

SHRI GURU KRIPA LEARNING CENTRE

CA FINAL - PAPER 2

STRATEGIC FINANCIAL MANAGEMENT MANAGEMENT ACCOUNTING AND FINANCIAL ANALYSIS

2009 April Model Exam Answers with Scheme of Valuation

1(a) –Evaluation of Project — Decision Tree – 10 Marks

A firm is planning to invest in a project. It has collected the information relating to the Cash flows and its probability to occur over the life of the project. Considering the importance of the project, the firm wants to make the best use of its funds.

The firm has approached you to advice on this issue based on the information provided by the firm.

The information relating to the Project are —

- The Investment Proposal requires and outlay of Rs.40,000.
- The investment proposal is expected to have 2 year's economic life with no salvage value.

The probabilities of occurrence of various cash flows and the amount of cash flows for years 1 and 2 are given below—

	Cash Flow	Probability	Cash Flow	Probability
Year 1	25,000	0.4	30,000	0.6
Year 2	12,000	0.2	20,000	0.4
	16,000	0.3	25,000	0.5
	22,000	0.5	30,000	0.1

The firm uses a 10% discount rate for this type of investment. The Cash Flows arising from the Project are independent.

Required —

- Construct a decision tree for the proposed investment project,
- What Net Present Value will the project yield if worst outcome is realized?
- What is the probability of occurrence of this NPV?
- What will be the best and the probability of that occurrence?
- Will the project be accepted?

Solution:

Decision Tree Diagram [Probable Cash Flows and Expected NPV] [6 Marks]

[For Diagram 2 Marks]

[For Computing Joint Probability 1 Mark]

[For Computing NPV for Each Scenario 1 Mark]

[For Computing Prob. NPV and Mean NPV 2 Marks]

Year 0 (1)	Year 1 (2)	Year 2 (3)	Joint. Probl. (4)	NPV (5) = (3) + (2) - (1)	Prob NPV (6) = (4) × (5)
Cash Outlay Rs.40,000	CF 25,000 DCF 22,725	CF 12,000 DCF 9,912	0.08 0.4 × 0.2	(7,363) [22,725 + 9,912 - 40,000]	(589) [0.08 × (7,363)]
		CF 16,000 DCF 13,216	0.12 0.4 × 0.3	(4,059) [22,725 + 13,216 - 40,000]	(487) [0.12 × (4,059)]
		CF 22,000 DCF 18,172	0.20 0.4 × 0.5	897 [22,725 + 18,172 - 40,000]	179 [0.20 × 894]
	CF 30,000 DCF 27,270	CF 20,000 DCF 16,520	0.24 0.6 × 0.4	3,790 [27,270 + 16,520 - 40,000]	909 [0.24 × 3,790]
		CF 25,000 DCF 20,650	0.30 0.6 × 0.5	7,920 [27,270 + 16,520 - 40,000]	2,376 [0.30 × 7,920]
		CF 30,000 DCF 24,780	0.06 0.6 × 0.1	12,050 [27,270 + 16,520 - 40,000]	723 [0.06 × 12,050]
Time 0 PVF 1.000	Time 1 PVF 0.909	Time 2 PVF 0.826	Mean NPV		<u>3,111</u>

Conclusions: [1 Mark Each]

- (a) Expected Net Present Value **Rs.3,111**
- (b) Worst Case NPV (Rs.7,363). Probability 0.08 or 8%
- (c) Best Case NPV Rs.12,050. Probability 0.06 or 6%.
- (d) Action on Project: Accept as the Mean NPV or the Expected NPV is positive.

1(b) Business Acquisition — Valuation**6 Marks**

A Ltd wants to acquire T Ltd and has offered a swap ratio of 1:2 (0.5 shares for every one share of T Ltd). Following information is provided —

Particulars	A Ltd	T Ltd
Profit After Tax	Rs.18,00,000	Rs.3,60,000
Equity Shares Outstanding (Nos.)	6,00,000	1,80,000
Earnings Per Share	Rs.3	Rs.2
PE Ratio	10 Times	7 Times
Market Price per Share	Rs.30	Rs.14

Required —

- The number of equity shares to be issued by A Ltd., for acquisition of T Ltd.,
- What is the EPS of A Ltd., after the acquisition?
- Determine the equivalent earning per share of T Ltd.
- What is the expected market price per share of A Ltd., after the acquisition, assuming its PE multiple remains unchanged? Also, determine the market value of the merged firm.

Solution:**1. Computation of Shares Exchanged [1½ Marks]****(a) Exchange Ratio:**

No. of Shares of A Ltd per share of T Ltd = 1 Shares of A Ltd for every 2 shares in B Ltd
 = $\frac{1}{2} = 0.50$

(b) Total No. of Shares Issued

= Exchange Ratio $\times$ No. of Shares Outstanding
 = $0.50 \times 1,80,000$ Shares = 90,000 Shares

2. Computation of Values of Merged Entity

Particulars	Value	Marks
Profit After Tax of A Ltd before Merger	18.00	
Add: Profit After Tax of B Ltd before Merger	3.60	
Profit After Tax of Merged Entity [Earnings][Rs.Lakhs]	21.60	½ Mark
No. of Shares Outstanding in A Ltd before Merger	6.00	
Add: Shares issued to T Ltd for acquisition	0.90	
Shares Outstanding in A Ltd after Merger [Shares] [Lakhs]	6.90	½ Mark
EPS after Acquisition [Earnings $\div$ Shares]	Rs.3.13	1 Mark
PE Multiple of Merged Entity [PE Multiple]	10 Times	
MPS per Share of A Ltd after Merger [PEM $\times$ EPS]	Rs.31.30	½ Mark
Market Value of A Ltd after Merger [Earnings $\times$ PEM]	Rs.216.00 Lakhs	½ Mark

3. Computation of Equivalent EPS of T Ltd [1½ Marks]

Equivalent EPS of T Ltd = EPS of Merged Entity $\div$ Swap Ratio
 = $\text{Rs.}3.13 \div 0.50 = \text{Rs.}1.565$

Therefore, a shareholder holding one share in T Ltd will have an EPS of Rs.6.26 in the Merged Entity.

1(c) Lately companies are resorting to internal financing for their long term funds. Explain with arguments whether this is a healthy development. 4 Marks

(Any four points – 1 Mark $\times$ 4 Points = 4 Marks)

Retained Earnings refer to the percentage of earnings retained by the Firm for its long-term requirements. The reasons for resorting to Internal Financing are as follows —

- Low Risk:** Ploughing back of profits, is subjected to a very low degree of risk, because the amount of risk involved in internal financing is very low.
- Meeting Future Needs:** It is desirable that a certain amount of profits after taxation and dividends is ploughed back in the company. As individuals are supposed to have something out of their current earnings for future needs, similarly, business enterprises should also not spend their total current earnings by distributing dividends.
- Non-Dilution of Ownership:** If the funds are raised through external sources of financing like fresh issue of Equity or Debentures, it leads to dilution of ownership. This is avoided through internal financing.
- Financial Strength:** The higher amount of accumulated Retained Earnings, Reserves indicates the financial strength of the Company. A Company resorting to internal financing, and thus creating huge reserves, will be rated high by the outsiders. It builds the Equity Base and creates additional debt capacity.
- Inflation:** It is essential to plough back profits to preserve the original capital intact, in an inflation ridden economy.
- High Retention:** It is characteristic of growth industries or Companies to have high retention rate, i.e. to pay a comparatively small portion of current earnings as dividends.

7. **High Profitability:** If the rate of profitability is high, management may retain a substantial percentage of earnings, in the interest of rapid expansion.
8. **Good Growth:** The existence of profitable opportunities for reinvestment of funds and a good growth record require the Companies to have a low dividend pay-out ratio, and thus finance their long-term funds needs through internal financing.

2(a) Managing Risks — Money Market vs. Forward Contract vs. Immediate Payment

An Indian Company has availed the services of two London based Interior Decorators and are required to pay GBP 50,000 in 3 Months. From the following information, advice the course of action to minimize rupee outflow —

Foreign Exchange Rates (Rs./GBP)			Money Market Rates (p.a.)		
	Bid	Ask		Deposits	Borrowings
Spot	81.60	81.90	GBP	6%	9%
3-Month Forward	82.70	83.00	Rs.	8%	12%

Solution:

Cash Flows 3 Months later under Money Market Hedge, Spot Settlement and Forward Market Hedge can be compared, and appropriate decision taken.

1. Forward Rate (2 Marks)

Particulars	Rs.
Amount to be settled (Rs.) = GBP 50,000 × 3-Month Forward Rate Rs.83.00	41,50,000

2. Money Market Hedge (6 Marks)

Facts: The Indian Company will **BUY** GBP 1,00,000 in 3 Months

Inference: ⇒ GBP 50,000 is a Liability ⇒ Under Money Market Hedge, asset in GBP should be created
 ⇒ The Company should invest in GBP for 3 Months, which along with interest would yield GBP 50,000 in 3 Months ⇒ It should borrow in Rs. for investing in GBP.

Action	Date	Activity
Borrow	01.04.2007	Borrow in Rupee at 12%, an amount equivalent to GBP, which if invested at 6% p.a., will yield GBP 50,000 in 3 Months. Therefore, GBP required to be invested ⇒ $\text{GBP } 50,000 \div (1 + \text{GBP Deposit Interest Rate for 3 Months})$ ⇒ $\text{GBP } 50,000 \div (1 + 6\% \text{ p.a.} \times 3 \text{ Months} / 12 \text{ Months})$ ⇒ $\text{GBP } 50,000 \div (1 + 1.5\%) \Rightarrow \text{GBP } 50,000 \div 1.015 = \text{GBP } 49,261.0837$ Amount to be borrowed = GBP to be invested × Spot Rate (Ask Rate) = $\text{GBP } 49,261.0837 \times \text{Rs.}81.90 / \text{GBP} = \text{Rs.}40,34,483$
Convert	01.04.2007	Convert Rs.40,34,483 into GBP at Spot Rate (Ask Rate since GBP is bought). ⇒ $\text{Rs.}40,34,483 \div \text{Rs.}81.90 / \text{GBP} = \text{GBP } 49,261.0837$
Invest	01.04.2007	Invest GBP 49,261.0837 in GBP Deposit for 3 Months at 6% p.a.
Realize	01.07.2007	Realize the maturity value of GBP Deposit. Amount received will be GBP 50,000
Settle	01.07.2007	Settle the GBP 50,000 liability to the Interior Decorators, using the maturity proceeds of the GBP Deposits.
Repay	01.07.2007	Repay the Rupee Loan. Amount Payable = Amount Borrowed $\text{Rs.}40,34,483 \times (1 + 12\% \text{ p.a. for 3 Months}) = \text{Rs.}40,34,483 \times 1.03 = \text{Rs.}41,55,517$

3. Settle Now (by borrowing in Rupee) (2 Marks)

If the Company Settles now, Rupee outflow will be $\text{GBP } 50,000 \times 81.90 = \text{Rs. } 40,95,000$

Money repaid three months later for the loan borrowed (Including interest at 12% p.a. for three months) = $40,95,000 \times 1.03 = \text{Rs. } 42,17,850$

Analysis and Conclusion (2 Marks)

Alternatives	Forward Rate	Money Market Hedge	Spot Settlement
Outflow 3 Months Later	41,50,000	41,55,517	42,17,850

Conclusion: Cash outflow under Forward Rate is the lowest. Therefore, the same should be preferred.

2(b) Briefly explain the various margins imposed on a Futures Contract.**1. Initial Margin:**

- Requirement:** Initial Margin is the amount of money, which a customer must deposit in his account whenever he establishes an index futures position, buy or sell. This seeks to safeguard against potential losses on outstanding position.
- Minimum Margin:** Minimum margins are set by the Stock Exchange, and are usually about 10% of the total value of the contract.
- Computation:** Initial Margin deposit is large enough to cover a loss during one trading day based on "Value At Risk" methodology.
- Value at Risk:** It seeks to provide a single number summarizing the total risk in a portfolio of financial asset. It is computed using — (a) Historical Simulation Approach, and (b) Model Building Approach. The initial margin represents the intra day loss that can be encountered on 99% of the days in the Futures Contract period.

2. Maintenance Margin:

- Meaning:** It is the minimum margin required to **hold** a position in a Futures Contract. It should be minimum enough to support the daily settlement process, i.e. marking to market, whereby losses as at that day are already collected.
- Quantum:** Generally, the amount to be kept under Maintenance Margin is slightly **lower** than the Initial Margin amount.
- Requirement:** When the balance in the Maintenance Margin is lower than the required amount, the investor should deposit cash to make up for the shortfall.
- Reversal of Trade:** If the shortfall is not made good, then the Broker would close out the investor's position by entering a reverse trade in the investor's account.

3. Marking-to-Market (MTM):

- Meaning:** It is a scheme where by the gain or loss in the futures contract, based on the price movements in the Futures Price for that day, is computed and settled at the end of the day by transfer from or transfer to Maintenance Margin.
- Purpose:** Constant and huge movement in prices of Futures Contract renders the owner liable to adverse changes in value, and creates a credit risk to the Exchange. MTM Margin minimizes this risk.
- Scheme:** Futures Contract is marked to the present value at the end of every day, and compared with the previous day's closing value. Any difference, resulting in gain / loss to the investor, is settled immediately. In the case of gain, the Exchange would credit the investor's account and in the case of loss, the Exchange would debit the investor's account.

(Identification of the Three Margins 1 Mark; and Brief description of the three margins 3 Marks)

2(c) What are the differences between Factoring and Forfaiting?

Basis	Factoring	Forfaiting
Extent of finance	Usually 80% or 90% of the value of the invoice is considered for advance.	100% financing.
Credit worthiness	Factor does the credit rating of the counterparty in case of a non-recourse factoring transaction.	The Forfaiting Bank relies on the credibility of the availing bank.
Services provided	Day to day administration of sales and other allied services are provided.	No services are provided.
Maturity	Advances are short-term in nature.	Advances are generally medium term.

(each point of difference 1 Mark × 4 Points = 4 Marks)

3(a) Net Annual Value of Mutual Fund

Mr.X on 1.7.2000, during the initial offer of some Mutual Fund invested in 10,000 units having face value of Rs.10 for each unit. On 31.3.2001 the dividend operated by the M.F. was 10% and Mr.X found that his annualized yield was 153.33%. On 31.12.2002, 20% dividend was given. On 31.3.2003 Mr.X redeemed all his balance of 11,296.11 units when his annualized yield was 73.52%.

What are the NAVs as on 31.3.2001, 31.12.2002 and 31.3.2003?

Solution:

1. NAV as at 31.03.2001 (3 Marks)

Particulars	Rs.
Annualised Yield	153.33%
Yield for 9 months [From 1.7.2000 till 31.03.2001] $[153.33 \times 9 \div 12]$	115%
Return for 9 Months [Investment Rs.1,00,000 × 115%]	Rs.1,15,000
Less: Dividends at 10% of Opg. Value [10,000 Units × Rs.10 × 10%]	(Rs.10,000)
Net Capital Appreciation (1 Mark)	Rs.1,05,000
Closing NAV (Investment Rs.1,00,000 + Capital Appn. Rs.1,05,000)	Rs.2,05,000
No. of Units Outstanding	10,000
NAV per Unit	Rs.20.50
Dividends are Reinvested at Rs.20.50. therefore, Additional Units purchased as at 31.03.2001 [Dividends Rs.10,000 ÷ NAV p.u. Rs.20.50] (1 Mark)	487.80
Total No. of Units as at 31.03.2001 (after reinvestment of dividend) (1 Mark)	10,487.80

2. NAV as at 31.12.2002 (3 Marks)

Particulars	Rs.
Units Outstanding as at 31.12.2002	10,487.80
Face Value at Rs.10 (10,487.80 Units × Rs.10 p.u.)	Rs.1,04,878
Dividend distributed at 20% (Rs.1,04,878 × 20%) (1 Mark)	Rs.20,975.6
No. of Units as at 31.03.2003	11,296.11
Less: No. of Units as at 31.12.2002	10,487.80
No. of Units issued against reinvestment of dividend (1 Mark)	808.31
Dividends will be reissued at the NAV as at 31.12.2002. Therefore, NAV = Dividends ÷ No. of Units reissued = Rs.20,975.60 ÷ 808.31 Units = (1 Mark)	Rs.25.95

3. NAV as at 31.03.2003 (3 Marks)

Particulars	Rs.
Annualised Yield as on 31.03.2003	73.52%
Yield for 33 months [From 1.7.2000 till 31.03.2003] $[73.52 \times 33 \div 12]$ (1 Mark)	202.18
Return for 33 Months [Investment Rs.1,00,000 $\times$ 202.18%] (1 Mark)	Rs.2,02,180
Add: Opening Investment	Rs.1,00,000
Closing Fund Value (Dividends need not be excluded, since they are reinvested)	3,02,180
No. of Units Outstanding as at 31.03.2003	11.296.11
NAV per Unit (Rs.3,02,180 $\div$ 11,296.11 Units) (1 Mark)	Rs.26.75

3(b) Interest Rate Swaps

Company ABC and XYZ have been offered the following rate per annum on a \$ 200 million five year loan;

		Fixed Rate	Floating Rate
Company	ABC	12.0	LIBOR + 0.1%
Company	XYZ	13.4	LIBOR + 0.6%

Company ABC requires a floating - rate loan; Company XYZ requires a fixed rate loan.

Design a swap that will net a bank acting as intermediary at 0.1 percent per annum and be equally attractive to both the companies.

Solution:

Computation of Share of Gain (2 Marks)

Particulars	Rs.
(a) Difference in Floating Rates $[(\text{LIBOR} + 0.1\%) - (\text{LIBOR} + 0.6\%)]$	0.5%
(b) Difference in Fixed Rates $[13.4\% - 12\%]$	1.4%
(c) Net Difference $\{[(a) - (b)] \text{ in Absolute Terms}\}$	0.9%
(d) Amount paid for arrangement of Swap Option	(0.1%)
(e) Net Gain [(c) - (d)] (1 Mark)	0.8%
(f) Company ABC's share of Gain $[0.8\% \times 50\%]$ (½ Mark)	0.4%
(g) Company XYZ's share of Gain $[0.8\% \times 50\%]$ (½ Mark)	0.4%

ABC is the stronger Company (due to comparative interest advantage). ABC has an advantage of 1.40% in Fixed Rate and 0.50% in Floating Rate. Therefore, ABC enjoys a higher advantage in Fixed Rate loans. Therefore, ABC will opt for Fixed Rate Loans with its Bankers. Correspondingly XYZ Ltd will opt for Floating Rate Loans with its bankers. **(1 Mark)**

Company ABC	Company XYZ
1. Company ABC will borrow at Fixed Rate.	1. Company XYZ will borrow at Floating Rate.
2. Pay interest to Bankers at Fixed Rate (i.e. 12.0%)	2. Pay interest to its Bankers at Floating Rate (i.e. LIBOR + 0.6%)
3. Will collect from Company XYZ interest amount differential i.e. Interest	3. Will pay to Company ABC interest amount differential i.e. Interest computed at Fixed Rate (12.0%) Less Interest Computed at Floating Rate of $(\text{LIBOR} + 0.1\%) = 11.9\%$

computed at Fixed Rate (12.0%) Less Interest Computed at Floating Rate of (LIBOR + 0.1%) = 11.9% – LIBOR	– LIBOR
4. Receive share of Gain from Company XYZ (0.4%)	4. Pay to Company ABC its share of Gain = 0.4%
5. Effective Interest Rate: 2 – 3 = 12.0% – (11.90% – LIBOR) – 0.4% = LIBOR – 0.3%	5. Pay Commission Charges to the Financial Institution for arranging Interest Rate Swaps i.e. 0.1%
	6. Effective Interest Rate: 2 + 3 + 4 + 5 = Floating Rate to Company XYZ (LIBOR + 0.6%) + Interest Differential paid to Company ABC (11.9% – LIBOR) + Commission charges paid for arranging Swaps + Share of gain paid to Company ABC = LIBOR + 0.60 % + 11.9% – LIBOR + 0.1% + 0.4% = 13.0%

(For writing course of action = 1 ½ Marks Each for each Company = 3 Marks)

3(c) Portfolio Beta and Return — Effect of Change in Portfolio

Sampath has invested in four securities A, B, C and D, the particulars of which are as follows —

Security	A	B	C	D
Amount Invested	Rs.1,25,000	Rs.1,50,000	Rs.80,000	Rs.1,45,000
Beta (β)	0.60	1.50	0.90	1.30

If RBI Bonds carries an interest rate of 5% and NIFTY yields 12%, what is the expected return on portfolio? If investment in Security C is replaced by investment in RBI Bonds, what is the corresponding change in Portfolio Beta and expected return?

Solution: 1. Computation of Expected Return on Portfolio (Under CAPM)

(a) Computation of Weighted Beta (Beta of the Portfolio) (1½ Marks)

Security	Amount Invested	Proportion of Investment to Total Investment	Beta of Investment	Weighted Beta
(1)	(2)	(3) = (2) ÷ 5,00,000	(4)	(5) = (3) × (4)
A	1,25,000	1,25,000 ÷ 5,00,000 = 0.25	0.60	0.25 × 0.60 = 0.150
B	1,50,000	1,50,000 ÷ 5,00,000 = 0.30	1.50	0.30 × 1.50 = 0.450
C	80,000	80,000 ÷ 5,00,000 = 0.16	0.90	0.16 × 0.90 = 0.144
D	1,45,000	1,45,000 ÷ 5,00,000 = 0.29	1.30	0.29 × 1.30 = 0.377
Total	5,00,000	1.00	Weighted Beta	1.121

(b) Computation of Expected Return on Portfolio (½ Mark)

$$\begin{aligned}
 \text{Expected Return } [E(R_p)] &= R_F + [\beta_p \times (R_M - R_F)] \\
 &= 5\% + [1.121 \times (12\% - 5\%)] \\
 &= 5\% + [1.121 \times 7\%] = 5\% + 7.847\% = \mathbf{12.847\%}
 \end{aligned}$$

2. Computation of Expected Return [Investment in C, replaced by RBI Bonds] (CAPM)

(a) Computation of Weighted Beta (Beta of the Portfolio) (1½ Marks)

Security	Amount Invested	Proportion of Investment to Total Investment	Beta of Investment	Weighted Beta
(1)	(2)	(3) = (2) ÷ 5,00,000	(4)	(5) = (3) × (4)
A	1,25,000	1,25,000 ÷ 5,00,000 = 0.25	0.60	0.25 × 0.60 = 0.150
B	1,50,000	1,50,000 ÷ 5,00,000 = 0.30	1.50	0.30 × 1.50 = 0.450
RBI Bonds	80,000	80,000 ÷ 5,00,000 = 0.16	0.00	0.16 × 0.00 = 0.000
D	1,45,000	1,45,000 ÷ 5,00,000 = 0.29	1.30	0.29 × 1.30 = 0.377
Total	5,00,000	1.00	Weighted Beta	0.977

(b) Computation of Expected Return on Portfolio (½ Mark)

$$\begin{aligned}
 \text{Expected Return } [E(R_p)] &= R_F + [\beta_p \times (R_M - R_F)] \\
 &= 5\% + [0.977 \times (12\% - 5\%)] \\
 &= 5\% + [0.977 \times 7\%] = 5\% + 6.839\% = \mathbf{11.839\%}
 \end{aligned}$$

4(a) Hedging of Risks — Perfect vs. Imperfect Cross Hedge**8 Marks**

Elixir Trading Company has a beta of 0.80 with BSE 500. Each BSE 500 Futures contract is worth 100 units. Ashwin anticipates a bearish market for the next three months and has gone short on shares of 25,000 Shares of ETC in the spot market. ETC Shares are traded at Rs.100. 3-Months' Future BSE 500 is quoted at 12,500.

Required —

- No. of BSE 500 Futures Contract to be taken by Ashwin if he wants to hedge price risk to the extent of — (a) 60%, (b) 100%; (c) 125%.
- If price of ETC falls or increases by 20% in the spot market, how is Ashwin protected in the above three cases?
- If price of ETC falls by 30% in the spot market and BSE 500 is quoted at 12000 on the same day, what is Ashwin's position in Case 1(b) above? What is the inference drawn in this case with reference to cross hedging?

Solution:

Course of Action: Ashwin is short in the Spot Market, therefore he should go long in the Futures Market i.e. Buy BSE 500 Futures. Sell Spot (already sold). Buy Future.

1. Computation of No. of Contracts to be taken

Factors:	Hedge Ratio (Beta of ETC w.r.t. BSE 500)	0.80
	Units of Spot Position to be hedged	25,000 Shares of ETC
	Units per BSE 500 Futures Contract	100 Units
	BSE 500 Futures Contracts for 100% Coverage	200 $[0.80 \times 25,000 \text{ Shares} \div 100 \text{ Units}]$

Particulars	Case A	Case B	Case C
Risk Coverage Desired [A]	60%	100%	125%
BSE 500 Futures Contracts Required for 100% Coverage [B]	200	200	200
BSE 500 Futures Contract Required to be taken for the desired Risk Coverage [A × B]	120 Contracts [200 × 60%]	200 Contracts [200 × 100%]	250 Contracts [200 × 125%]

(½ Mark Each × 3 Scenarios = 1½ Marks)**2. Price of ETC Falls by 20% — Protection for Ashwin****(a) Change in BSE 500 Index Points [1 Mark]**

Share Price of ETC	Decreases by 20%	Increases by 20%
Depreciation / Appreciation in Value per Share of ETS [Rs.100 × 20%]	Rs.20	
Hedge Ratio (i.e. Beta Value of movement in ETS w.r.t to BSE 500)	0.80	
Change in BSE 500 Index [per index futures] [Change in ETC Price ÷ Hedge Ratio] = $20 \div 0.80 = 25$ Points i.e. BSE 500 Index would have depreciated / appreciated by 25 Points to 12,475 Points (12,500 – 25)	25 Points	
Effect: If BSE 500 Index falls, Ashwin should buy the Nifty at a higher price than the ruling price. Therefore, Ashwin would pay cash to settle the loss arising out of contract. If the index rises, Ashwin will make a gain, and receive cash.	Loss	Gain