:Accounting for Derivatives:

Advantages: (1) Useful in Ind AS 109, (2) A separate chapter in CA Final on Financial Instruments is included, (3) From Nov 2008 onwards without fail Financial instruments is asked in 100% all attempts sometimes even 2 problems.

Remember some tips for derivatives:-→ Authors creative points:

- Most of the derivatives are options, futures, forwards, swaps.
- To play with the price difference is *speculation* and to receive gross delivery is *hedging*.
- In forward just cancel buy position against sell and vice versa. Futures is similar to Forward but it is guaranteed by margins and available in lot size. Options holder has the option / right to exercise.
- By taking a buy / sell position we just promise to buy / sell in future.
- Every open position has to be closed by square off or physical delivery.
- Initially Forwards and Swaps have Nil investments, Options carry small premium and Futures involves Margins.
- Derivatives are mostly in Commodities (oil, gold), Index (Nifty), Stock (Shares).
- Every Derivative problem is divided into 3 parts only: (i) Initial recognition, (ii) Valuation, (iii) Settlement.
- Mostly the Accounting of derivative initially is Nil except Options premium is paid.
- Brokerage / Commission paid is just an expenditure charged to P/L. It is to be separated from derivative entries.
- Initial Recognition: Forward = 0, Futures = 0 (Margins are deposits), Option = Premium is recognized.
- Subsequent A/C: In Futures and Forwards MTM will be with Futures / Forward prices not with spot. In options premium is traded and P/L calculated on change in premium as well as difference in MP with Exercise price.
- All derivatives gain / loss on Valuation as well on settlement date is transferred to P/L account for speculation.
- Option premium for a holder is an Asset and not expenses. Similarly for Writer it is not an immediate income but a Liability. Liability because he is exposed to the risk by selling the option.
- Remember Derivative if net cash settled → Financial A/L, If Gross / delivery settled → Non - Financial, If fixed Equity shares settled → It is an Equity transaction (for issuer).
- Hedging can be done in 2 ways: (i) Just enter into a Buy / Sell position for actual physical delivery of commodities / shares / foreign currency in future at an exercise price fixed today. (ii) Take a position for net settlement and finally buy / sell commodities / shares / forex in spot market in future.

PROBLEMS ON SPECULATION:

P1) Vanita Firms is short in PNB at Rs 375. After 3 months Vanita Firms wants to square off the transaction when PNB spot quoted at Rs 400 and Futures Rs 397. Initial Margin paid Rs 50. Cost of capital 10% p.a. ? Pass necessary journals on the date of settlement and compute the effective gain / loss in % terms?

Solution:

Profit / Loss	Dr	22	(397-375)
	To Financial Liability		22

Financial Liability 22
To Cash 22

Effective loss in INR = MTM loss + Imputed cost of capital = 22 + 10% x 50 x 3/12 = INR 23.25
% loss = 23.25 / 50 x 12/3 = -186% p.a.

P2) A party enters into forward contract for trading or speculation. Contract is to sell $ 100000 due on 30.06 @ ` 47.50. Today (1st January) spot @ is `47. On 31st March (yearend) the forward contract for 3 months (i.e. remaining maturity period upto 30.06) to sell $ is available @ `47.55. Rate on 30.06 is `47.60. Journalise the entries.

Solution:

Date	**Spot**		**FR**
1.1	47.00		47.50
31.3	-		47.55
30.6	47.60	=	47.60

Journal Entries in the books of Speculator:

Date	*Particulars*	*Dr. `*	*Cr. `*
	(assuming trade date method)		
1.1.	Financial asset A/C. Dr.(due from Bk) To Financial liability A/C. $1,00,000 x 47.50	47.50.000	47.50.000
31.3.	Profit / loss A/C. Dr. To Financial liability A/C. (Forward Contract is valued on MTM @47.55 forward @ available for 3months)	5,000	5,000
30.6	Profit / loss A/C. Dr. To Financial liability A/C.	5,000	5,000
30.6	Financial liability A/C. Dr. To Financial asset A/C. (d (due from Bank) To Bank A/C.	47,60,000	47,50,000 10,000
	(assuming settlement date method)		
31.3.	Profit / loss A/C. Dr. To Financial liability A/C. (Forward Contract is valued on MTM @47.55 forward @ available for 3months)	5,000	5,000
30.6	Profit / loss A/C. Dr. To Financial liability A/C.	5,000	5,000
30.6	Financial liability A/C. Dr. To Bank A/C.	10,000	10,000

P3) Zema Limited is short in Dabur India Futures. Details are as follows:
Position: Short
Scrip: Dabur India Futures
Quantity: 10 contracts
Lot – size: 100 shares
Brokerage: 1.2%
Initial Margin: 10%
Maintenance Margin: 75% of initial margin
Tradqe date: 9/1/2017

Settlement date: 30/9/2017
Exercise Price: ₹544
Spot price: ₹506
Method of settlement: Net Cash

Prices on various dates provided to you:

Dates	Spot Price ₹	Futures Price ₹	FV of Derivative
9/1/2017	506	544	Nil
31/3/2017	541	556	(12000)
30/6/2017	546	567	(23000)
30/9/2017	550	552	(8000)

Pass necessary journals:

Solution:
1) Initial margin = ₹ 54400.
2) Maintenance margin = 0.75 x 54400 = ₹ 40800. If the margin accounts goes below MM then a margin call is made to the extent of Initial margin.
3) Margin a/c is a Financial Asset.

Journals:

9/1/2017: Derivatives futures initially is recognized at Nil

Margin A/C Dr	54400	
To Cash A/C		54400 (10x100x544x10%)
Brokerage A/C Dr	6528	
To Cash A/C		6528

31/3/2017: Profit / loss A/C Dr	12000	
To Margin A/C		12000 (544-556) x 10 x 100
Profit / loss A/C Dr	6528	
To Brokerage A/C		6528

30/6/2017: Profit / loss A/C Dr	11000	
To Margin A/C		11000 (556-567) x 10 x 100
Margin A/C Dr	23000	
To Cash A/C		23000 (margin call made)

10/7/2017: Margin A/C Dr	15000	
To Profit / loss A/C		15000 (567-552) x 10 x100
Cash A/C Dr.	69400	
To Margin A/C		69400

(CA Final Nov 2010, Nov 2011, May 2016)

P4) M/s TS Ltd has entered into a contract by which it has the option to sell its specified asset to NB Ltd for `100 Lakhs after 3 years whereas the current market price is `150 Lakhs. Company always settles account by delivery. What type of option is this? Is it a Financial Instrument? Explain with reference to the relevant Accounting Standard.

Solution:

TS Ltd has an "Option to Sell" the underlying asset. Hence, it is a Put Option Contract. But as the past practice is to settle the option is by delivery hence it is not a financial instrument. But if the

past practice is to settle on net cash basis then it is a FI. Put / Call option is a derivative instrument but may or may not be a Financial Instruments. Delivery based derivative contracts are not FI.

P5) On 1st February 2009, Future Ltd entered into a contract with Son Ltd, to receive the Fair Value of 1000 Future Ltd.'s Own Equity Shares Outstanding as on 31-01-2010 in exchange for payment of `1,04,000 in cash, i.e. ` 104 per Share. The contract will be settled in net cash on 31-01-2010.

The Fair Values of this forward contract on the different dates were:

Fair Value of forward on 01-02-2009 Nil

Fair Value of forward on 31-12-2009 `6,300,

Fair Value of forward on 31-01-2010 ` 2,000

Presuming that Future Ltd, closes its books on 31st December each year, pass entries – If net settled in cash and If net is settled by Son Ltd, by delivering Shares of Future Ltd. What will be your answer if the settlement will be for fix equity shares at a fixed exercise price.

(CA Final Nov 2010 Marks 8)

Solution:

1. *Journal Entries (Cash Settlement)*

   01.02.2009 Fair Value of a Derivative contract is Nil on initial recognition date.

   31.12.2009 Year end

   Forward Contract A/c Dr. 6,300

   To Profit and Loss A/c 6,300

   (Being Increase in Fair Value of Forward Contract)

   31.1.2010.

   Profit and Loss A/c Dr. 4,300

   To Forward Contract A/c 4,300

   (Being Decrease in value of Forward Contract recorded)

   31.1.2010 Settlement of Net Receivable by Cash

   Bank A/c Dr. 2,000

   To Forward Contract A/c 2,000

   (Being Settlement of Forward Contract by Cash)

2. *Journal Entries (Settlement of "net" amount by shares)*

   First three journal entries are the same as above for Cash Settlement. The final entry will be as follows —

   31.1.2010 : Settlement - by delivery of Shares of Future Ltd.

   Equity Shares of Future Ltd (Own Shares) A/c Dr. 2,000

   To Forward Contract A/c 2,000

   (Settlement of Forward Contract by receipt of Shares of Son Ltd own equity shares)

   No of shares = 18.87 = 2000 / 106 = (104000+2000) / 1000 = 106 → todays market price.

3. *Journal Entries (Settlement of Gross delivery of shares)*

Entry only on settlement date will be applicable:

Equity Shares A/C Dr 104000 (1000 x 104)→ equity transaction

To Cash 104000

P6) X Ltd has promised to buy ITC shares @1033 after 3 months. The final MP on settlement is Rs 1076. Pass entries for Gross Delivery and Net cash settlement.

Solution:

Initial recognition: ---- No entry as derivatives have Nil value -----

Settlement: If Gross delivery:

Equity shares 1076

To Cash 1033

To P/L 43

Settlement: Net cash (speculation)

Cash Dr 43 (1076-1033)

To P/L 43

P7) Interest rate swap:

Company A has outstanding debt on which it currently pays fixed rate of interest at 9.5%. The company intends to refinance the debt with a floating rate interest. The best floating rate it can obtain is LIBOR + 2%. However it does not want to pay more than LIBOR.

Another Company B is looking for a loan at a fixed rate of interest to finance its exports. The best rate it can obtain 13.5%, but it cannot afford to pay more than 12%. However, one bank has agreed to offer finance at a floating rate of LIBOR + 2%. Citi Bank is in the process of arranging an interest rate swap between these two companies. Assume Libor 10%.

(a) With a schematic diagram, show how the swap deal can be structured.

(b) What are the interest savings by each company?

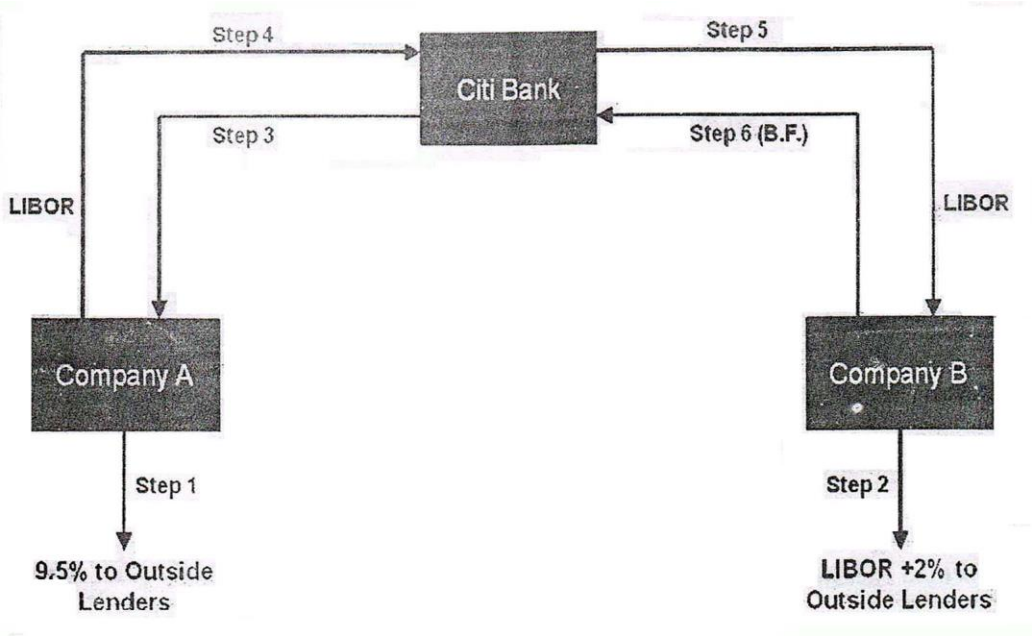
(c) How much would Citi Bank receive?

Solution:

Aforesaid question can be structured as follows :

		Cost of Debt	
Company	Target	Fixed Rate	Floating Rate
A	Floating	9.50% p.a.	LIBOR + 2%
B	Fixed	13.50% p.a.	LIBOR + 2%
Difference		4%	0%

(a) Schematic diagram for above swap deal will be follows:



Functioning OF swap deal - Stepwise:

Step 1: Company A pays 9.5% per annum (fixed rate) to lenders.

Step 2: Company B pays LIBOR+2% (floating rate) to lenders.

Step 3: Company A receives interest from bank @ 9.5% per annum as compensation FORfixed rate loan.

Step 4: Company A pays LIBOR to bank (as it is the target).

Step 5: Citi Bank transfers LIBOR to company B to pay lenders.

Step 6: At last, Company B pays 10% (balancing figure) to bank. Hence, cost to Company B will be: 10% (to Bank) + 2% (to lenders, extra) = 12%.

P8) The structure OF swap deal can be summarised as follows:

Company	*Target Savings*	*Net Cost*	*Paid to Market*	*Received from Bank*	*Paid to Bank*
A	(LIBOR+2%) - (LIBOR) = 2%	LIBOR	*9.5%*	9.5%	LIBOR
B	13.5%- 12%= 1.5%	12%	LIBOR+2%	LIBOR	10% (B.F.)

(a) Interest saving by each company :

As discussed above, if company A takes fixed rate debt and company B takes floating rate debt, then there is total savings of 4% (13.5% - 9.5%) can be made.

Since, Company A cannot afford more than LIBOR so, its target savings would be 2% [(LIBOR + 2%) – LIBOR]. So, it needs 2% share out of total 4% savings.

Further, Company B cannot afford more than 12% so, its target savings would be 1.5% [13.5% - 12%]. So, it needs 1.5% share out of total 4% savings. Therefore, the balance is 0.5% [4% - 2% - 1.5%] which will be charged by Citi Bank.

(a) As per the above analysis, Citi Bank would receive 0.5%.

Solution:

BOOKS OF A LTD

Journal Entries

S. No.	*Particulars*	*Dr.* `	*Cr.* `
(1)	9.5% Fixed Advance A/c Dr To Citi Bank A/c (being fixed rate advance granted to Citi Bank)	100	100
(2)	Citi bank A/c Dr To LIBOR Loan A/c (Being floating loan received from Citi bank)	100	100
(3)	Interest A/c DR To Outside lender A/c (Being interest paid to outside lender.)	9.5	9.5
(4)	Citi Bank A/c Dr To Interest A/c (being interest on advance given to Citi Bank)	9.5	9.5
(5)	Interest A/c Dr To Citi bank A/c (being interest on loan obtained from Citi ban.)	10	10
(6)	P&L A/c Dr To Interest A/c (being interest expenditure transferred to P & L A/c.)	10	10
(7)	Citi Bank A/c Dr To Bank A/c (Being amount paid to Citi Bank on interest difference between loan and advance.)	0.5	0.5

P9) X Ltd has promised to sell GBP @97 after 4 months. Lot size 100 units. No of contracts 6. Margins 9.5%. Brokerage 1%.

Date	**Spot Rate**	**Futures**
1/1/2017	1GBP = Rs 99.99	97.0
31/3/2017	1GBP = Rs 102.36	99.5

30/4/2017 1GBP = Rs 103.00 same (because contract is matured)

Solution:
1/1/2017: Ignore spot rates.

Margin A/C 5529 (100 x 6 x 97) 0.095
To Cash 5529
(initial margins paid)

Brokerage Exp A/C 582 (100x6x97) x 0.01
To Cash 582

Initially no entry for derivative as no gain / loss on first day.

31/3/2017: Profit / loss A/C Dr 1500 (99.5-97)100x6
To Financial Liability 1500
(mark to market on B/S date)

Profit / loss A/C Dr A/C 582
To Brokerage Exp 582
(trf of brokerage exp to P/L)

30/4/2017: Profit / loss A/C Dr 2100 (103-99.5)100x6
To Financial Liability 2100
(mark to market on settlement date)

Financial Liability A/C Dr 3600
To Margin / Cash 3600
(final settlement)

P10) X Ltd is short in Nifty Index Futures.

Date	Spot Nifty Index	Nifty Futures
1/1/2017	8900	8925 (X Ltd enters the derivative position)
31/3/2017	9200	9341
30/4/2017	9355	9425

Lot size: 50 ; No of Contracts : 20. Margins = 12%. Maintenance margins 75% of initial margins. Brokerage : 1.2%.

Answer the following questions:
1) Calculate the gross position in Nifty Futures?
2) Compute the Derivative value on 1/1/2017 and 31/3/2017?
3) Compute the open position on 31/3/2017?
4) Calculate the top up of margin money on 31/3/2017?
5) If X Ltd exit on 30/4/2017 compute the total loss / gain in Rs.? Ignore interest cost.

Solution:
1) Short position in Nifty Index = Rs 89,25,000 (8925*50*20)
2) Value of Derivative on 1/1 = Nil, on 31/3 = -4,16,000 (+8925-9341)*50*20.
3) Open short position on 31/3 = 93,41,000 (9341*50*20)
4) Initial Margins = 12% of 8925000 = Rs. 1071000, Maintenance Margins = 1071000 x 75% = Rs. 8,03,250, Balance of Margin on 31/3 = 1071000 – loss on MTM = 1071000 – 416000 = 6,55,000, Top up = 1071000 – 655000 = Rs. 4,16,000

5) Loss on MTM (1/1 – 30/4) = (9425-8925)*50*20 = Rs. 5,00,000
Brokerage 8925000 x 1.2% = Rs. 1,07,100
Interest blocked in margins (ignore) -

Total loss = Rs. 607100

Problems on Options:

Lets divide the problems into (i) Only MP is given, (ii) Option premium is given, (iii) Both given.

P10) X Ltd has purchased the call option of WIPRO shares @2040. On settlement date the actual price was Rs 2066. Call premium paid to buy the contract Rs. 46. Pass Journals assuming Gross delivery and Net cash settlement.
What will be your answer on settlement date if MP is @2030.
Solutions:

Initial recognition:
Option premium Dr 46 (remember premium paid is not expense but an Asset)
To Cash 46

Settlement: If Gross delivery:
Equity shares Dr 2066 (Fair Value)
Loss on fair value 20 (balancing figure)
To Option premium 46
To Cash 2040

Settlement: Net cash (speculation)
Cash Dr 26 (2066-2040)
Loss on fair value Dr 20 (balancing figure)
To Option premium 46

If MP is 2030 the option will lapse. In Gross delivery case shares will be purchased from the market. In Net Cash nothing will be recd or paid. But in both the cases Option Premium will be reversed or w-off to P/L.

P11) X Ltd has purchased the put option of WIPRO shares at a premium of Rs. 46.
Premium on various days:
1/1/2017 = 46
2/1/2017 = 48
3/1/2017 = 50
4/1/2017 = 49
5/1/2017 = 55

Pass Journals.

Solutions:

Initial recognition:
Option premium Dr 46
To Cash 46
2/1: Option premium Dr 2
To P/L 2
3/1: Option premium Dr 2
To P/L 2
4/1: P/L Dr 1
To Option premium Dr 2

5/1: Option premium Dr 6
To P/L 6

P12) Tarun purchased a call option from Varun at a premium of Rs 22. The spot price is Rs 322. The exercise price set at Rs 325. On valuation date MP quoted at Rs 336. The premium traded at Rs 26. On the settlement the premium was quoted at Rs 20 and the MP was Rs 345.

Solutions:

Initial recognition:
Option premium Dr 22
To Cash 22

Valuation:
Option premium Dr 4 (26-22)
To P/L 4
(option premium MTM)

Settlement :
Cash Dr 20
P/L Dr 6
To Option premium 26 (22+4)

P13) Abhay furnishes the following information about all "Options" at the Balance Sheet date as on 31.03.2016. Determine the Total Amount of Provisions to be made in his books of account.

Securities	A	B	C		A	B	C
Details of Options Bought				Details of Options Sold			
Premium paid	35,000	15,000	20,000	Premium recd.	20,000	30,000	20,000
Premium prevailing on B/S date	30,000	5,000	8,000	Premium prevailing on B/S date	25,000	20,000	15,000

(C A Final May 2016)

Solution:
Summarised entry for option premium is as follows:
Remember paid is an asset for holder and received is a liability for writer.
As an option holder:
Option A = 35000-30000 = 5000 loss (reduction of asset)
Option B = 15000-5000 = 10000 loss (reduction of asset)
Option C = 20000- 8000 = 12000 loss (reduction of asset)
27000 loss

As an option writer:
Option A = 20000-25000 = 5000 loss (increase in liability)
Option B = 30000-20000 = -10000 gain (reduction of liability)
Option C = 20000-15000 = - 5000 gain (reduction of liability)s

-10000 gain

Net loss provision = 27000 – 10000 = Rs. 17,000.

PROBLEMS ON HEDGING:

FAIR VALUE HEDGE:

Fair Value Hedge compensates / eliminates the risk arise out of the Fair Value of an asset or liability.

P14) Aakshaya Ltd. has given a 12.50% fixed rate loan to its subsidiary Shaya Ltd. Aakshaya Ltd. measures this loan at an amortised cost of `2,50,000. Aakshaya Ltd. has plants to hive off the receivable at a later stage and as a measure to safeguard against fall in value of its due enters into a pay-fixed, received floating interest rate swap to convert the fixed interest receipts into floating rate receipts, Aakshaya Ltd. designates the swap as a hedging instrument in a fair value hedge of the loan asset. Over the following months, market interest rates increase and Aakshaya Ltd. earn interest income of `25,000 on the loan and `1,000 as net interest payments on the swap. The fair value of the Loan Asset decreases by ` 5,000 while that of the interest rate swap increases by `5,000. You are informed that all conditions required for the Hedge Accounting are satisfied. You are required to pass journal entries, with suitable narrations, in the books of Aakshaya Ltd. to record the above transactions. *(CA Final May 2010 OS)*

Solution:

S. No.	*Particulars*	*Dr. `*	*Cr. `*
(1)	Cash A/c Dr To Interest A/c (Being interest recd on loan asset)	25,000	 25,000
(2)	Derivative A/c Dr To Hedging gain A/c ….(P/L) (Being increase in interest rate swap)	5,000	 5,000
(3)	Hedging loss A/c DR ….(P/L) To Loan to Shaya A/c (Being decrease in fair value of loan)	5,000	 5,000
(4)	Cash A/c Dr To Interest A/c (Being interest settlement on increase in swap)	1,000	 1,000

P15) Samta Ltd has investments in equity shares of Jalpa Ltd @3,00,000 classified as FVOCI. S Ltd expects a decline in the value of investments and hence enter into a put option to sell the shares for ` 3,00,000. If the fair value of the shares falls to ` 2,85,000 and value of option to be ` 15,000 assuming perfect hedge, account the above transactions considering hedging and state whether it is FVH or CFH. What would be your answer if hedge accounting is not adopted by S Ltd?

Solution:

It is a FVH as put option is entered to protect from the value of investments (asset)

Accounting if hedge a/c is adopted:

Equity Dr 15,000 (As per Ind AS 109 changes in FVTOCI is transferred to Equity)
To Investments in J Ltd 15,000
Derivative asset Dr 15,000
To Equity 15,000
The derivative instrument meant for hedging will also be transferred to Equity.

Accounting if hedge a/c is not adopted:
Equity Dr 15,000
To Investments in J Ltd 15,000
Derivative asset Dr 15,000
To P/L 15,000
As the Derivative is not meant for hedging it is computed on standalone basis FVTPL.

P16) Kanan Ltd has a long position in Asian Paints for 2,70,000 equity shares of Rs 120. Equity shares designated as FVTOCI. To hedge the spot position Kanan Ltd wants to take appropriate position in Nifty Futures. Beta of Asian Paints is 1.50 with Nifty. Lot size = 200 units. Other details are given below:

	Asian Paints	Nifty Spot	Nifty futures
1/2/2016	120	8000	8100
31/3/2016	115	7954	7850
31/3/2017	103	7421	7321

Answer the following:
Nature of hedge?, Hedging item?, Hedging instrument?, Position in Nifty?, Pass journals for hedging?
What will be your answer if no hedge accounting is preferred.

Solution:

Fair Value hedge: Nifty is taken for protecting spot position of Asian Paints.

Hedge item: Shares of Asian Paints

Hedging instrument: Nifty futures.

Position in Nifty: For protecting the long position in spot we have to take a short position in Nifty.

Calculation of Number of contracts =

LHS = RHS

Number of shares x MP x Beta = No of contracts in Nifty x lot size x Nifty future

270000 x 120 x 1.50 = Nos x 200 x 8100

No of contracts = 30 short.

As it is a FVH on equity instrument designated as FVTOCI the gain / loss on re- estimation of hedging instrument is transferred to OCI / Equity.

1/2/2016: --- the date when Nifty is sold no entry ---

31/3/2016: OCI Dr 1350000 (120-115)*270000
To Investments in shares 1350000
Nifty Futures Asset Dr 1500000 (8100-7850)*30*200
To OCI 1500000

31/3/2017: OCI Dr 3240000
To Investments in shares 3240000

Nifty Futures Asset Dr 3174000
To OCI 3174000

If Hedging is not adopted:
Investments will be recorded as per FVTOCI (as mentioned)
Nifty futures will be FVTPL

1/2/2016: ---

31/3/2016: OCI Dr 1350000
To Investments in shares 1350000
Nifty Futures Asset Dr 1500000
To P/L 1500000

31/3/2017: OCI Dr 3240000
To Investments in shares 3240000
Nifty Futures Asset Dr 3174000
To P/L 3174000

P17) Jones Company issues $1,000,000 of 5-year 8% fixed-rate bonds on January 2, 2016. The entry to record this transaction is as follows:
January 2, 2016
Cash Dr 1,000,000
To Bonds Payable 1,000,000

A fixed interest rate was offered to appeal to investors, but Jones is concerned that if market interest rates decline, the fair value of the liability will increase and the company will suffer an economic loss. To protect against the risk of loss, Jones decides to hedge the risk of a decline in interest rates by entering into a 5-year ***interest rate swap*** contract. The terms of the swap contract to Jones are:
A Jones will receive fixed payments at 8% (based on the $1,000,000 amount).
B Jones will pay variable rates, based on the market rate in effect throughout the life of the swap contract. The variable rate at the inception of the contract is 6.8%. With this swap Jones can change the interest on the bonds payable from a fixed rate to a variable rate.

On each interest payment (settlement date), Jones and the counterparty will compute the difference between current market interest rates and the fixed rate of 8% and determine the value of the swap. As a result, if interest rates decline, the value of the swap contract to Jones increases (Jones has a gain), while at the same time Jones's fixed-rate debt obligation increases (Jones has an economic loss). The swap is an effective risk management tool in this setting because its value is related to the same underlying (interest rates) that will affect the value of the fixed-rate bond payable. Thus, if the value of the swap goes up, it offsets the loss related to the debt obligation. This economic loss arises because Jones is locked into the 8% interest payments even if rates decline. The underlying for an interest rate swap is some index of market interest rates. The most commonly used index is the London Interbank Offer Rate, or LIBOR. In this example, we assumed the LIBOR is 6.8%.

Assuming that the swap was entered into on January 2, 2001 (the same date as the issuance of the debt), the swap at this time has no value; therefore no entry is necessary:

January 2, 2016
No entry required—Memorandum to note that the swap contract is signed. At the end of 2016, the interest payment on the bonds is made. The journal entry to record this transaction is as follows:

December 31, 2016
Interest Expense Dr 80,000
To Cash (8% x $1,000,000) 80,000

At the end of 2016, market interest rates have declined substantially and therefore the value of the swap contract has increased. Jones is to receive a fixed rate of 8% or $80,000 ($1,000,000 x 8%) and pay a variable rate (which in this case is 6.8%) or $68,000. Jones therefore receives $12,000 ($80,000 - $68,000) as a settlement payment on the swap contract on the first interest payment date. The entry to record this transaction is as follows:

December 31, 2016
Cash Dr 12,000
To Interest Expense 12,000

In addition, a market appraisal indicates that the value of the interest rate swap has increased $40,000. This increase in value is recorded as follows:

December 31, 2016
Swap Contract Dr 40,000 (Financial Asset)
To P/L 40,000

This swap contract is reported in the balance sheet, and the gain on the hedging transaction is reported in the income statement. Because interest rates have declined, the company records a loss and a related increase in its liability as follows:

December 31, 2016
P/L Dr 40,000
To Bonds Payable 40,000

Balance Sheet
Presentation of Fair Value Hedge
Jones Company : BALANCE SHEET (Extract) December 31, 2016

Liabilities		Current assets	
Bonds payable	$1,040,000	Swap contract	$40,000

The effect on the Jones Company balance sheet is The Bond Payable fair value remains constant. Theoretically, this fair value change reflects the present value of expected future differences in variable and fixed interest rates.

 # Notes on Valuation:
Valuation of Swap = Valuation of fixed Debt – Valuation of floating Debt
V (fixed debt) = PV of Coupons + PV of Redemption at the new YTM = 80,000 Cumulative PVF (6.8%,4) + 10,00,000 PVF (6.8%,4) = 80000x3.403+1000000x0.7686 = 10,40,000
V (floating bond) = Face Value always = 10,00,000

Swap value = 1040000 -1000000 = 40,000 Asset

On the income statement side, interest expense of $68,000 is reported. Jones has effectively changed the debt's interest rate from fixed to variable. That is, by receiving a fixed rate and paying a variable rate on the swap, the fixed rate on the bond payable is converted to variable, which results in an effective interest rate of 6.8% in 2016. Also, the gain on the swap offsets the loss related to the debt obligation, and therefore the net gain or loss on the hedging activity is zero.
The overall impact of the swap transaction on the financial statements is shown in Illustration

Income Statement: Presentation of Fair Value Hedge: For the year Dec 2016.

Increase in loss and increase in bonds payable	$ 40,000
Increase in gain and increase in swap asset	$ 40,000
Net Effect =	0
Interest Expense ($80,000 - $12,000)	$68,000

In summary, the accounting for fair value hedges (as illustrated in the Jones example) records the derivative at its fair value in the balance sheet with any gains and losses recorded in income. Thus, the gain on the swap offsets or hedges the loss on the bond payable due to the decline in interest rates. By adjusting the hedged item (the bond payable in the Jones case) to fair value, with the gain or loss recorded in earnings, the accounting for the Jones bond payable deviates from amortized cost. This special accounting is justified in order to report accurately the nature of the hedging relationship between the swap and the bond payable in the balance sheet (both the swap and the debt obligation are recorded at fair value) and the income statement (offsetting gains and losses are reported in the same period).

P18) On April 1, 2017, Omega Ltd. borrowed ` 10 lakh at annual fixed interest rate of 7% payable half-yearly. The life of the loan is 4 years with no pre-payment permitted. The company expected the interest rate to fall and on the same day, it entered into an interest rate swap arrangement, whereby the company would pay 6-month LIBOR and would receive annual fixed interest of 7% every half-year. The swap effectively converted the company's fixed rate obligation to floating rate obligation. The following value of swap and debt are available

	Value of swap (` in lakh)	**Value of debt (` in lakh)**
April 1, 2017	+ 0.2	10.2
March 31, 2018	– 0.1	9.9

Six-month LIBOR on April 1, 2017 was 6% and that on October 1, 2017 was 8%.
Show important accounting entries in respect of the swap arrangement.

Solution: The interest rate swap is used to hedge fair value of fixed-rate debt. This is a case of fair value hedge.

In the books of Omega Ltd. (Journal Entries)
Particulars

First half year:

Interest	Dr	35,000	(1000000 x 7% x ½)
Cash			35,000
P/L	Dr	20,000	(given)
Loan			20,000

Swap Asset Dr 20,000
To P/L 20,000
Cash Dr 5,000 1000000 * (7-6)% x 1/2
To Interest 5,000

Second half year:
Interest Dr 35,000 (1000000 x 7% x ½)
Cash 35,000
Loan Dr 30,000 (given)
P/L 30,000
P/L Dr 20,000
To Swap Asset 20,000
Cash Dr 5,000 1000000 * (8-7)% x 1/2
To Interest 5,000

PROBLEMS ON CASH FLOW HEDGE:

Cash flow hedges are used to hedge exposures to **cash flow risk,** which is exposure to the variability in cash flows. Special accounting is allowed for cash flow hedges. FVH gains and losses are reported directly in net income. However, derivatives used in cash flow hedges are accounted for at fair value on the balance sheet, but **gains or losses are recorded in equity as part of other comprehensive income.**

P19) In September 2016, Allied Can Co. anticipates purchasing 1,000 metric tons of aluminum in January 2017. Allied is concerned that prices for aluminum will increase in the next few months. To control its costs in producing cans, Allied wants to protect against possible price increases for aluminum inventory. To hedge the risk that it might have to pay higher prices for inventory in January 2017, Allied enters into an aluminum futures contract (Buy position).

A ***futures contract*** gives the holder the right to purchase an asset at a preset price for a specified period of time. In this case, the aluminum futures contract gives Allied the right to purchase 1,000 metric tons of aluminum for $1,550 per ton. This price is good until the contract expires in January 2017. The underlying for this derivative is the price of aluminum. If the price of aluminum rises above $1,550, the value of the futures contract to Allied increases, because Allied will be able to purchase the aluminum at the lower price of $1,550 per ton.
Assuming that the futures contract was entered into on September 1, 2016, and that the price to be paid today for inventory to be delivered in January—the ***spot price***—was equal to the option price, the futures contract has no value. Therefore no entry is necessary:
September, 2016

No entry required. Memorandum entry is passed to indicate that the futures contract is signed.

At December 31, 2016, the price for January delivery of aluminum has increased to $1,575 per metric ton. Allied would make the following entry to record the increase in the value of the futures contract:

December 31, 2016
Futures Contract Dr 25,000
To Hedging Reserve 25,000 ([$1,575 - $1,550] 3 1,000 tons)

The futures contract is reported in the balance sheet as a current asset. The gain on the futures contract is reported as part of other comprehensive income. Since Allied has not yet purchased and sold the inventory, this is an ***anticipated transaction,*** and gains or losses on the futures contract

are accumulated in equity as part of other comprehensive income until the period in which the inventory is sold and earnings is affected. In January 2017, Allied purchases 1,000 metric tons of aluminum for $1,600 in cash / spot and makes the following entry:

January, 2017
Aluminum Inventory Dr 1,600,000
To Cash 1,600,000 (1000 x 1600)
At the same time, Allied makes final settlement on the futures contract and makes the following entry:

January, 2017
Futures Contract Dr 25,000
To Hedging Reserve 25,000 ([$1,600 – 1,575] x 1,000 tons)
Cash Dr 50,000
To Futures Contract 50,000 (25,000+25,000)
Through use of the futures contract derivative, Allied has been able to fix the cost of its inventory.

In practice, futures contracts are settled on a daily basis; for our purposes we show only one settlement for the entire amount.

Effect of Hedge on Cash Flows:
There are no income effects at this point. The gain on the futures contract is accumulated in equity as part of other comprehensive income until the period when the inventory is sold and earnings is affected through cost of goods sold.

Revenue Statement for the year			
Sales and Servcies		22,00,000	(assume)
Less: Cost of goods	16,00,000		
(-) Hedging Reserve	(50,000)	(15,50,000)	
Less: Processing cost		(2,50,000)	(assume)
Profit		4,00,000	

Can u observe the inventory cost is 1550000 which was the price decided initially in hedging.

P20) At the beginning of 2016, Berry Ltd. issues a 10-year liability with a principal amount of $100,000 for $100,000 (i.e., at par). The bond pays floating interest that resets each year as market interest rates change. Entity A measures the liability at amortized cost ($100,000). Because the interest rate regularly resets to market interest rates, the fair value of the liability remains approximately constant irrespective of how market interest rates change. However, Berry wishes to convert the floating rate payments to fixed rate payments in order to hedge its exposure to changes in cash flows due to changes in market interest rates over the life of the liability.

To hedge the exposure, Berry enters into a five-year interest rate swap under which the entity pays fixed rate payments (5%) and in return receives floating rate payments that exactly offset the floating rate payments it makes on the liability. Entity B designates and documents the swap as a cash flow hedge of its exposure to variable interest payments on the bond. On entering into the interest rate swap, it has a fair value of zero. The effect of that interest rate swap is to offset the exposure to changes in interest cash flows to be paid on the liability. In effect, the interest rate swap converts the liability's floating rate payments into fixed rate payments, thereby eliminating the entity's exposure to changes in cash flows attributable to changes in interest rates resulting from the liability. At the end of 2016, the interest rate quoted at 6%.

At the end of 2016, the bond has accrued interest of $6,000. Berry Ltd makes this journal entry:

Interest expense Dr 6,000
To Cash 6,000

At the same time, a net interest payment of $1,000 has accrued under the swap for the year. Therefore;:

Cash Dr 1,000
To Interest expense 1,000

The net effect on profit or loss is fixed net interest expense of $5,000 (= 6,000 – 1,000). Because the swap is a derivative, it is measured at fair value. Berry Ltd determines that the fair value of the swap (excluding accrued interest) has increased by $6,800. As the swap is designated as a hedging instrument in a cash flow hedge, the change in fair value is not recognized in profit or loss but as a separate component of equity to the extent the swap is effective. In this case, Entity A determines that the swap is 100% effective.

Journal entry:

Swap asset Dr 6,800
To Equity (hedging reserve) 6,8200 → Equity / OCI / Hedging Reserves

Because the fair value of the swap will converge to zero by its maturity, the hedging reserve for the swap will also converge to zero by its maturity to the extent the hedge remains in place and is effective.

Value of Swap = Again Value of Fix – Value of Floating
V(Floating) = Face value = $ 1,00,000
V(Fix) = 5,000 Cum PVF (6%,9) + 1,00,000 PVF (6%,9) = $ 93200