DERIVATIVES – INTRODUCTION & ACCOUNTING ISSUES

INTRODUCTION:

1. What are Derivatives?

1.1 The word 'Derivative' originates from the mathematics and refers to a variable, which has been derived from another variable. The term derivative indicates that it has no independent value and its value is entirely derived from the value of the underlying asset. Derivative Contracts are specialized contracts entered in cash or spot markets the settlement of which is deferred on some future date. The value of contract depends on time factor and also on price of underlying asset, which is essential ingredient of derivative contract. If the underlying asset of the derivative contract are coffee, wheat, pepper, cotton, gold, silver, precious stone etc. they are known as Commodity Derivatives. Financial Derivatives are the derivative which have underlying assets like debt instruments, currency, share price index, equity shares etc.

1.2 Derivatives are powerful "Risk Management Tools". The markets of derivatives have popularly grown and it has assumed a very significant place in the capital market. Futures and Options are very popular contracts of a financial derivative market and regularly traded on BSE as well as on NSE.

2. What are Future Contracts?

2.1 Future contract is an agreement to sell or buy an underlying asset at specified future date at specified future price. They are standardized contracts traded on the exchange. They are standardized in terms of size, expiration date, settlement terms, etc. The price at which the contract will be settled in future is agreed upon at the time of entering into the contract. It casts an obligation on both the parties to fulfill the terms as specified in the contract.

2.2 Commodity future contracts have the underlying assets as agricultural commodities, precious metals etc. Whereas financial future contracts have financial assets like currency, bonds, share prices, index equity stock etc.

2.3 When an investor buys a future contract from an exchange he is assuming a right and obligation to take the delivery as per terms of a contract on agreed future date and the vice-a-versa when the investor sells a future contract. A future contract, the underlying of which is a specific stock is known as "Stock Futures" and in case the underlying is the stock index, it is known as "Index Futures". As on date both NSE and BSE permits trading in 3 months future contracts, i.e. in the month of September 2002, the futures, which can be traded, are September 2002, October 2002 and November 2002.

3. How Future Contracts are traded?

3.1 Suppose Mr. A buys 400 units sensex future September 2002 expiry, at a price of Rs.3500/-, and the initial margin is 10%, Mr. A will be required to pay an initial margin of Rs.140, 000/-., i.e. 10% (400 x 3500). The initial margin can be paid in the form of cash or cash equivalent, such as fixed deposits, securities, bank guarantees etc. Both the buyer and seller have to deposit initial margin, as the basic aim of collecting margin is to cover the largest potential loss in one day.

3.2 All future contracts are marked to Market (MTM) on a daily basis, i.e. difference of closing price and contracted price is settled on day to day basis. If the future September 2002 expiry closes at Rs.3550/-, on end of the same day, Mr. A would receive the difference of Rs.20, 000/-, i.e. 400 (3550 – 3500). On the other hand if the value of index is moved down subsequent to entering into the contract in any day, Mr. A would be liable to pay MTM margin of difference between contracted price and closing price of that day.

3.3 Here, in this case if the index has moved down to Rs.3470/-, Mr. A would be liable to pay Rs.12, 000/-, i.e. 400 (3500 – 3470) as MTM margin. The MTM margin is required to be paid only in cash.

3.4 Future contracts can be closed out and profit or loss can be booked prior to the expiry date by squaring up of the contract, i.e. taking an opposite position in the market. The difference between the price at the time of squaring up of contract and the previous closing price represents the amount payable to or receivable from Mr. A. (Refer Para 8.1.1)

3.5 The trading mechanism in case of Stock future is similar to that of Index future except that it is settled through delivery at contracted price.

Example

3.5.1 Mr. A buys 100 "Satyam Futures September 2002" and does not square up during the life of the contract. He is under an obligation to take delivery after making payment to the seller on settlement date and the seller is under an obligation to deliver 100 shares of Satyam on that day.

3.5.2 At present Stock Future Contracts are also settled through the difference in price without actually exchanging the deliveries. However, delivery settlement in Stock Futures is expected to be in operation in near future.

4. What are Option Contracts?

4.1 Options are type of derivative contracts where a person gets a right but not an obligation to buy or sell an underlying asset at an agreed price on or before the specified future date. It is important to note that under an option contract, the right (option) is purchased from the seller to either buy or to sell and that is the reason why such contracts are known as Option contracts. The person who gets such right is called 'Buyer' or 'Holder' of the contract and the person who sells this right is known as 'Seller' or 'Writer' of the contract. The buyer of the contract has a right but not an obligation to perform as per the terms of the contract. For acquiring this right the buyer has to pay 'Premium' to seller, the seller on the other hand, has the obligation to buy or sell the specified underlying asset at an agreed price if the buyer chooses to exercise the option.

4.2 There are two types of options, i.e. American Option and European Options. An American Option is an option contract that can be exercised at any time between the date of purchase and the date of expiry, whereas European Option is an option contract that can only be exercised on the expiration date. A person can buy either a call option or a put option. A holder of a call option gets the right to purchase the underlying asset whereas the holder of put option gets the right to sell the underlying asset.

4.3 The rights and obligations of the parties involved in an option contract can be summarized in a tabular form, as under:

Option	Buyer or Holder	Seller or Writer
Call	Right but not an obligation to buy the underlying asset	Obligation but no right to sell the underlying asset.
Put	Right but not an obligation to sell the underlying asset	Obligation but no right to buy the underlying asset

The price at which the buyer has a right to buy or sell an underlying asset is known as 'Strike Price' or 'Exercise Price'.

4.4 As on date both BSE and NSE have 3-month option contract with an underlying asset of either as a Stock Index or a particular stock. The index option contract is named such as to state the month expiration, call or put option, European or American Option and Strike price. Thus a typical option contract at NSE is symbolized as "September 2002 CE1300", where September 2002 signifies contract month, C represents that it is a call option, E represents that it is a European call option and 1300 represents strike price.

5. <u>How Option Contracts are traded?</u>

5.1 <u>Example</u>

5.1.1 Mr. A enters into following transaction in an option contract in derivative market to buy a call option.

5.1.2 On 2nd September 2002, Mr. A buys 400 call options on BSE sensex September 2002, (European) which is expiring on 26th September 2002 at a strike price of Rs.3500/-. The premium is Rs.10/- per call payable to the seller Mr. B.

5.1.3 Here in this case, Mr. A would be required to pay Rs.4000/-, i.e. (400 X 10), as option call premium. If on the contract expiry date, the prevailing sensex is Rs.3300/-, Mr. A will not exercise the option, and allow the option to lapse. In this case, the maximum loss to Mr. A is 4000/-, i.e. the amount of premium paid.

5.1.4 Supposing the prevailing sensex as on the expiry day is Rs.3600/-, Mr. A will exercise the option and will receive difference of Rs.100/- per call from the seller. Mr. A would stand to earn because of difference in price Rs.40000/- i.e. 400 (3600 – 3500). After adjustment the premium of Rs.4000/-, the net gain for Mr. A is Rs.36000/- (40000 – 4000)

5.1.5 It may be observed from the above example that the loss in case of holder of contract is limited up to the premium amount and the gain is unlimited.

5.2 The following chart further explains the net profit/loss position at different index values for Mr. A (buyer) and for Mr. B (seller) for one unit of Index when (premium per unit is Rs.10/- and the strike price is Rs.3, 500/-)

Sensex at the close (Maturity)	**Mr. A (Buyer) Profit/(Loss)**	**Mr. B (seller) Profit/(Loss)**
3350	(10)	10
3400	(10)	10
3500	(10)	10
3550	40	(40)
3600	90	(90)
3650	140	(140)

6. Sale of Call Option

6.1 Example

6.1.1 Mr. B sells 200-call option on NIFTY Index, European option expiring on 26th September 2002, at a strike price of Rs.1100/- and receives a premium of Rs.10/- per call.

6.1.2 In this case Mr. B would receive Rs.2000/- i.e. Rs.10/- x 200 as option call premium. Mr. B would also be liable to pay initial margin to exchange (unlike Mr. A in previous case)

6.1.3 In addition to this he is required to pay or entitled to receive MTM margin or variation margin on basis of daily settlement price.

6.1.4 If on the contract expiry date, i.e. 26th September 2002 the prevailing value of NIFTY is Rs.1150/- the buyer of call option would exercise the right. Here Mr. B (seller) will lose Rs.10000/-; i.e. 200(1150-1100), which represents the gross loss to him. After considering premium of Rs.2000/- the net loss of Mr. B would be Rs.8000/- (10,000-2,000).

6.1.5 Supposingly the NIFTY on the expiry date is Rs.1050/- the buyer will not exercise the option and thus the option would lapse. In this case whole of premium of Rs.2000/- becomes income of Mr. B.

6.1.6 If the option is relating to Equity stock and if it is exercised, the settlement will take place through exchange of deliveries at a strike price on settlement day.

6.2 Example

6.2.1 Mr. A buys the call option of Reliance September 2002, at a strike price of Rs.350/- (premium Rs.5/- per share) and exercises his option on settlement. He is entitled to receive delivery of 100 shares of Reliance Industries Ltd. on payment of Rs.350/- per share.

6.2.2 However, currently on exercise, buyer gets the difference of market price (prevailing on the day of settlement) and the strike price in cash.

ACCOUNTING ASPECTS:

1. Accounting treatment of Futures and Options transaction is of a peculiar nature and based on regulations of exchange and typical trading mechanism of Derivative contracts. The Institute of Chartered Accountants of India has issued guidance note on Accounting for "Equity Index and Equity Stock Futures and option". Prior to that there were many issues relating to accrual of Income, booking of losses, calculation of profit, disclosures etc. However, all such major issues have been dealt with in guidance note issued by the Institute.

2. Equity Derivative Instruments are a type of financial instruments, which are bought or sold with specific motives, e.g., speculation, hedging and arbitrage. The accounting treatment recommended in the Guidance Note is applicable to all contracts entered into for Equity Derivative Instruments irrespective of the motive. Typical accounting entries for Futures and Options are enumerated in the following paragraphs.

3. Accounting treatment for Future Contracts

Accounting for future contracts can be broadly divided into following categories

- Accounting at the inception of contract
- Accounting during continuation of the contract
- Accounting at the time of final settlement of or squaring up contract
- Accounting for Open Interest as on Balance Sheet date

4. **Example**

Mr. X purchased the following future contracts on 28th March 2003.

400 units of BSXMAY'03 at Rs.3500/-. The initial margin is 10%.

Daily Settlement price of this unit were as under

Date	Situation I	Situation II
	Daily Settlement Price	Daily Settlement Price
28/03/2003	3540	3475
29/03/2003	Market Closed	Market Closed
30/03/2003	Market Closed	Market Closed
31/03/2003	3520	3450
01/04/2003	3560	3490
02/04/2003	3570	3470
03/04/2003	3550	3510

The amount of MTM margin receivable or payable on daily basis is as under

Situation I

Date	MTM Margin Receivable	MTM Margin Payable	Cumulative Gain/(Loss)
28/03/2003	16000	-	16000
29/03/2003	-	-	16000
30/03/2003	-	-	16000
31/03/2003	-	8000	8000
01/04/2003	16000	-	24000
02/04/2003	4000	-	28000
03/04/2003	-	8000	20000

Situation II

Date	MTM Margin Receivable	MTM Margin Payable	Cumulative Gain/(Loss)
28/03/2003	-	10000	(10000)
29/03/2003	-	-	(10000)
30/03/2003	-	-	(10000)
31/03/2003	-	10000	(20000)
01/04/2003	16000	-	(4000)
02/04/2003	-	8000	(12000)
03/04/2003	16000	-	4000

Now, let us consider the accounting treatment in the following paragraphs.

5. Accounting at the inception of contract

When the futures contract is entered into for purchase or sale of equity index or equity stock no payment is required to be made except for the initial margin. Clearing Corporation/Clearing House determines this margin from time to time and it serves as security deposit for the exchange. This margin can be paid either in cash or in form of collaterals like Bank Guarantees, Securities, and Fixed Deposits etc.

Initial margin paid in cash shall be debited to "Initial Margin Index/Stock Futures Account" and additional margin paid if any shall be accounted in the same manner. Here in both the situation Rs.1, 40,000/- shall be debited to "Initial Margin – BSXMAY03" Account.

As at the Balance Sheet date the balance in initial margin account shall be shown separately in respect of each series under the head "Current Assets".

The receipt of the initial margin in the form of collaterals shall be recorded in memorandum records, and no entry is required to be made in the financial books. If any collateral is returned back the memorandum records shall be updated accordingly.

6. Accounting during continuation of Contract

All future contracts are marked to Market (MTM) on daily basis on account of Daily Settlement. The MTM margin shall be collected in cash, unlike initial margin where collaterals are also been accepted.

Such payments made or received on account of MTM are routed through MTM Margin account separately. While making payment of MTM margin, "MTM Margin Stock/Index account" will be debited and on receipt of the same this account will be credited. In situation I, the accounting treatment for initial two days shall be as under

28/3/2003	Bank A/c Dr.	16000	
	To MTM-BSXMAY03		16000
31/3/2003	MTM-BSXMAY03 A/c Dr.	8000	
	To Bank A/c		8000

In situation II accounting treatment for initial two days shall be as under

28/3/2003	MTM-BSXMAY03 A/c Dr.	10000	
	To Bank A/c		10000
31/3/2003	MTM-BSXMAY03 A/c Dr.	10000	
	To Bank A/c		10000

Any balance in "MTM Margin Stock/Index Futures" account at the year-end shall appear under the head "Current Assets" or "Current Liabilities" as the case may be.

7. <u>**Accounting at the time of final settlement or squaring up of the contract**</u>

At the expiry of the contract or on squaring up the contract, the profit or loss is computed and recognized in the Profit and Loss account. The profit or loss in such cases is the difference between final settlement price and contract price. The entries relating to profit and loss shall be passed by corresponding debit or credit to the MTM margin account. Balance in MTM account for a particular series of contract thus will be recognized as income or expense on final settlement. However, where a balance exists in the provision account (which may have been created at the year end for anticipated loss,) any loss arising on such settlement shall be first charged to such provision account and the balance if any should be charged to profit and loss account.

In situation I, assuming that the contract is squared up on 03/04/2003 Credit Balance in MTM-BSXMAY03 A/c amounting to Rs.20000/- shall be booked as profit.

8. Accounting for Open Interest as on Balance Sheet date

Open interest refers to total number of future contracts that have neither been offset and closed by opposite future contracts nor settled or squared up till particular date. Debit balance in "MTM Index/Stock future account" represents the net amount paid for unfavorable difference occurred to the holder of the contract for any particular series. On the other hand, Credit balance represents the amount of anticipated gains in an open contract. Keeping in view the "Principle of Prudence" for the preparation of financial statements provision should be created by a debit to profit and loss account for anticipated loss equivalent to the debit balance in the "MTM Margin Account". Credit balance in this account represents the anticipated profit in open position, the same shall be ignored and no credit shall be taken in profit and loss account. The provision so created at the end of the year shall be shown as deduction from the "MTM Index/Stock Future Account" appearing under the head "Current Assets".

In situation I, no provision is required because as on 31st of March the "MTM Margin Account" shows a credit of Rs.8000/- whereas in situation II the provision is required to be made to the tune of Rs.20000/-.

9. Accounting Treatment of Option Contracts

The accounting treatment in case of option contracts can be broadly classified into following categories:

- Accounting at the inception of the contract
- Accounting during continuation of the contract
- Accounting at the time of final settlement of or squaring up of the contract
- Accounting for the Open Interest as on Balance Sheet date

Let us consider the example and its accounting treatment in following paragraphs.

10. Example

Mr. A (buyer) buys the following option contract from Mr. B (Seller) and following further information is available

Date of Transaction	28/03/2003
Contract Specification	SNPCNXNIFTY MAY03
Strike Price	Rs. 1,100/-
No. of Units	200
Initial Margin	10%
Premium on 28/03/2003	Rs. 20/- per unit
Price as on last day of settlement	Rs. 1,200/-
Premium as on 31/03/2003	Rs. 23/- per unit
Price as on 31/03/2003	Rs. 1,150/-

11. Accounting at the inception of contract

a) In the books of Buyer

The buyer or the holder of option contract has to pay the premium on the inception of the contract. The buyer of the contract is not required to pay initial margin as the risk in case of buyer is limited and the loss cannot exceed the amount of premium. On payment of the premium "Equity Index/Stock Option Premium" account shall be debited. This account will appear on asset side under the head "Current Asset".

In the above example Rs.4000/- shall be debited to premium account.

b) In the books of Seller

The seller of the option contract receives the premium and at the same time he is also required to pay initial margin. The accounting treatment for the payment of initial margin is similar to that applicable for future contracts. "Equity/Stock Option Initial Margin Account" shall be debited, which will appear under the head "Current Assets" in the books of seller. Premium received shall be credited to "Equity Index/Stock Option Premium Account" which will appear on liabilities side under the head "Current Liabilities".

In above example following two entries shall be passed in the books of the seller.

a) Index Option Initial Margin A/c Dr	22000	
To Bank A/c		22000

b) Bank A/c Dr	4000	
To Index Option Premium A/c	4000	

12. <u>Accounting during continuation of contract</u>

A. In the books of Holder/Buyer

No entries are passed in the books of buyer because he is not subject to any additional margin or any MTM Margin during continuation of contract.

B. In the books of seller

In addition to initial margin the seller is subject to MTM margin on daily basis since his liability is unlimited being seller of option. Payment made or received by the seller shall be routed through "Option MTM Margin Account". The payment made on account of margin shall be debited to "Equity Index /Stock option MTM Margin Account". In case if the excess margin is refunded then this account shall be credited. This account will appear on asset side under the head "Current Assets" when there is a debit balance. At times, exchange collects "Variation Margin" instead of MTM Margin on daily basis, under such circumstances entries are entered through variation margin account instead of MTM Margin Account.

13. <u>Accounting at the time of final settlement or squaring up of the contract</u>

a) In the books of buyer

On exercising the option the buyer of the contract receives a favorable difference when the underlying is Equity Index. At the time of settlement the buyer will recognize the premium as an expense by debiting the profit and loss account and crediting the option premium account. In case of index contract the favorable difference will also be credited to profit and loss account as an income. In the above example Rs.20000/- i.e. 200(1200-1100) shall be credited to profit and loss account and premium paid Rs.4000/- shall be recognized as expense in the books of buyer.

In case of stock call option if it is exercised relevant underlying scrip shall be debited by crediting bank account. For put option buyer will be required to give the delivery of the stock by receiving the payment and the relevant stock account shall be credited. However, currently the difference is settled through cash and not by exchange of deliveries.

b) In the books of seller

On settlement of option, the premium received by the seller shall be recognized as income by debiting "Equity Index/Stock Option Premium Account". In case of index option contracts if it is exercised the seller is required to pay the adverse difference to the buyer, which will be recognized as a loss in the profit and loss account.

In above example Rs.20, 000/- shall be debited by the seller as a loss and at the same time premium of Rs.4, 000/- shall be recognized as a income.

On the settlement or squaring up of the contract the Initial margin paid will be released by the exchange.

On exercising the call option on stock the seller is required to deliver the underlying scrip. In such cases relevant stock account shall be credited by debiting bank on receipt of money. In case of put option relating to stock if it is exercised the underlying stock account shall be debited by crediting bank account. However, at present the difference is settled through cash and not by exchange of deliveries.

14. Accounting for Open Interest as on Balance Sheet date

a) In the books of buyer

The equity index/stock option premium account shall appear under the head "Current Assets". A provision shall be made for the amount by which the premium paid for the option exceeds the premium prevailing in the market as on the balance sheet date for the same series of contract. In case the premium prevailing in the market is higher than what is being paid by the holder, the excess shall not be treated as income considering the "Principle of Prudence". The provision so created shall be shown as a deduction from "Equity Index/Stock Option Premium Account" appearing under the head "Current Assets".

Here as the premium prevailing in the market is Rs.23/- per unit which is higher than Rs.20/- paid by Mr. A, and hence no provision is required to be made in his books of accounts.

b) In the books of Seller

The premium received by the seller shall be shown under the head "Current Liabilities" as on the balance sheet date. A provision shall be created for the amount by which the premium prevailing in the market as on balance sheet date exceeds the premium received by the seller for the same series of contracts. The excess of premium received over the premium prevailing in market shall not be recognized as income considering the "Principle of Prudence". The provision so created shall be shown as provision under the head "Current Liabilities" in the books of seller.

The provision of Rs.600/- i.e. 200(23-20) shall be made by the seller in above example.

15. Disclosures

In addition to disclosures required under other statues as well as applicable Accounting Standards following are specific disclosures required as per the Guidance Note issued by the Institute of Chartered Accountants of India.

a) Accounting policies and the methods adopted, including criteria for recognition and the basis of measurement for various Instruments.

b) The enterprise should give the details as illustrated below in respect of futures contracts outstanding at the year-end (Open Interests) for each Equity Index/Stock Futures:

c) Details of outstanding contracts at the year-end in the case of Index / Stock Futures.

d) Details of Outstanding Contracts at the year-end in the case of Index/ Stock Options.

X – X – X – X - X