follow strict stop loss to limit losses.

#### 186. What is the significance of put ratio strategy?

**Ans.** The Put Ratio Spread is best to use when investor is moderately bearish because investor will make maximum profit only when stock price expires at lower (sold) strike. Although your profits will be none to limited if price rises higher.

# **Bear Call Spread**

#### 187. What is a Bear Call Spread Option strategy?

**Ans.** A Bear Call Spread is a bearish option strategy. It is also called as a Credit Call Spread because it creates net upfront credit at the time of initiation. It involves two call options with different strike prices but same expiration date. A bear call spread is initiated with anticipation of decline in the underlying assets, similar to bear put spread.

#### 188. In what scenario, does a trader consider a Bear Call Spread?

**Ans.** A Bear Call Spread Option strategy is used when the option trader expects that the underlying assets will fall moderately or hold steady in the near term. It consists of two call options – short and buy call. Short call's main purpose is to generate income, whereas higher buy call is bought to limit the upside risk.

#### **189.** How to construct the Bear Call Spread?

**Ans.** Bear Call Spread can be implemented by selling ATM call option and simultaneously buying OTM call option of the same underlying assets with same expiry. Strike price can be customized as per the convenience of the trader.

# 190. What is the Probability of making money in Bear Call Spread?

**Ans.** A Bear Call Spread has a higher probability of making money. The probability of making money is 67% because Bear Call Spread will be profitable even if the underlying assets holds steady or falls. While, Bear Put Spread has probability of only 33% because it will be profitable only when the underlying assets fall.

#### 191. How to manage Risk for Bear Call Spread?

Ans. A Bear Call is exposed to limited risk; hence carrying overnight position is advisable

#### 192. What is the significance bear call strategy?

**Ans.** A Bear Call Spread strategy is limited-risk, limited-reward strategy. This strategy is best to use when an investor has neutral to bearish view on the underlying assets. The key benefit of this strategy is the probability of making money is higher.

# **Bear Put Spread**

# 193. What Is A Bear Put Spread Options Trading Strategy?

**Ans.** A Bear Put Spread strategy involves two put options with different strike prices but the same expiration date. Bear Put Spread is also considered as a cheaper alternative to long put because it involves selling of the put option to offset some of the cost of buying puts.

# 194. In what scenario, does a trader consider a bear put spread?

**Ans.** A Bear Put Spread strategy is used when the option trader thinks that the underlying assets will fall moderately in the near term. This strategy is basically used to reduce the upfront costs of premium, so that less investment of premium is required and it can also reduce the effect of time decay. Even beginners can apply this strategy when they expect security to fall moderately in near the term.

# **195.** How to Construct the Bear Put Spread?

Ans. Buy 1 ITM/ATM Put

Sell 1 OTM Put

Bear Put Spread is implemented by buying In-the-Money or At-the-Money put option and simultaneously selling Out-The-Money put option of the same underlying security with the same expiry.

#### 196. What is the significance of Bear Put Spread strategy?

**Ans.** A Bear Put Spread strategy is best to use when an investor is moderately bearish because he or she will make the maximum profit only when the stock price falls to the lower (sold) strike. Also, your losses are limited if price increases unexpectedly higher.

# Put Backspread

# 197. What is Put Backspread?

**Ans.** The Put Backspread is reverse of Put Ratio Spread. It is a bearish strategy that involves selling options at higher strikes and buying higher number of options at lower strikes of the same underlying asset. It is unlimited profit and limited risk strategy.

# 198. In what scenario, does a trader consider a put backspread?

**Ans.** The Put Backspread is used when an option trader believes that the underlying asset will fall significantly in the near term.

# **199.** How to construct the Put Backspread?

Ans. Sell 1 ITM/ATM Put

Buy 2 OTM Put

The Put Backspread is implemented by selling one In-the-Money (ITM) or At-the-Money (ATM) put option and buying two Out-the-Money (OTM) put options simultaneously of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader.

# 200. How to manage risk in put backspread?

Ans. The Put Backspread is exposed to limited risk; hence one can carry overnight position.

#### 201. What is the significance of Put Backspread?

**Ans.** The Put Backspread is best to use when investor is extremely bearish because investor will make maximum profit only when stock price expires at below lower (bought) strike.

# Long Put Strategy

# 202. What is Long Put Strategy?

**Ans.** A Long-Put Ladder is the extension of Bear Put spread; the only difference is of an additional lower strike sold. The purpose of selling the additional strike is to reduce the cost of premium. It is limited profit and unlimited risk strategy. It is implemented when the investor is expecting downside movement in the underlying assets till the lower strike sold. The motive behind initiating this strategy is to rightly predict the stock price till expiration and gain from time value.

# 203. In what scenario, does a trader consider a long-put ladder?

**Ans.** A trader can consider Long-Put Ladder should when they are moderately bearish on the underlying asset and if it expires in the range of strike price sold then they can earn from time value and delta factor. Also, another instance is when the implied volatility of the underlying asset increases unexpectedly and they expect volatility to come down then one can apply Long Put Ladder strategy.

# 204. How to construct Long Put Ladder?

**Ans.** A Long-Put Ladder can be created by buying 1 ITM Put, selling 1 ATM Put and selling 1 OTM Put of the same underlying security with the same expiry. Strike price can be customized as per the convenience of the trader. A trader can also initiate the Short Put Ladder strategy in the following way - buy 1 ATM Put, sell 10 TM Put and Sell 1 Far OTM Put.

# 205. How to manage Risk for long put ladder strategy?

**Ans.** A Long-Put Ladder is exposed to unlimited risk; hence it is advisable not to carry overnight positions. Also, one should always strictly adhere to Stop Loss in order to restrict losses.

# 206. What is the significance of Long Put Ladder Strategy?

**Ans.** A Long-Put Ladder spread is best to use when you are confident that an underlying security will move marginally lower and will stay in a range of strike price sold. Another scenario wherein this strategy can give profit is when there is a decrease in implied volatility.

# (D) <u>Range bound Option Strategies</u>

#### 207. When are Range bound option strategies used?

**Ans.** Range bound option Strategy is made use of when the trader expects the volatility in the market to decline after a sharp spike. The trader expects the stock to trade in a narrow range and expects the option premium of call and put options to decline.

# 208. What is Range bound option strategy?

**Ans.** Following are the most popular strategies that can be used when the market is expected to trade range bound with a decline in volatility.

- Short Strangle Strategy
- Short Straddle Strategy
- Long Call Butterfly Strategy
- Short Iron Butterfly Strategy
- Long Call Condor Strategy
- Long Call Calendar Spread Strategy
#### 209. How to make Profit in a Sideways Market?

**Ans.** A Short Strangle strategy consists of one short call with higher strike price and one short put with lower strike price. It is established for a net credit and generates profit only when the underlying stock expires between two strikes sold. Every day that passes without large movement in the underlying assets will benefit this strategy due to time erosion. Volatility is a vital factor and it can adversely affect a trader's profits in case it goes up.

#### Short Strangle

#### 210. In what scenario, does a trader consider a short strangle?

**Ans.** A Short Strangle strategy should only be used when a trader is very confident that the security won't move in either direction because the potential loss can be substantial if that happens. This strategy can also be used by advanced traders when the implied volatility goes abnormally high and the call and put premiums may be overvalued. After initiating Short Strangle, the idea is to wait for implied volatility to drop and close the position at a profit. Inversely, this strategy can lead to losses in case the implied volatility rises even if the stock price remains at same level.

# 211. How to construct a Short Strangle strategy?

**Ans.** A Short Strangle strategy is implemented by selling Out-the-Money Call option and simultaneously selling Out-the-Money Put option of the same underlying security with the same expiry. Strike price can be customized as per convenience of the trader but the call and put strikes must be equidistant from the spot price.

#### 212. How to manage Risk for short strangle strategy?

**Ans.** Since this strategy is exposed to unlimited risk, it is advisable not to carry overnight positions. Also, one should always strictly adhere to Stop Loss in order to restrict losses.

#### 213. What is the Analysis of Short Strangle strategy?

**Ans.** A Short Strangle strategy is the combination of short call and short put and it mainly profits from Theta i.e. time decay factor if the price of the security remains relatively stable. This strategy is not recommended for amateur/beginner traders, because the potential losses can be substantial and it requires advanced knowledge of trading.

# Short straddle

#### 214. What is short straddle option strategy?

**Ans.** A Short Straddle strategy is a race between time decay and volatility. Every day that passes without movement in the underlying assets will benefit this strategy from time erosion. Volatility is a vital factor and it can adversely affect a trader's profits in case it goes up.

#### 215. In what scenario, does a trader consider a short straddle?

**Ans.** A short options trading straddle strategy can be used when a trader is very confident that the security won't move in either direction because the potential loss can be substantial if that happens. This strategy can also be used by advanced traders when the implied volatility goes abnormally high for no obvious reason and the call and put premiums may be overvalued. After selling straddle, the idea is to wait for implied volatility to drop and close the position at a profit. Inversely, this strategy can lead to losses in case the implied volatility rises even if the stock price remains at same level.

# 216. How to Construct a Short Straddle Options Trading Strategy?

**Ans.** A short straddle is implemented by selling at-the-money call and put option of the same underlying security with the same expiry.

#### 217. How to manage Risk for short straddle option strategy?

**Ans.** Since this strategy is exposed to unlimited risk, it is advisable not to carry overnight positions. Also, one should always strictly adhere to Stop Loss in order to restrict losses.

#### 218. What is the Analysis of Short Straddle Option Trading Strategy?

**Ans.** A Short Straddle Option Trading Strategy is the combination of short call and short put and it mainly profits from Theta i.e. time decay factor if the price of the security remains relatively stable. This strategy is not recommended for amateur/beginner traders, because the potential losses can be substantial and it requires advanced knowledge of trading.

# Long call butterfly

#### 219. What is call butterfly options strategy?

**Ans.** A Long Call Butterfly is implemented when the investor is expecting very little or no movement in the underlying assets. The motive behind initiating this strategy is to rightly predict the stock price till expiration and gain from time value with limited risk.

#### 220. In what scenario, does a trader consider a long call butterfly?

**Ans.** A Long Call Butterfly spread should be initiated when a trader expects the underlying assets to trade in a narrow range as this strategy benefits from time decay factor. However, unlike Short Strangle or Short Straddle, the potential risk in a Long Call Butterfly is limited. Also, when the implied volatility of the underlying assets increases unexpectedly and a trader can expect volatility to come down, then they can apply Long Call Butterfly strategy.

# 221. How to construct a Long Call Butterfly?

**Ans.** A Long Call Butterfly can be created by buying 1 ITM call, buying 1 OTM call and selling 2 ATM calls of the same underlying security with the same expiry. Strike price can be customized as per the convenience of the trader; however, the upper and lower strike must be equidistant from the middle strike.

# 222. How to manage Risk for long call butterfly strategy?

**Ans.** A Long Call Butterfly is exposed to limited risk, so carrying overnight position is advisable but one can keep stop loss to further limit losses.

# 223. What is the Analysis of Long Call Butterfly strategy?

**Ans.** A Long Call Butterfly spread is best to use when you are confident that an underlying security will not move significantly and will stay in a range. Downside risk is limited to net debit paid, and upside reward is also limited but higher than the risk involved.

# Short iron butterfly

# 224. What is short Iron butterfly option strategy?

**Ans.** A Short Iron Butterfly strategy is implemented when an investor is expecting very little or no movement in the underlying assets. The motive behind initiating this strategy is to rightly predict the stock price till expiration and gain from time value. It is a limited risk and a limited reward strategy, similar to Long Call Butterfly strategy. A Short Iron Butterfly could also be considered as a combination of Bear Call Spread and Bull Put Spread.

# 225. In what scenario, does a trader consider a short iron butterfly?

**Ans.** A Short Iron Butterfly spread is best to use when a trader can expect the underlying assets to trade in a narrow range as this strategy benefits from time decay factor. Also, when the implied volatility of the underlying assets increases unexpectedly and the expected volatility comes down, then a trader can apply Short Iron Butterfly strategy.

# 226. How to construct a Short Iron Butterfly?

**Ans.** A Short Iron Butterfly can be created by selling 1 ATM call, buying 1 OTM call, selling 1 ATM put and buying 1 OTM put of the same underlying security with the same expiry. Strike price can be customized as per the convenience of the trader; however, the upper and lower strike must be equidistant from the middle strike.

# 227. How to manage Risk for short iron butterfly strategy?

**Ans.** A Short Iron Butterfly is exposed to limited risk compared to reward, so carrying overnight position is advisable.

# 228. What is the analysis of Short Iron Butterfly strategy?

**Ans.** A Short Iron Butterfly spread is best to use when you are confident that an underlying security will not move significantly and will stay in a range. Downside risk is limited to the net premium received, and upside reward is also limited but higher than the risk involved. It provides a good reward to risk ratio.

# Long call condor

# 229. What is Long call condor?

**Ans.** A Long Call Condor is similar to a Long Butterfly strategy, wherein the only exception is that the difference of two middle strikes sold has separate strikes. The maximum profit from condor strategy may be low as compared to other trading strategies; however, a condor strategy has high probability of making money because of wider profit range.

# 230. In what scenario, does a trader consider a long call condor?

**Ans.** A Long Call Condor spread should be initiated when a trader expects the underlying assets to trade in a narrow range as this strategy benefits from time decay factor.

# 231. How to construct a long call condor?

**Ans.** A Long Call Condor can be created by buying 1 lower ITM call, selling 1 lower middle ITM call, selling 1 higher middle OTM call and buying 1 higher OTM calls of the same underlying security with the same expiry. The ITM and OTM call strikes should be equidistant.

# 232. What do you understand by long call condor spread?

**Ans.** A Long Call Condor spread is best to use when you are confident that an underlying security will not move significantly and stays in a range of strikes sold. Long Call Condor has a wider sweet spot than the Long Call Butterfly. But there is a trade-off; this is a limited reward to risk ratio strategy for advance traders.

#### Long call calendar spread

# 233. What is long call calendar spread?

**Ans.** A Long Call Calendar Spread is initiated by selling one call option and simultaneously buying a second call option of the same strike price of underlying assets with a different expiry. It is also known as Time Spread or Horizontal Spread. The purpose of this strategy is to gain from Theta with limited risk, as the Time Decay of the near period expiry will be faster as compared to the far period expiry. As the near period option expires, far month call option would still have some premium in it, so the option trader can either own the far period call or square off both the positions at same time on near period expiry.

# 234. In what scenario, does a trader consider a long call calendar?

**Ans.** A Long Call Calendar Spread can be initiated when a trader is very confident that the security will remain neutral or bearish in near period and bullish in longer period expiry. This strategy can also be used by advanced traders to make quick returns when the near period implied volatility goes abnormally high as compared to the far period expiry and is expected to cool down. After buying a Long Calendar Spread, the idea is to wait for the implied volatility of near period expiry to drop. Inversely, this strategy can lead to losses in case the implied volatility of near period expiry contract rises even if the stock price remains at same level.

#### 235. How to construct a Long call calendar spread?

**Ans.** A Long Call Calendar Spread is implemented by selling near month at-the-money/outthe-money call option and simultaneously buying far month at-the-money/out-the-money call option of the same underlying assets.

# 236. How to manage risk for long call calendar spread strategy?

**Ans.** A Long Call Calendar spread is exposed to limited risk up to the difference between the premiums, so carrying overnight position is advisable but one can keep stop loss on the underlying assets to further limit losses.

# 237. What do you understand by long call calendar spread strategy?

**Ans.** A Long Call Calendar Spread is the combination of short call and long call option with different expiry. It mainly profits from Theta i.e. Time Decay factor of near period expiry, if the price of the security remains relatively stable in near period. Once the near period option has expired, the strategy becomes simply long call, whose profit potential is unlimited.

# (E) Volatility option Strategies

# 238. When are volatility option strategies used?

**Ans.** Volatility Option Strategies are made use by traders when they expect huge swing in the price of the underlying asset in either direction. The trader tends to bet on the surge in volatility rather than the trend.

# 239. What are the types of volatility option strategies?

**Ans.** Following are the most popular strategies that can be used when the volatility is expected to spike in the underlying asset.

- Long Strangle Strategy
- Long straddle Strategy
- Short Put Ladder Strategy
- Short Call Ladder Strategy
- Long Iron Butterfly Strategy
- Short Call Condor Strategy
- Short Call Butterfly Strategy

#### Long Strangle Strategy

# 240. What is Long Strangle Option Strategy?

**Ans.** A Long Strangle strategy is one of the simplest trading strategies, which can be used to make profit in an extremely volatile market. A Long Strangle is a slight modification of the Long Straddle strategy and also cheaper to execute as both the calls and puts are Out-the-Money. It can generate good returns when the price of an underlying security moves significantly in either direction. It means that you don't have to forecast the trend of the market, but you have to bet on the volatility.

#### 241. In what scenario, does a trader consider a long strangle strategy?

**Ans.** If a trader believes that an underlying security is going to make a move because of any events, such as budget, monetary policy, earning announcements etc., then they can buy OTM call and OTM put option. This strategy is known as Long Strangle.

#### 242. How to construct a Long Strangle Option strategy?

**Ans.** Long Strangle is implemented by buying Out-the-Money call option and simultaneously buying Out-the-Money put option of the same underlying security with the same expiry. Strike price can be customized as per convenience of the trader but the call and put strikes must be equidistant from the spot price.

# 243. How to manage Risk for long strangle strategy?

**Ans.** A Long Strangle is exposed to limited risk up to premium paid, so carrying overnight position is advisable but one can keep stop loss to further limit losses.

#### 244. What is the Analysis of Long Strangle spread strategy?

**Ans.** A Long Strangle spread strategy is best to use when you are confident that an underlying security will move significantly in a very short period of time, but you are unable to predict the direction of the movement. Maximum loss is limited to debit paid and

it will occur if the underlying stocks remain between the two buying strike prices, whereas upside reward is unlimited.

# Long Straddle

# 245. How Long Straddle Option Trading Strategy can be used for making profits in a volatile market?

**Ans.** A Long Straddle Options Trading is one of the simplest options trading strategy which involves a combination of buying a call and buying a put, both with the same strike price and expiration. Long Straddle option strategy can be used to make profit in a volatile market. It can generate good returns when the price of an underlying security moves significantly in either direction. It means that you don't have to forecast the trend of the market, but you have to bet on the volatility.

#### 246. In what scenario, does a trader consider a long straddle strategy?

**Ans.** If a trader believes that an underlying security is going to make a move because of events such as budget, monetary policy, earning announcements, etc., and also implied volatility should be at normal or at below average level, then you can buy call & put option. This strategy is known as long straddle trading.

# 247. How should you construct a Long Straddle Option Strategy?

**Ans.** Long straddle options strategy is implemented by buying at-the-money call option and simultaneously buying at-the-money put option of the same underlying security with the same expiry.

# 248. What is the Analysis of Long Straddle Options Trading Spread Strategy?

Ans. A Long Straddle Spread Strategy is best to use when you are confident that an underlying security will move significantly in a very short period of time, but you are unable to predict the direction of the movement. Downside loss is also limited to net debit paid, whereas upside reward is unlimited.

# Short Put Ladder

#### 249. What is Short Put Ladder Strategy?

**Ans.** A Short Put Ladder is the extension of Bull Put spread; the only difference is of an additional lower strike bought. The purpose of buying the additional strike is to get unlimited reward if the underlying asset goes down.

#### 250. In what scenario, does a trader consider a short put ladder strategy?

**Ans.** A Short Put Ladder should be initiated when a trader is expecting big movement in the underlying asset, favouring downside movement. Profit potential will be unlimited when the stock breaks lower strike price. Also, another opportunity is when the implied volatility of the underlying asset falls unexpectedly and expected volatility goes up then a trader can apply Short Put Ladder strategy.

# 251. How to construct Short Put Ladder?

**Ans.** A Short Put Ladder can be created by selling 1 ITM Put, buying 1 ATM Put and buying 1 OTM Put of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader. A trader can also initiate the Short Put Ladder strategy in the following way - Sell 1 ATM Put, buy 1 OTM Put and Buy 1 Far OTM Put.

# 252. How to manage risk for short put ladder strategy?

**Ans.** A Short Put Ladder is exposed to limited loss; hence it is advisable to carry overnight positions.

#### 253. What do you understand by short put ladder?

**Ans.** A Short Put Ladder is best to use when you are confident that an underlying security will move significantly lower. Another scenario wherein this strategy can give profit is when there is a surge in implied volatility. It is a limited risk and an unlimited reward strategy only if movement comes on the lower side or else reward would also be limited.

# 254. What is a short call ladder option strategy?

**Ans.** A Short Call Ladder is the extension of Bear Call spread; the only difference is of an additional higher strike bought. The purpose of buying the additional strike is to get unlimited reward if the underlying asset moves up.

# 255. In what scenario, does a trader consider a short call ladder strategy?

**Ans.** A Short Call Ladder spread should be initiated when a trader is expecting big movement in the underlying assets, favouring upside movement. Profit potential will be unlimited when the stock breaks highest strike price. Also, another opportunity is when the implied volatility of the underlying assets falls unexpectedly and trader expects volatility to go up then they can apply Short Call Ladder strategy.

# 256. How to construct a Short Call Ladder?

**Ans.** A Short Call Ladder can be created by selling 1 ITM call, buying 1 ATM call and buying 1 OTM call of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader. A trader can also initiate the Short Call Ladder strategy in the following way - Sell 1 ATM Call, Buy 1 OTM Call and Buy 1 Far OTM Call.

# 257. How to manage risk for short call ladder strategy?

**Ans.** A Short Call Ladder is exposed to limited loss; hence it is advisable to carry overnight positions. However, one can keep stop Loss in order to restrict losses.

#### 258. What is the Analysis of Short Call Ladder Options strategy?

**Ans.** A Short Call Ladder spread is best to use when you are confident that an underlying security will move significantly. Another scenario wherein this strategy can give profit is when there is a surge in implied volatility. It is a limited risk and an unlimited reward strategy if movement comes on the higher side.

#### Long Iron Butterfly

#### 259. What is Long Iron Butterfly Strategy?

**Ans.** A Long Iron Butterfly is implemented when an investor is expecting volatility in the underlying assets. This strategy is initiated to capture the movement outside the wings of options at expiration. It is a limited risk and a limited reward strategy. A Long Iron Butterfly could also be considered as a combination of bull call spread and bear put spread.

#### 260. In what scenario, does a trader consider a long iron butterfly strategy?

**Ans.** A Long Iron Butterfly spread is best to use when a trader expects the underlying assets to move sharply higher or lower but they are uncertain about direction. Also, when the implied volatility of the underlying assets falls unexpectedly and they expect volatility to shoot up, then they can apply Long Iron Butterfly strategy.

#### 261. How to construct a Long Iron Butterfly?

**Ans.** A Long Iron Butterfly can be created by buying 1 ATM call, selling 1 OTM call, buying 1 ATM put and selling 1 OTM put of the same underlying security with the same expiry. Strike price can be customized as per the convenience of the trader; however, the upper and lower strike must be equidistant from the middle strike.

#### 262. How to manage risk for long iron butterfly strategy?

**Ans.** A Long Iron Butterfly is exposed to limited risk but risk involved is higher than the net reward from the strategy, one can keep stop loss to further limit the losses.

#### 263. What is the Analysis of Long Iron Butterfly strategy?

**Ans.** A Long Iron Butterfly spread is best to use when you are confident that an underlying security will move significantly. Another way by which this strategy can give profit is when there is an increase in implied volatility. However, this strategy should be used by advanced traders as the risk to reward ratio is high.

# Short Call Condor

# 264. What is Short Call Condor Options strategy?

**Ans.** A Short Call Condor is similar to Short Butterfly strategy. The only exception is that the difference of two middle strikes bought has different strikes.

# 265. In what scenario, does a trader consider a short call condor strategy?

**Ans.** A Short Call Condor is implemented when the investor is expecting movement outside the range of the highest and lowest strike price of the underlying assets. Advance traders can also implement this strategy when the implied volatility of the underlying assets is low and you expect volatility to go up.

# 266. How to construct a Short Call Condor?

**Ans.** A Short Call Condor can be created by selling 1 lower ITM call, buying 1 lower middle ITM call, buying 1 higher middle OTM call and selling 1 higher OTM calls of the same underlying security with the same expiry. The ITM and OTM call strikes should be equidistant.

# 267. What is the analysis of Short Call Condor spread strategy?

**Ans.** A Short Call Condor spread is best to use when you are confident that an underlying security will move outside the range of lowest and highest strikes. Unlike straddle and strangles strategies risk involved in short call condor is limited.

#### Short Call Butterfly

#### 268. What is Short Call Butterfly strategy?

**Ans.** A Short Call Butterfly is implemented when an investor is expecting volatility in the underlying assets. This strategy is initiated to capture the movement outside the wings of the options at expiration. It is a limited risk and a limited reward strategy.

#### 269. In what scenario, does a trader consider a short call butterfly strategy?

**Ans.** Short Call Butterfly can generate returns when the price of an underlying security moves moderately in either direction. It means that you don't have to forecast the trend of the market, but you have to bet on volatility. When the implied volatility of the underlying assets is low and you expect volatility to shoot up, then you can apply Short Butterfly Strategy.

#### 270. How to construct a Short Call Butterfly?

**Ans.** A Short Call Butterfly can be created by selling 1 ITM call, buying 2 ATM call and selling 1 OTM call of the same underlying security with the same expiry, giving the trader a net credit to enter the position. Strike price can be customized as per convenience of the trader but the upper and lower strikes must be equidistant from the middle strike.

# 271. What is the Analysis of Short Call Butterfly spread strategy?

**Ans.** A Short Call Butterfly spread is best to use when you are confident that an underlying security will move in either direction. This is a limited reward to risk ratio strategy for advance traders.

# VIII. Risks involved in Derivatives trading

#### 272. What is risk in context of derivatives trading?

**Ans:** Risk is defined in financial terms as the chance that an outcome or investment's actual gains will differ from an expected outcome or return. Risk includes the possibility of losing some or all of an original investment.

#### 273. What is the fundamental idea of risk?

**Ans:** Each investor has a unique risk profile that determines their willingness and ability to withstand risk. In general, as investment risks rise, investors expect higher returns to compensate for taking those risks. A fundamental idea in finance is the relationship between risk and return.

#### 274. What are the major types of risks involved in Derivatives trading?

Ans: The major risks involved in derivative trading are:-

- Counterparty risk
- Price risk
- Agency risk
- Systemic risk
- Liquidity risk
- Interconnection risk

# 275. What is counterparty risk?

**Ans:** About three quarters of the derivatives contracts across the world are entered over the counter. This means that there is no exchange involved and hence there is a probability that the counterparty may not be able to fulfil its obligations. This gives rise to the most obvious type of risk associated with derivatives market i.e. counterparty risk.

# 276. What are the counterparty risks involved at various stages?

**Ans:** Counterparty risks are sometimes called legal risk, default risk, settlement risk etc. Essentially all these risks refer to the same risk. Parties not following through with their commitments could happen at various stages. For instance, if the contract is not drafted then it would be called legal risk. On the other hand, if the other party defaults on the day of the settlement, then it would be called settlement risk.

# 277. What is price risk?

**Ans:** Derivatives trading is a new phenomenon due to which pricing of the derivatives is a little unclear to all participants. There is always a risk that the majority of the market may be mispricing these derivatives and may cause large scale default. For Example, Long Term Capital Management (LTCM) became part of a trillion dollar default and became a prime example as to how even the smartest management may end up wrongly guessing the price of derivatives.

#### 278. What is agency risk?

**Ans:** Agency risk simply means that if there is a principal and an agent, the agent may not act in the best interest of the principal because their objectives are different from that of the principal. In this scenario it would mean that if a derivative trader is acting on behalf of a client, the interests of the client and that of the trader who is authorized to make decisions may be different.

#### 279. What is systemic risk?

**Ans:** System risk refers to the probability of widespread default in all financial markets because of a default that initially started in derivative markets. In simple words, this is the belief that because derivatives are so volatile, one major default can cause cascading defaults throughout the derivatives market. These cascading defaults will then spin out of control and enter the financial domain in general threatening the existence of the entire financial system. Systemic risk pertaining to derivatives is not faced by any particular party. It is faced by the entire system.

#### 280. What is liquidity risk?

**Ans:** Liquidity risk applies to investors who plan to close out a derivative trade prior to maturity. Liquidity risk is also important for investors interested in derivatives trading. Such investors need to consider if it is difficult to close out the trade or if existing bid-ask spreads are so large as to represent a significant cost.

# 281. What is interconnection risk?

**Ans:** Interconnection risk refers to how the interconnections between various derivative instruments and dealers might affect an investor's particular derivative trade. Some analysts express concern over the possibility that problems with just one party in the derivatives market, such as a major bank that acts as a dealer, might lead to a chain reaction or snowball effect that threatens the stability of financial markets overall.

# 282. Do risks involved in Equity Derivatives markets are significantly higher than the risks involved in underlying Equity markets? Why?

**Ans:** Yes. The risks involved in Equity Derivatives markets are significantly higher than the risks involved in underlying Equity Spot markets.

The exposure in Derivatives markets involve leverage whereas the exposure in Cash/Spot markets do not involve any leverage. For example, in Equity Derivatives markets, a trader can take significantly higher exposure on Notional Value basis merely by putting a fraction of capital in form of margins (in case of futures) or premium (in case of options). However, the trader still remains exposed to the entire market risk on the basis of Notional value exposure only.

For example, if a trader has a capital of Rs. 10 lacs, then in cash markets, he/she can buy underlying stocks worth Rs. 10 lacs only. However, in Derivatives markets, since he/she can deploy the Rs. 10 lacs capital as margins (in case of futures) or premium (in case of options), the trader can significantly increase the notional value exposure to as high as Rs. 40 to Rs. 50 lacs, or even higher, with the same capital of Rs. 10 lacs. To sum up, the ability to take an exposure of Rs. 50 lacs, with a capital of only Rs. 10 lacs, is essentially the leverage effected because of derivatives.

However, the aforesaid leverage also multiplies the risk exposure of the trader. For example, in the above case, if the price of the underlying stock moves in a direction adverse to the investor, the losses will also multiply by 5 times (e.g. a 20% adverse movement in prices will lead to losses of Rs. 10 lacs (20% of Rs. 50 lacs), which is equivalent to entire capital deployed by the trader as margin)As a result, the capital risk in equity derivatives markets remain significantly higher when compared to the capital risk in equity spot markets.

# **IX. Trading, Margin and Position Limit**

#### **Position Limits**

#### 283. What is Market wide position limit (MWPL)?

**Ans.** It is the maximum aggregate open interest across exchanges that can ever arise on an individual securities' Future and option segment.

# 284. What is the base on which Market wide position limit (MWPL) is calculated?

**Ans.** To calculate the MWPL the Non-Promotor shareholding (Free float equity shares) is taken into consideration.

#### 285. How the Market wide position limit (MWPL) is calculated?

**Ans.** Out of the total number of Non-promoter shareholding only 20% is allowed to calculate the MWPL.

For example, let's assume that State bank of India has 384\* crore shares as Non-promoter shareholding then, 20% of 384\* crore which is 76.8\* crore shares are considered for MWPL.

#### 286. How frequent the market wide position limit is verified?

**Ans**. At the end of each day the Exchange shall test whether the market wide open interest for any scrip exceeds 95% of the market wide position limit for that scrip. The Exchange will take this action only at end of day, they shall disclose real time information about the market wide open interest as a percentage of the market wide position limits.

#### 287. Who specifies the Market wide position limit (MWPL) for a security?

**Ans.** The Clearing Corporation shall specify the MWPL on the last trading day of the month which shall be reckoned for this purpose during the next month.

# 288. How the total open interest is calculated, is it from a single stock exchange?

**Ans.** Open Interest is the aggregate notional value of all outstanding futures and options contracts (i.e. futures and options contracts which are not settled or squared off) on a particular underlying. The aggregate open interest of the security across Exchanges shall be considered for the purpose of monitoring of MWPL.

# 289. What are the threshold limits in open-interest as a % of Non-promoter shareholding?

**Ans.** Once the open interest in the futures and options contract in a particular security exceeds 60% of the MWPL specified for such security it raises an alert.

If the aggregate open interest of the security across Exchanges exceeds 95% of the MWPL then, no fresh positions shall be permitted for the said security from the subsequent trading day.

The normal trading in the security shall be resumed only after the aggregate open outstanding position across Exchanges comes down to 80% or below of the MWPL.

# 290. How that excess open interest comes back to normal level?

**Ans.** Once the Open-interest reaches the 95% level of MWPL, from next day onwards the client/ TMs should trade only to decrease their positions through offsetting positions till the aggregate open interest across Exchanges comes down to 80% or below of the market wide position limit.

# 291. What is the rule regarding Customer Level/ NRI/Sub Accounts Position Limit?

Ans. 1% of the free float market capitalization (in terms of number of shares).

5% of the open interest in the derivative contracts on a particular underlying stock (in terms of number of contracts).

**Ans.** These position limits would be applicable on the combined position in all derivative contracts on an underlying stock at an exchange.

b. This requirement may not be monitored by the exchange on a real time basis, but if during any investigation or otherwise, any violation is proved, and penalties can be levied.

# 292. What is the rule regarding Trading Member/FII/Mutual Fund Position Limit?

**Ans.** For stocks having applicable market-wise position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit shall be 20% of applicable MWPL or Rs.300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs.150 crores, whichever is lower.

For stocks having applicable market-wise position limit (MWPL) less than Rs.500 crores, the combined futures and options position limit would be 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs.50 crore whichever is lower

# 293. Is there any market wide position limit in Index Future and Option?

Ans. There are no market wide position limits specified for index futures contracts.

# 294. What are the rules regarding Client Level/ NRI/Sub Accounts position limit in Index Future and Option?

**Ans.** A self-disclosure requirement similar to that in the take-over regulations is prescribed as under:

Any person or persons acting in concert who together own 15% or more of the open interest shall be required to report this fact to the exchange and failure to do so shall attract a penalty as laid down by the exchange / Clearing Corporation / SEBI.

# 295. What are the rules regarding Trading Member/FII/Mutual Fund position limit in Index Future and Option?

**Ans.** The trading member/FII/mutual fund position limits in equity index futures contracts shall be higher of:

• Rs.500 Crore

or

• 15% of the total open interest in the market in equity index futures contracts.

This limit would be applicable on open positions in all futures contracts on a particular underlying index.

#### 296. Is there any extra exposure allowed to Mutual Funds/FIIs?

**Ans.** In addition to the position limits above, Mutual Funds/FIIs may take exposure in equity index derivatives subject to the following limits:

**Ans.** Short positions in index derivatives (short futures, short calls and long puts) shall not exceed (in notional value) the Mutual Funds/FIIs holding of stocks.

b. Long positions in index derivatives (long futures, long calls and short puts) shall not exceed (notional value) the Mutual Funds/FIIs holding of cash, government securities, T-Bills and similar instruments.

# 297. What is the Trading Member wise Position limit in Index Future?

**Ans.** The trading member position limits in equity index futures contracts shall be higher of Rs.500 crores or 15% of the total open interest in the market in equity index futures contracts. This limit would be applicable on open positions in all futures contracts on a particular underlying index.

#### 298. What is the Trading Member wise Position limit in Index Option?

**Ans.** The trading member position limits in equity index option contracts shall be higher of Rs.500 crores or 15% of the total open interest in the market in equity index option contracts. This limit would be applicable on open positions in all option contracts on a particular underlying index.

# 299. What is the Additional exposure in equity index derivatives? (https://www1.nseindiAns.com/products/content/derivatives/equities/position\_limits.htm)

**Ans.** In addition to the above limits, in index futures and options, FPI Category (I &II)/MFs shall take exposure in equity index derivatives subject to the following limits:

Short positions in index derivatives (short futures, short calls and long puts) not exceeding (in notional value) the FPI Category (I &II)/ MFs holding of stocks.

Long positions in index derivatives (long futures, long calls and short puts) not exceeding (in notional value) the FPI Category (I &II)/MFs holding of cash, government securities, T-Bills, money market mutual funds and gilt funds and similar instruments.

In this regard, if the open position of an FPI Category (I &II)/ MF exceeds the limits as stated for Index Futures or Index Options, such surplus would be deemed to comprise of short and long positions in the same proportion of the total open positions individually. Such short and long positions in excess of the said limits shall be compared with the FPI Category (I &II) /MFs holding in stocks, cash etc. as stated above.

# 300. What is the Trading Member wise Position limit in Individual security?

**Ans.** The combined future and options position limit shall be 20% of the applicable Market Wide Position Limit (MWPL) per Exchange. The Clearing Corporation shall specify the trading member-wise position limits on the last trading day of the month which shall be reckoned for this purpose during the next month.

# **Client level Position Limit**

# **301.** What is the Client Level Position Limits of Futures and Option contracts on individual securities?

**Ans.** The gross open position across all the derivative contracts for a security for each specific client shall not exceed higher of

- 1% of the free float market capitalization (in terms of number of shares)
- 5% of the open interest in all derivative contracts in the same underlying stock Per Exchange (in terms of number of shares).

# 302. Where can I check the Security wise client level Position limit?

**Ans.** Client level position limits security-wise, are made available to members on the Exchange website.

# **303.** What are the rules regarding position limit for Persons acting in concert (PAC)?

**Ans.** Any person or persons acting in concert who together own 15% or more of the open interest on a particular underlying index, is required to report this fact to the Exchange/ Clearing Corporation.

# **304.** What if the Persons acting in concert (PAC) failed to report?

**Ans.** It will be treated as a violation and shall attract appropriate penal and disciplinary action in accordance with the Rules, Byelaws and Regulations of the Clearing Corporation.

# **Trading**

# **305.** What is the Market timing in equity derivative segment?

**Ans.** Trading on the derivatives segment takes place on all days of the week (except Saturdays and Sundays and holidays declared by the Exchange in advance). The market timings of the derivatives segment are:

Normal market / Exercise market open time: 09:15 hrs

Normal market close time: 15:30 hrs

Setup cut-off time for Position limit/Collateral value: 16:15hrs

Trade modification / Exercise market end time: 16:15hrs

# **306.** What are the applicable price bands in equity derivative segment?

**Ans**. Here are no day minimum/maximum price ranges applicable in the derivatives segment. However, in order to prevent erroneous order entry, operating ranges and day minimum/maximum ranges are kept as below:

- For Index Futures: at 10% of the base price
- For Futures on Individual Securities: at 10% of the base price
- For Index and Stock Options: A contract specific price range based on its delta value is computed and updated on a daily basis.

# 307. How developed is the trading system in Future and Option segment in India?

**Ans.** The Futures and Options Trading System provides a fully automated trading environment for screen-based, floor-less trading on a nationwide basis and an online monitoring and surveillance mechanism. The system supports an order driven market and provides complete transparency of trading operations.

Orders, as and when they are received, are first time stamped and then immediately processed for potential match. If a match is not found, then the orders are stored in different 'books'. Orders are stored in price-time priority in various books in the following sequence:

- Best Price
- Within Price, by time priority.

#### 308. What is the order matching rule for equity derivatives?

**Ans.** The best buy order will match with the best sell order. An order may match partially with another order resulting in multiple trades. For order matching, the best buy order is the one with highest price and the best sell order is the one with lowest price. This is because the computer views all buy orders available from the point of view of a seller and all sell orders from the point of view of the buyers in the market. So, of all buy orders available in the market at any point of time, a seller would obviously like to sell at the highest possible buy price that is offered. Hence, the best buy order is the order with highest price and vice-vers**Ans.** 

# **309.** What is passive and active order?

**Ans.** Orders lying unmatched in the system are 'passive' orders and orders that come in to match the existing orders are called 'active' orders.

#### 310. What are the order conditions?

**Ans.** The participants can enter various types of orders depending upon his/her requirements. These conditions are broadly classified into 2 categories:

- Time related conditions
- Price-related conditions

#### **311.** What are the various time conditions?

**Ans. DAY -** A Day order, as the name suggests, is an order which is valid for the day on which it is entered. If the order is not matched during the day, the order gets cancelled automatically at the end of the trading day.

**IOC** - An Immediate or Cancel (IOC) order allows a Trading Member to buy or sell a security as soon as the order is released into the market, failing which the order will be removed from the market. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

#### 312. What are the various Price conditions?

**Ans. Limit Price/Order -** An order that allows the price to be specified while entering the order into the system.

**Market Price/Order -** An order to buy or sell securities at the best price obtainable at the time of entering the order.

**Stop Loss (SL) Price/Order -** The one that allows the Trading Member to place an order which gets activated only when the market price of the relevant security reaches or crosses a threshold price (Trigger Price). Until then the order does not enter the market.

#### 313. What is a Stop loss order?

**Ans.** Stop loss order is entered by a trader who wants to cap his/her loss from a particular trade. This order is generally either higher (if your trade is short) or lower (if your trade is long) than your executed order price so, to activate this order one trigger price is used, whenever the last traded price (LTP) breaches the Trigger price the stop loss order gets activated and sent to central limit order book.

**Stop loss (Buy) when your original position is short:** Let's assume you have shorted Nifty50 Future (75 lot size) at 11800 level and you can tolerate a loss of 7500 (75\*100) this is when the future reaches 11900 level, so you will punch a Stop loss buy order where the trigger price will be less than 11900 say 11898 and 11900 as the price you want to buy if you select market order then after triggering 11898 level whatever is the best ask that will be executed.

**Stop loss (sell) when your original position is Long:** Let's assume you have a Long position in Nifty50 Future (75 lot size) at 11800 level and you can tolerate a loss of 7500 (75\*100) this is when the future reaches 11700 level, so you will punch a Stop loss sell order where the trigger price will be higher than 11700 say 11701 and 11700 as the price you want to sell if you select market order then after triggering 11701 level whatever is the best bid that will be executed.

#### 314. What is CTCL facility?

**Ans.** Computer to Computer Link (CTCL) is a facility offered by Exchanges for its trading members by which members can use their own trading front-end software in order to trade on the Exchanges trading system. Members can use software customised to meet their specialised needs like provision of on-line trade analysis, risk management tools, integration of back-office operations etc.

#### Margin Requirements:

#### 315. Why should there be margins?

**Ans.** There is always a small chance that the investor may not be able to bring the required money by the required date. As an advance for buying the shares, investor is required to pay a portion of the total amount to the broker at the time of placing the buy order. Stock exchange in turn collects similar amount from the broker upon execution of the order. This initial token payment is called margin. Margin payments ensure that each investor is serious about buying or selling shares. Margins ensure that buyers bring money and sellers bring shares to complete their obligations even though the prices have moved down or up.

#### 316. What are the types of margins levied for trading in derivatives in India?

**Ans.** The following are some of the important margin types, which are applicable, for trading in derivatives in India:

- 1) Initial margin / Value at Risk (VaR) margin
- 2) Premium margin
- 3) Assignment margin for options on securities

- 4) Intra-day crystallised losses
- 5) Delivery margins
- 6) Exposure margins
- 7) Short option minimum charge
- 8) Client margins
- 9) Cross margin
- 10) Additional Surveillance margin

#### 317. What is the current margining system in the case of Options and futures?

**Ans.** A portfolio based margining model, i.e. Standard Portfolio Analysis of Risk (SPAN) system, has been adopted. This will take an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in all the derivatives contract traded on the Derivatives Segment. The Initial Margin would be based on worst-case loss of the portfolio of a client to cover 99% VaR over two day's horizon. The Initial Margin would be netted at client level and shall be on gross basis at the Trading/Clearing member level. The Portfolio will be marked to market on a daily basis.

#### 318. What is Value at Risk (VaR) margin?

**Ans.** VaR Margin is a margin intended to cover the largest loss (in %) that may be faced by an investor for his / her shares (both purchases and sales) on a single day with a 99% confidence level. The VaR margin is collected on an upfront basis at the time of trade.

#### 319. What are span margins?

**Ans.** Standard Portfolio Analysis of Risk (SPAN) is a system for the purpose of margining, which is a portfolio based system. VaR margins are computed using SPAN.

#### 320. What is the Extreme Loss Margin?

**Ans.** The extreme loss margin aims at covering the losses that could occur outside the coverage of VaR margins. The Extreme loss margin for any stock is higher of 1.5 times the standard deviation of daily LN returns of the stock price in the last six months or 5% of the

value of the position. This margin rate is fixed at the beginning of every month, by taking the price data on a rolling basis for the past six months.

#### 321. How is Mark-to-Market (MTM) margin computed?

**Ans.** MTM Profit/Loss = [(Total Buy Qty X Close price) - Total Buy Value] - [Total Sale Value - (Total Sale Qty X Close price)]

# 322. What are the types of margins levied in the Futures & Options (F&O) Segment?

Ans. Margins on Futures and Options segment comprise of the following: 1) Initial Margin2) Exposure margin.

In addition to these margins, in respect of options contracts the following additional margins are collected 1) Premium Margin 2) Assignment Margin

# 323. What are Premium and Assignment margins and how are they computed?

**Ans.** In addition to Initial Margin, a Premium Margin is charged to trading members trading in Option contracts. The premium margin is paid by the buyers of the Options contracts and is equal to the value of the options premium multiplied by the quantity of Options purchased. For example, if 1000 call options on ABC Ltd are purchased at Rs. 20/-, and the investor has no other positions, then the premium margin is Rs. 20,000. The margin is to be paid at the time trade. Assignment Margin is collected on assignment from the sellers of the contracts.

# 324. Are all brokers eligible to provide Margin Trading Facility?

**Ans.** Corporate brokers with net worth of at least Rs.3 crore are eligible for providing Margin trading facility to their clients subject to their entering into an agreement to that effect. Before providing margin trading facility to a client, the member and the client have been mandated to sign an agreement for this purpose in the format specified by SEBI. It

has also been specified that the client shall not avail the facility from more than one broker at any time.

# 325. What are the sources through which Margin Trading Facility is provided to its's clients?

**Ans.** For providing the margin trading facility, a broker may use his own funds or borrow from scheduled commercial banks or NBFCs regulated by the RBI. A broker is not allowed to borrow funds from any other source. The total exposure of the broker towards the margin trading facility should not exceed the borrowed funds and 50 per cent of his net worth. While providing the margin trading facility, the broker has to ensure that the exposure to a single client does not exceed 10 per cent of the total exposure of the broker.

# 326. What is SEBI Risk Management System?

**Ans.** The primary focus of risk management by SEBI has been to address the market risks, operational risks and systemic risks. To this effect, SEBI has been continuously reviewing its policies and drafting risk management policies to mitigate these risks, thereby enhancing the level of investor protection and catalysing market development.

Some key risk management measures initiated by SEBI-

- VaR based margining system.
- Specification of mark to Market margins.
- Specification of Intra-day trading limits and Gross Exposure Limits
- Real time monitoring of the Intra-day trading limits and Gross Exposure Limits by the Stock Exchanges
- Specification of time limits of payment of margins
- Collection of margins on upfront basis
- Index based market wide circuit breakers
- Automatic de-activation of trading terminals in case of breach of exposure limits
- VaR based margining system has been put in place based on the categorization of stocks based on the liquidity of stocks depending on its impact cost and volatility. It addresses 99% of the risks in the market.
- Additional margins have also been specified to address the balance 1% cases.

• Collection of margins from institutional clients on T+1 basis

# 327. What is cross margining?

**Ans.** Cross margining is an offsetting process whereby excess margin in a trader's margin account is moved to another one of their margin accounts to satisfy maintenance margin requirements. The process allows a company or individual to use all of their available margin across all of their accounts.

#### 328. What are the cross margin benefits offered by NSE and BSE?

**Ans.** The positions of clients in both the Cash and F&O segments to the extent they offset each other are being considered for the purpose of cross margining as per the following priority:

- Index futures and constituent stock futures in F&O segment
- Index futures and constituent stock positions in Cash segment
- Stock futures in F&O segment and stock positions in Cash segment

The above benefits are available only if they satisfy the following clauses:

- For the first two options, the basket of constituent stock futures/ stock positions should be a complete replica of the index futures. NSE and BSE Clearing specifies the number of units of the constituent stocks/ stock futures required in the basket to be considered as a complete replica of the index on the website of the respective exchanges from time to time.
- The number of units are changed only in case of change in share capital of the constituent stock due to corporate action or issue of additional share capital or change in the constituents of the index.
- The positions in F&O segment for the stock futures and index futures should be in the same expiry month to be eligible for cross margining benefit.
- The position in a security is considered only once for providing cross margining benefit. E.g. Positions in Stock Futures of security 'A' used to set-off against index futures positions will not be considered again if there is an off-setting positions in the security 'A' in Cash segment.
- Positions in option contracts are not considered for cross margining benefit.

#### **329.** How is the cross margin benefit calculated?

**Ans.** The computation of cross margining benefit is done at client level on an online real time basis and provided to the trading member / clearing member / custodian, as the case may be, who, in turn, shall pass on the benefit to the respective client.

- For institutional investors the positions in Cash segment are considered only after confirmation by the custodian on T+1 basis and on confirmation by the clearing member in F&O segment.
- The positions in the Cash and F&O segment are considered for cross margining only till time the margins are levied on such positions.
- While reckoning the offsetting positions in the Cash segment, positions in respect of which margin benefit has been given on account of early pay-in of securities or funds are not considered.
- The positions which are eligible for offset, are subject to spread margins. The spread margins are 25% of the applicable upfront margins on the offsetting positions or such other amount as specified by either clearing from time to time.
- The difference in the margins on the total portfolio and on the portfolio excluding off-setting positions considered for cross margining, less the spread margins is considered as cross margining benefit.

# X. Clearing and Settlement

#### 330. What is Clearing and Settlement?

**Ans.** Clearing is a process of updating the accounts of the trading parties and arranging for the transfer of money and securities. Settlement, on the other hand is the actual transfer of money and securities between the parties on the settlement date.

#### 331. Who is a Clearing Member?

**Ans.** A clearing Member is an entity which takes the responsibility of clearing and settlement of all the deals executed by the trading members registered with the exchange. It acts as a legal counter-party to all the deals in F&O segment and guarantees settlement.

# 332. Which are the major Clearing agencies in India?

**Ans.** National Clearing Limited (formerly known as NSCCL) is the clearing and settlement agency for all the derivatives trades happening on National Stock Exchange (NSE) while Indian Clearing Corporation Limited (ICCL) is clearing agency for the equity derivative trades executed on the Bombay Stock Exchange (BSE).

# 333. What are the functions of a Clearing Member?

Ans. A clearing member performs the following functions:

- Clearing: It is computation of the obligations of all the trading members of the exchange i.e. determining positions to settle.
- Settlement: It is performing actual settlement of the funds.
- Risk Management: It is setting position limits based on upfront deposits/margins for each Trading Member and monitoring such positions on a continuous basis.

# 334. What are the different types of Clearing Members?

Ans. There are three types of Clearing Members viz.

- Trading Member Clearing Member (TM-CM): It is a clearing member who is also a trading member. Such Clearing Members may clear and settle their own proprietary trades, their clients' trades as well as trades of other Trading Members and Custodial Participants.
- Professional Clearing Member (PCM): It is a clearing member who is not a trading member. Typically banks or custodians could become a PCM and clear and settle for TM's as well as of the Custodial Participants.
- Self-Clearing Member (SCM): It is a clearing member who is also a trading member. Such Clearing Members may clear and settle their own proprietary trades and their clients' trades but are not allowed to clear trades of other Trading Members ad Custodial Participants.

#### 335. What are Clearing Banks?

**Ans.** Clearing Bank is an entity that maintains and operates the Clearing Accounts of the Clearing Members. These Clearing accounts are exclusively used for Clearing and Settlement Operations. Currently, all major Scheduled Banks are registered with both NSE and BSE as clearing banks.

# **336.** Describe the Clearing Mechanism.

**Ans.** The clearing mechanism essentially involves working out open positions and obligations of clearing (SCM/TM-CM/PCM) members. A Clearing Member's open position is arrived by aggregating the open position of all the Trading Members and all custodial participants clearing through it. A TM's open position in turn includes his proprietary open position and clients' open positions.

Open positions for client and propriety positions are calculated separately.

Following illustration will demonstrate the calculation of the open positions:

Let CM Ltd. be a clearing member with TM1 and TM2 as registered trading members with CM Ltd.

		Propri	etary Tra	ıdes	Client 1			Client 2			Net
											Positions
	Security	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	
TM1	Nifty	1000	(500)	500	2000	(1000)	1000	2500	(1500)	1000	Long
	Oct Fut										2500
TM2	Nifty	600	(1000)	(400	) 5000	(2000)	3000	500	(3500)	(3000)	Long
	Oct Fut										3000
											Short
											3400
		Net Long Position				Net Short Position					
TM1					2500				0		
TM2					3000				3400		
Net open position for CM Ltd.					5500				3400		

Hence, CM Ltd.'s open position for the Nifty Oct Fut contract will be:

# 337. What is Settlement Price?

Ans. Daily Mark to Market Settlement of Futures: The Daily settlement price for futures contracts is the closing price of such contracts on the trading day. The closing price for a futures contract shall be calculated on the basis of the last half an hour weighted average price of such contracts. All positions (brought forward, traded during the day and closed out during the day) of a clearing member in futures contracts, at the close of trading hours on a day, shall be marked to market at the daily settlement price (for daily mark to market settlement) and settled. Theoretical Price is computed as per formula F=S \* ert

Where, F= Theoretical Future Price

S= Value of the Underlying
r= Rate of Interest (Usually Mibor) t= time to expiry e= 2.71828

**Daily Premium settlement for Option Contracts:** The premium payable value or receivable value of clearing members in respect of option contracts is computed after netting the premium payable or receivable positions at trading member level, for each option contract, at the end of each trading day.

**Final Settlement Price for futures contracts and exercised Option Contracts:** Final settlement price for futures and options contract shall be the closing price of the relevant underlying index/security in the normal market of the Capital Market segment of the Stock Exchange on the last trading day of such futures contract. The closing price of the relevant underlying security is calculated on the basis of the last half an hour weighted average price of the relevant underlying security. All positions of a clearing member in futures contracts, at the close of trading hours on the last trading day of the contract, are marked to market at final settlement price (for final settlement) and settled.

# 338. Describe Settlement mechanism for settlement of single stock derivatives (Futures and Options) in IndiAns.

**Ans. Final settlement for futures:** All outstanding positions identified for physical settlement on the contract expiry date will be settled by delivery of the underlying stock at the final settlement price of the respective contract.

**Final settlement for options:** All outstanding positions identified as aforesaid for physical settlement on the contract expiry date will be settled by delivery of the underlying stock at the respective strike prices.

# **339.** Describe Settlement mechanism for settlement of index derivatives (Futures and Options) in IndiAns.

- **Futures contract:** Futures contract have two types of settlements, the MTM settlement which happens on a continuous basis at the end of each day, and the final settlement which happens on the last trading day of the futures contract.
- Mark to Market is a process by which margins are adjusted on the basis of daily price changes in the markets for underlying assets.
- On expiration day of the futures contracts, after the close of trading hours, clearing corporation marks all positions of a clearing member to the final settlement price. All long positions are automatically assigned to short positions with the same series, on a random basis, for either cash settlement or for delivery settlement, whichever is applicable.
- Daily mark to market settlement and final settlement for futures contract which are cash settled
- **Option contracts:** Options contracts have two types of settlements: Daily premium settlement and Final settlement
- The clearing members who have a premium payable position are required to pay the premium amount to clearing corporation which in turn passed on to the members who have a premium receivable position. This is known as daily premium 106 settlement. The premium payable amount and premium receivable amount are directly credited/ debited to the clearing member's clearing bank account.
- All the in-the-money stock options contracts, except the Close to Money (CTM) options which are explicitly marked as "Do Not Exercise", shall get automatically exercised on the expiry day. All these long positions are automatically assigned to the short positions in option contracts with the same series, on a random basis.
- Premium settlement in respect of admitted deals in options contracts on index and on individual securities shall be cash settled by debit/credit of the clearing accounts of clearing members with the respective clearing bank.
- Exercise settlement for index options: Exercise style of index option contracts is European style wherein all in-the-money contracts get automatically exercised on the expiry day. Exercise settlement in respect of admitted deals in index option contracts are cash settled by debit/credit of the clearing accounts of the relevant clearing members with the respective clearing bank.

• Exercise settlement for options on individual securities: Exercise style of option contracts on individual securities is European style wherein all in-the-money contracts get automatically exercised on the expiry day. Option contracts, which have been exercised, shall be assigned and allocated to clearing members, at the client level on a random basis.

## **340.** How are corporate actions adjusted?

**Ans.** The basis for any adjustment for corporate actions shall be such that the value of the position of the market participants, on the cum and ex-dates for the corporate action, shall continue to remain the same as far as possible. This will facilitate in retaining the relative status of positions viz. in-the-money, at-the-money and out-of-money. This will also address issues related to exercise and assignments.

## 341. What are different types of corporate actions?

Ans. Following are different types of corporate actions:

- Bonus issue
- Rights issue
- Merger/De-merger
- Amalgamation
- Splits
- Consolidations
- Hive-off
- Warrants
- Secured Premium Notes (SPN)
- Extraordinary Dividends

# 342. What is the methodology for adjustments of Bonus Issues, Stock Splits and Consolidations?

**Ans.** The methodology proposed to be followed for adjustment of Bonus Issues, Stock Splits and Consolidations is as follows:

- Strike Price: The new strike price would be arrived at by dividing the old strike price by the adjustment factor.
- ➢ For a bonus issue of A:B, the adjustment factor is (A+B)/B
- > For Stock splits and consolidations of A:B, the adjustment dactor is A/B
- Market Lot / Multiplier: The new market lot/multiplier would be arrived at by multiplying the old market lot by the adjustment factor as mentioned above.
- Position: The new position would be arrived at by multiplying the old position by the adjustment factor as mentioned above.

### 343. What is the methodology for adjustments of Dividends?

Ans. The methodology proposed to be followed for adjustment of Dividends is as follows:

- Dividends which are below 5% of the market value of the underlying stock would be deemed to be ordinary dividends and no adjustment in the Strike Price would be made for ordinary dividends. For extra-ordinary dividends, above 5% of the market value of the underlying stock, the Strike Price would be adjusted.
- The adjustments would be made on the closing price of the stock on the day previous to the day of the announcement of the dividend. However, if the announcement is made right after the market closing hours, the same day's closing market price would be considered.
- In case, the dividend is deemed as extraordinary, the total dividend amount would be reduced from all the strike prices of the option contracts on that stock.
- The revised strike prices would be applicable from the ex-dividend date specified by the exchange.

## **344.** What is the methodology for adjustments of Mergers?

Ans. The methodology proposed to be followed for adjustment of Mergers is as follows:

On the announcement of the record date for the merger, the exact date of expiration (Last Cum-date) would be informed to members.

- After the announcement of the Record Date, no fresh contracts on Futures and Options would be introduced on the underlying, that will cease to exist subsequent to the merger.
- Un-expired contracts outstanding as on the last cum-date would be compulsorily settled at the settlement price. The settlement price shall be the closing price of the underlying on the last cum-date.
- Good Till Cancelled (GTC) and Good Till Date (GTD) orders for the futures & options contracts on the underlying, outstanding at the close of business on the last cum-date would be cancelled by the Exchange.

### 345. What is the methodology for adjustments of Rights Issues?

**Ans.** The methodology proposed to be followed for adjustment of Rights Issues is as follows:

- > Let's assume the rights ratio as A:B and the Issue Price of the Rights is S. Then
- ➤ The adjustment Factor is given as: (P-E)/P
- Where P= Spot price on the last cum date, E is the benefit per share =(P-S)/(A+B)
- Strike Price: The new strike price would be arrived at by multiplying the old strike price by the adjustment factor as above.
- Market Lot / Multiplier: The new market lot/multiplier would be arrived at by dividing the old market lot by the adjustment factor.

\* \* \* \*

## **Annexures - Key Statistics & Trends**

## Annexure 1 - Key Statistics & Trends – Global Derivatives Markets

## 1. Size and Growth of OTC Derivatives markets till 2019



Chart 1.1: Growth in OTC Derivatives

Based on Notional Value; Source: Bank of International Settlements

### 2. Size of Exchange traded Derivatives markets in 2019

Exchange Traded Derivatives (as on 2019)					
Turnover (USD Number of Contra		Number of Contracts Traded			
Year	<b>Trillions</b> )	(Millions)			
2019	3856.80	43340.51			

Based on Notional Value; Source: World Federation of Exchanges

## 3. Breakup of Global Exchange traded Derivatives markets in 2019



Chart 1.2: Region wise turnover in Global Exchange Traded Derivatives in 2019

Based on Notional Value; Source: World Federation of Exchanges



Chart 1.3: Underlying asset wise breakup of Global Exchange Traded Derivatives Turonver in 2019

Based on Notional Value; Source: World Federation of Exchanges

## Annexure 2 - Key Statistics & Trends – Indian Equity Derivatives Markets

Vear	National Stock Exchange		Bombay Stock Exchange	
	No. of	Turnover	No. of	Turnover
I cui	contracts (in	(Rs. in lakh	Contracts (in	(Rs. in lakh
	crores)	crores)	crores)	crores)
2019-20	513	3,453	0.27	2

#### 1. Total Turnover in Exchange traded Equity Derivatives in F.Y. 2019-20

Based on Notional Value; Source: BSE & NSE

### 2. Breakup of Exchange traded Equity Derivatives Turnover in F.Y. 2019-20



Chart 1.5: Turnover of Equity Derivatives market in India as per types of contracts

Based on Notional Value; Source: BSE & NSE

3. Growth of Exchange traded Equity Derivatives Turnover



Chart 1.6: Growth in Equity Derivatives Market in India

Based on Notional value; Source: BSE & NSE

## 4. Comparison of Exchange traded Equity Cash market turnover with Equity Derivatives markets Turnover



Chart 1.7: Size of Equity Cash and Derivatives Market in India

Derivatives Markets Turnover are based on Notional values; Source: BSE & NSE Website