

Guideline Answers to Nov 2013 Exam Questions CA Final STRATEGIC FINANCIAL MANAGEMENT

Question 1 is compulsory ($4 \times 5 = 20$ Marks)

Answer **any five** questions from the **remaining six** questions ($16 \times 5 = 80$ Marks). [Answer any 4 out of 5 in Q.7]

Question 1 (a): Bonds – Valuation of Bonds with Beta and Forward Rates

5 Marks

ABC Ltd issued 9%, 5 year Bonds of ₹ 1,000/- each having a maturity of 3 years. The present rate of Interest is 12% for one year tenure. It is expected that Forward Rate of Interest for one year tenure is going to fall by 75 basis points and further by 50 basis points for every next year in future for the same tenure. This Bond has a Beta Value of 1.02 and is more popular in the Market due to less Credit Risk. Calculate the Intrinsic Value of the Bond and the Expected Price of Bond in the Market.

Solution

Assumption: Beta of a Bond

- It is given that the market interest rate is 12%. The coupon rate of the Bond is 9%. It is assumed that Risk free return on investment is 9%.
- As it is given that the beta of the bond is 1.02, the Investor's expected rate of return on the bond can be computed using CAPM.

Note: A Bond is a fixed return bearing instrument and hence the cash flows out of the bonds does not varies with respect to market fluctuations. However the Investor's expected return on the bond & consequently its Present Value will undergo a change depending on the market returns and fluctuations.

Year	Expected Market Rate	Expected Return on bond [CAPM]	
Year 0	12%	12.06%	$9\% + 1.02 (12\% - 9\%)$
Year 1	11.25%	11.295%	$9\% + 1.02 (11.25\% - 9\%)$
Year 2	10.75%	10.785%	$9\% + 1.02 (10.75\% - 9\%)$

(a) Computation of Intrinsic Value of the Bond

$$\begin{aligned} \text{Intrinsic value of the bond} &= \text{Present Value of Future Cash Flows [Interest + Maturity Proceeds]} \\ &= ₹ 216.16 \text{ (Note 1)} + ₹ 711.78 \text{ (Note 2)} = ₹ 927.94 \end{aligned}$$

Note 1: Present Value of Interest Cash Flow

Particulars	Details
Face Value	₹ 1000
Coupon Rate	9%
Annual Interest Payable	90 $[1000 \times 9\%]$
Period to Maturity	3 yrs
Discount Rate	12%
Present Value Annuity Factor (3 Yrs, 12%)	2.4018
Present Value of cash inflows on account interest flow	₹ 216.16

Note 2: Present Value of Maturity Proceeds

Particulars	Value
Maturity Proceeds	₹ 1000
PV Factor at 12% at the end of the 3 years	0.7118
Present Value of Maturity Proceeds	711.78

(b) Computation of Expected Price of Bond in the Market – based on the expected market fluctuations

$$\begin{aligned} \text{Expected price of the Bond} &= \text{PV of Future Cash Flows discounted at Beta Adjusted Future Market Rate} \\ &= ₹ 954.55 \end{aligned}$$

Year (a)	Cash Flow (b)	Discount Rate (c)	Discount Factor (d)	Disc. Cash Flow (e) = (b) x (d)
Year 1	90	12.060%	0.8923	80.307
Year 2	90	11.295%	0.8073	72.657
Year 3	90	10.785%	0.7354	66.186
Year 3	1000	10.785%	0.7354	735.400
Total				954.55

Question 1 (b): Futures – Portfolio Beta and Futures Hedging**5 Marks**

A trader is having in its portfolio shares worth ₹85 lakhs at current price and cash ₹15 lakhs. The beta of share portfolio is 1.6. After 3 months the price of shares dropped by 3.2%.

Determine:

- Current portfolio beta.
- Portfolio beta after 3 months if the trader on current date goes for long position on ₹100 lakhs Nifty futures.

Solution:

(a) Computation of Portfolio Beta

Security	Beta	Amount in ₹ (lakhs)	Product (Amount x Beta)
Shares	1.6	85	136
Cash	0	15	0
		100	136

Portfolio Beta = Weighted Average Beta = $136/100 = 1.36$

Note: Beta of Cash = 0

(b) Computation of Revised Portfolio Beta

- It is given that the share prices falls by 3.2%. Beta of the share being 1.6, the expected decrease in the NIFTY is $3.2\% / 1.6 = 2\%$
- Hence the decrease in value of NIFTY investment will be ₹ 98 $[100 - 2\%]$. The same will be reduced from the cash balance. Revised cash balance in the portfolio will be ₹ 13 $[15 - 2]$
- Decrease in the value of Share portfolio is ₹ 82.28 $[85 - 3.2\% \text{ of } 85]$

Security	Beta	Amount in ₹ (lakhs)	Product (Amount x Beta)
Shares	1.6	82.28	131.65
Cash	0	13	0
Total		95.28	131.65

Portfolio Beta = Weighted Average Beta = $131.65/95.28 = 1.38$

Question 1 (c): International Finance – Hedging through Cross Currency Route**5 Marks**

You, a foreign exchange dealer of your bank, are informed that your bank has sold a T.T. on Copenhagen for Danish Kroner 10,00,000 at the rate of Danish Kroner 1 = ₹6.5150. You are required to cover the transaction either in London or New York market. The rates on that date are as under:

Mumbai – London	₹74.3000	₹74.3200
London – New York	₹49.2500	₹49.2625
London – Copenhagen	DKK 11.4200	DKK 11.4350
New York – Copenhagen	DKK 07.5670	DKK 0.75840

In which market will you cover the transaction, London or New York, and what will be the exchange profit or loss on the transaction? Ignore brokerages.

Solution:

Note: London – New York Currency Rate is given in the question. The same is represented in ₹. Hence there is an inconsistency in the Question. The Question has to be corrected and read as “Mumbai – New York” instead of “London – New York”. Else the question cannot be solved.

Facts: The Bank has sold Danish Kroner. Therefore, to cover itself, the Bank should buy Danish Kroner. Therefore, Ask Rate is relevant in this case. In this case the Bank is considered as a Customer for the Forex Dealer.

Option 1: Through London Market:

Rupee / Danish Kroner Ask Rate = Rupee / London [Ask Rate] × London / Danish Kroner [Ask Rate]
 Rupee / London Ask Rate = ₹ 74.3200
 London / Danish Kroner Ask Rate = $1 \div \text{Danish Kroner / London Bid Rate} = 1 / 11.4200 = 0.0876$
 Therefore, Rupee / Danish Kroner = 74.3200×0.0876
 = ₹ 6.5104 per Danish Kroner

Option 2: Through New York Market:

Rupee / Danish Kroner Ask Rate = Rupee / New York [Ask Rate] × New York / Danish Kroner [Ask Rate]
 Rupee / New York Ask Rate = ₹ 49.2625
 London / Danish Kroner Ask Rate = 1 ÷ Danish Kroner / New York Bid Rate = 1 / 07.5670 = 0.1322
 Therefore, Rupee / Danish Kroner = 49.2625 × 0.1322
 = ₹ 6.5125 per Danish Kroner

Recommendation: The Bank has to buy Danish Kroner to settle the transaction and therefore the least Ask Rate from the above two options will be the relevant rate. Therefore London Market Route has to be chosen to cover the transaction. Profit on Net Settlement is $10,00,000 \times (6.5150 - 6.5104) = ₹ 4,600$.

Question 1 (d): Mutual Funds – Net Asset Value of the Fund**5 Marks**

On 01-07-2010, Mr. X invested ₹50,000/- at initial offer in Mutual Funds at a face value of ₹10 each per unit. ON 31-03-2011, a dividend was paid @ 10% and annualized yield was 120%. On 31-03-2012, 20% dividend and capital gain of ₹0.60 per unit was given. Mr. X redeemed all his 6271.98 units when his annualized yield was 71.50% over the period of holding. Calculate NAV as on 31-03-2011, 31-03-2012 and 31-03-2013. For calculations consider a year of 12 months.

Solution:**1. NAV as at 31.3.2011**

Particulars	Value
Annualized Yield	120%
Yield for 9 months [From 1.7.2010 to 31.3.2011] $[120 \times 9 \div 12]$	90%
Return for 9 months (Investment ₹ 50,000 × 90%)	₹ 45,000
Less: Dividends at 10% of Opening Value (50,000 units × 10 × 10%)	5,000
Net Capital Appreciation	₹ 40,000
Closing NAV (Investment ₹ 50,000 + Capital Appreciation)	₹ 90,000
No. of. Units Outstanding	5,000
NAV Per unit (Closing NAV ÷ No of units outstanding)	₹ 18
Dividends are reinvested at ₹ 18.00, therefore, additional uts as at 31.3.11 $[\text{Div ₹ } 5,000 \div \text{NAV p.u ₹ } 18.00]$	277.78
Total Number of Units $[5,000 + 277.78]$	5,277.78

2. NAV as at 31.03.2012

Particulars	Value
Units Outstanding as at 31.3.2012	5,277.78
Face Value as at ₹ 10 $(5,277.78 \times ₹ 10 \text{ p.u})$	₹ 52,777.78
Dividend distributed at 20% $(₹ 52,777.78 \times 20\%)$	10,555.56
Add: Capital Gain Distributed $(5,277.78 \text{ Units} \times 0.6)$	3,166.67
Total Distributions	13,722.23
No. of. Units as at 31.03.2013	6,271.98
Less: No. of. Units as at 31.03.2011	5,277.78
No. of. Units issued against reinvestment of Dividend	994.20
Reinvested Units at NAV as at 31.3.2012 = Total Distributions ÷ Number of Additional Units	13.80

3. NAV as at 31.03.2013

Particulars	Value
Annualized Yield as on 31.03.2013	71.50%
Yield for 33 months (from 01.07.2010 to 31.03.2013) $33 \text{ months } [71.50 \div 12 \times 33]$	196.625%
Return for 33 months (Investment ₹ 50,000 × 196.625%)	₹ 98,312.50
Add: Opening Investment	₹ 50,000.00
Closing Fund Value (Dividends need not be excluded since they are reinvested)	₹ 1,48,312.50
No. of Units Outstanding as at 31.03.2013	6,271.98
NAV Per unit $(₹ 1,48,312.50 \div 6271.98)$	₹ 23.65

Question 2 (a): Portfolio Management – Expected Rate of Return for Securities and Portfolio**8 Marks**

Mr. Ram is holding the following securities:

Particulars of Securities	Cost ₹	Dividends ₹	Market Price ₹	Beta
Equity Shares:				
Gold Ltd	11,000	1,800	12,000	0.6
Silver Ltd	16,000	1,000	17,200	0.8
Bronze Ltd	12,000	800	18,000	0.6
GOI Bonds	40,000	4,000	37,500	1.0

Calculate:

- (i) Expected rate of return in each case, using the Capital Asset Pricing Model (CAPM).
- (ii) Average rate of return, if risk free rate of return is 14%.

Solution:

Note: The Question indicates the Beta of GOI bonds as 1, which is conceptually erroneous. This conceptual difference, however, is ignored while solving this problem.

1. Computation of Expected Return and Average Return

Securities	Cost	Dividend	Capital Gain (Market Price – Cost)	Expected Return = $R_f + \beta (R_M - R_f)$
Gold Ltd	11,000	1,800	12,000 – 11,000 = 1,000	$[14 + 0.60 \times (16.84 - 14)] = 15.70\%$
Silver Ltd	16,000	1,000	17,200 – 16,000 = 1,200	$[14 + 0.80 \times (16.84 - 14)] = 16.27\%$
Bronze Ltd	12,000	800	18,000 – 12,000 = 6,000	$[14 + 0.60 \times (16.84 - 14)] = 15.70\%$
GOI Bonds	40,000	4,000	37,500 – 40,000 = (2,500)	$[14 + 1.00 \times (16.84 - 14)] = 16.84\%$
Total	79,000	7,600	5,700	

Notes:

1. **Return on Market Portfolio:** Expected Return on Market Portfolio (R_M)
 $= (\text{Dividend} + \text{Capital Gains}) \div \text{Cost of the Total Investment}$
 $= (7,600 + 5,700) \div 79,000 \times 100 = 16.84\%$

In the absence of Return of a Market Portfolio, it is assumed that portfolio containing one unit of the four securities listed above would result in a completely diversified portfolio, and therefore represent the market portfolio.

2. **Portfolio's Expected Return based on CAPM:**

- (a) If the Portfolio contains the above securities in equal proportion in terms of value –
 Expected Return = $(15.70\% + 16.27\% + 15.70\% + 16.84\%) \div 4 = 16.13\%$

- (b) If the Portfolio contains one unit of the above securities, then —

Securities	Cost	Proportion	Expected Return	Weighted Return
Gold Ltd	11,000	$11,000 / 79,000 = 0.1393$	15.70%	$0.1393 \times 15.70 = 2.1870$
Silver Ltd	16,000	$16,000 / 79,000 = 0.2025$	16.27%	$0.2025 \times 16.27 = 3.2947$
Bronze Ltd	12,000	$12,000 / 79,000 = 0.1519$	15.70%	$0.1519 \times 15.70 = 2.3848$
GOI Bonds	40,000	$40,000 / 79,000 = 0.5063$	16.84%	$0.5063 \times 16.84 = 8.5261$
Total	79,000			16.39%

Therefore, Expected Return from Portfolio (based on CAPM) = 16.39%

Question 2 (b): International Finance – Hedging through Forwards and Options

8 Marks

An American firm is under obligation to pay interests of Can\$ 1010000 and Can\$ 705000 on 31st July and 30th September respectively. The Firm is risk averse and its policy is to hedge the risks involved in all foreign currency transactions. The Finance Manager of the firm is thinking of hedging the risk considering two methods i.e. fixed forward or option contracts.

Spot	1 Month Forward	3 Months Forward
0.9284 – 0.9288	0.9301	0.9356

Price for a Can\$ / US\$ option on a U.S. stock exchange (cents per Can\$, payable on purchase of the option, contract size Can\$ 50000) are as follows:

Strike Price (US \$ / Can \$)	Calls		Puts	
	July	Sept.	July	Sept.
0.93	1.56	2.56	0.88	1.75
0.94	1.02	NA	NA	NA
0.95	0.65	1.64	1.92	2.34

According to the suggestion of finance manager if options are to be used, one month option should be bought at a strike price of 94 cents and three months option at a strike price of 95 cents and for the remainder uncovered by the options the firm would bear the risk itself. For this, it would use forward rate as the best estimate of spot. Transaction costs are ignored.

Recommend, which of the above two methods would be appropriate for the American firm to hedge its foreign exchange risk on the two interest payments.

Solution:

Note: In the question, the Options premium is given in the form of conversion rates [CAD / USD]. Going by the information in the question will lead to an incorrect solution [i.e., an Call option premium of 1.56 CAD for July is more than the Strike Price itself – CAD 0.93]. Therefore, the information as to the Option Premium is considered as Premium as a Percentage of one Option Lot.

The company has to decide whether to opt for Fixed Forward Route or Options Route.

Case 1 – Cash Outflow under Fixed Forward Route:

Particulars	1 Month Forward [July 31 st]	3 Months Forward [Sep 30 th]
1. Interest Payment	CAD 10,10,000	CAD 7,05,000
2. Total Outflow under Forwards Route - Interest Payment in USD	9,39,401 [10,10,000 × 0.9301]	6,59,598 [7,05,000 × 0.9356]

Case 2 – Cash Outflow under Options Route:

Particulars	1 Month Option [July 31 st]	3 Months Options [Sep 30 th]
1. Option contract size	50,000 CAD	
2. Gross exposure	CAD 10,10,000	CAD 7,05,000
3. No of contracts – Covered position	20 contracts covering 10,00,000 CAD [10,00,000 CAD / 50,000 CAD]	14 contracts covering 7,00,000 CAD [7,00,000 CAD / 50,000 CAD]
4. Uncovered position (in CAD) [2-3]	10,000	5,000
5. Strike Price (given in Qn)	0.94	0.95
6. Option Premium	10,200 [20 contracts × 50,000 × 1.02%]	11,480 [14 contracts × 50,000 × 1.64%]
Settlement Net Gain / Loss		
7. Future Spot Price (Note 1)	Not Available	Not Available
8. Strike Price	0.9400	0.9500
9. Action on Option (Note 1)	Exercise	Exercise
10. Payment on Covered Position [(7) × (3)]	9,40,000	6,65,000
11. Payment on Uncovered position [(4) × (7)]	9,301	4,678
12. Total Outflow under Options Route [(6) + (10) + (11)]	9,59,501	6,81,158

Note 1: It is given that Forward Rate can be considered as the best estimate of Future Spot Rate. Hence the same is considered for the uncovered risk. For the Option evaluation, there should be information as to the future Spot Price to decide on the evaluation of the Option at the maturity. Since the information is not available, it is assumed that the Option is exercised in both the cases. It may also be assumed that the Future Spot price is the Forward Rates, while evaluating Option contracts also, in which case both the option contracts will lapse.

Decision: The Net outflow in Options Route > Forwards Route. Hence it is suggested to opt for Forwards Route for hedging the risk for both the interest payments.

Question 3 (a): Leasing Decisions – Evaluation of Leasing Option Vs Buying Option**10 Marks**

ABC Ltd. is contemplating having an access to a machine for a period of 5 years. The Company can have the use of the machine for the stipulated period through leasing arrangements or the requisite amount can be borrowed to buy the machine. In case of leasing, the company received a proposal to pay annual end of year rent of ₹2.4 lakhs for a period of 5 years.

In case of purchase (which costs ₹10,00,000/-) the company would have a 12%, 5 year loan to be paid in equated installments, each installment becoming due at the beginning of each year. It is estimated that the machine can be sold for ₹2,00,000/- at the end of 5th year. The company uses straight line method of depreciation. Corporate tax rate is 30%. Post tax cost of capital of ABC Ltd. is 10%.

You are required to advice

- Whether the machine should be bought or taken on lease.
- Analyse the financial viability from the point of view of the lessor assuming 12% tax cost of capital.

	PV of ₹1 @ 10% for 5 years	PV of ₹1 @ 12% for 5 years
1	.909	.893
2	.826	.797
3	.751	.712
4	.683	.636
5	.621	.567

Solution:**1. Choice of Discount Rate**

Since evaluation is done from the Lessee's perspective i.e. (Cost perspective), suitable discount rate for the purpose of choosing between Leasing vs. Buying would be after tax cost of borrowing. i.e. 12% Less Tax at 30% = 8.4%.

Note: It may also be assumed that the Discount Rate is the existing After Tax Cost of Capital of the Company. The answer will undergo a change to that extent.

2. Evaluation of Leasing Option

Particulars	Value
Annual Lease Rental	2,40,000
Less: Tax Savings at 30%	(72,000)
After Tax Lease Rental (₹ Lakhs)	1,68,000
Annuity Factor for Lease Payment (AF at 8.4% for 5 Years)	3.9510
Present Value of Lease Rental Option	6,63,768

3. Evaluation of Borrow and Buy Option**(a) Computation of Annual Installment**

Particulars	Value
Loan Amount	10,00,000
Annuity Factor at 12% for 5 Years for Advance EAI (AF at 12% for 4 Years 3.038 Plus 1.00)	4.038
Equivalent Annual Installment	2,47,647

(b) Computation of Interest and Principal Installment

Year (a)	Cash Flow Time (b)	Loan O/s (c)	Interest at 12% (d=c×12%)	Principal Repaid (e=2,47,647-c)	Clg. Prin. (f=c-e)	After Tax Int. (g=d×0.7)	Total Loan Cash Flows (h=e+g)
1	0	10,00,000	NIL	2,47,647	7,52,353	NIL	2,47,647
2	1	7,52,353	90,282	1,57,365	5,94,988	63,197	2,20,562
3	2	5,94,988	71,399	1,76,248	4,18,740	49,979	2,26,227
4	3	4,18,740	50,249	1,97,398	2,21,342	35,174	2,32,572
5	4	2,21,342	26,305	2,21,342	NIL	18,414	2,39,756

Note: In the Final Installment, Interest is taken as the Balancing Figure due to Rounding Off.

(c) Computation of Tax Savings on Depreciation (Assuming to accrue at the end of the year)

Particulars	Value
Depreciation (SLM) = (Cost – Salvage Proceeds) ÷ Life in years = (10,00,000 – 2,00,000) ÷ 5 yrs	1,60,000
Tax Savings on Depreciation [1,60,000 × 0.30]	48,000

(d) Computation of Present Cost of Loan Option

Year	Loan Cash Flow	Depreciation Tax Savings	Net Cash Flow	PVIF at 8.4%	DCF
0	2,47,647	—	2,47,647	1.000	2,47,647
1	2,20,562	48,000	1,72,562	0.923	1,59,275
2	2,26,227	48,000	1,78,227	0.851	1,51,671
3	2,32,572	48,000	1,84,572	0.785	1,44,889
4	2,39,756	48,000	1,91,756	0.724	1,38,831
5	0	48,000	(48,000)	0.668	(32,064)
5	Salvage Value	2,00,000	(2,00,000)	0.668	(1,33,600)
	Net Present Cost				6,76,649

Conclusion: Net Present Cost of operating the asset is lower in Lease Option. Hence, the Company should choose Lease Option over Borrow and Purchase. Net Advantage is ₹ 12,881 (₹ 6,76,649 **Less** ₹ 6,63,768)

4. Evaluation from Lessor's Perspective [Lessor's After Tax Cost of Capital = 12%]

Years	After Tax Lease Rentals	Tax Savings on Depreciation	CFAT	PVF @ 12%	DCF
1 to 5	1,68,000	48,000	2,16,000	3.605	7,78,680
5	—	—	2,00,000	0.567	1,13,400
0	—	—	10,00,000	1.000	(10,00,000)
	Net Present Value from Lessor's View Point				(1,07,920)

Conclusion: Net Present Value of Lease Option is negative. The Lease option is not financially viable from the Lessor's view Point.

Question 3 (b): Financial Services – Effective Cost of Factoring**6 Marks**

M/s Atlantic Company Limited with a turnover of ₹4.80 crores is expecting growth of 25% for forthcoming year. Average credit period is 90 days. The past experience shows that bad debt losses are 1.75% on sales. The Company's administering cost for collecting receivables is ₹6,00,000/-.

It has decided to take factoring service of Pacific Factors on terms that factor will buy receivables by charging 2% commission and 20% risk with recourse. The factor will pay advance on receivables to the firm at 16% interest rate per annum after withholding 10% as reserve.

Calculate the effective cost of factoring to the firm. (Assume 360 days in a year)

Solution:

1. Computation of Net Amount paid to the Firm

Particulars	Amount (In Lakhs)
Present Turnover	480.00
Expected Future Turnover (25% increase over the present turnover)	600.00
Average Receivables (Expected T/o × 90 ÷ 360)	150.00
Less: Factor Margin (10% above)	(15.00)
Amount Financed by Factor	135.00
Less: Commission Charged @ 2% on Average Receivables	(3.00)
Amount available for Advance	132.00
Less: Interest @ 16% for 90 Days on Amount Financed by Factor	(5.40)
Net Amount Paid to the Firm	126.60

2. Computation of Cost of Factoring

Particulars	Value
Commission Paid to Factor	3.00
Interest paid to Factor	5.40
Less: Savings on cost of Credit Administration for 90 days (6 Lakhs ÷ 4)	(1.50)
Less: Bad Debts avoided (150 × 80% × 1.75%) (See Note below)	(2.10)
Effective Cost of Factoring (Quarterly)	4.80
Effective Cost of Factoring (Annually)	19.20
Effective Cost of Factoring (19.20 ÷ 135)	14.22 %

Note: Since 20% of Risk is with recourse, only the Bad Debts on the balance 80% is saved due to Factoring

Question 4 (a): Dividends – Free Float Market Capitalisation with Bonus Issue**8 Marks**

Trupti Co. Ltd promoted by a Multinational group "INTERNATIONAL INC" is listed on stock exchange holding 84% i.e. 63 lakhs shares. Profit after Tax is ₹4.80 crores. Free Float Market Capitalization is ₹ 19.20 crores.

As per the SEBI guidelines promoters have to restrict their holding to 75% to avoid delisting from the stock exchange. Board of Directors has decided not to delist the share but to comply with the SEBI guidelines by issuing Bonus shares to minority shareholders while maintaining the same P/E ratio.

Calculate

- P/E Ratio
- Bonus Ratio
- Market price of share before and after the issue of bonus shares
- Free Float Market capitalization of the company after the bonus shares

Solution:

Free Float Market Capitalisation: Market Capitalisation in respect of those Shares which are listed and traded in stock exchange, i.e., those shares which are not locked in by the promoters.

1. Computation of Factors before Bonus Issue

Particulars	Shares	Market Capitalisation
1. Promoters' Holding (84%)	63,00,000	–
2. Total Holding (63,00,000 ÷ 84%)	75,00,000	–
3. Minority Holding (100% – 84% = 16%) [2 – 1]	12,00,000	19,20,00,000
4. Profit After Tax	–	4,80,00,000
5. EPS (PAT ÷ Total Shares)	–	6.40
6. MPS (Free Float Market Capitalisation / Free Float Shares)	–	160.00
7. PE Ratio (MPS ÷ EPS)	–	25

2. Computation of Bonus Issue to be made (In Shares and in value)

- (a) If the Promoters' holding should be 75%, Total Number of Shares expected (63 Lakhs ÷ 75%) = 84 Lakhs
 (b) In that case, Total number of Minority Shares expected should be (84 Lakhs – 63 Lakhs) = 21 Lakhs
 (c) Bonus issue to be made (Expected holding – Existing holding) (21 Lakhs – 12 Lakhs) = **9 Lakhs Shares**
 (d) Therefore, Bonus Ratio = 9:12 i.e **3 Shares for every 4 Shares held by the Minority**
 (e) Issue Price of the Bonus Shares = 9 Lakhs × ₹ 160 = ₹ 14,40,00,000
 (f) Market Price per share before Bonus = **₹ 160**

3. Computation of Market Price per Share:

It is given that the PE Ratio remains constant. Therefore, keeping PE Ratio as constant the MPS will be –

PE = MPS ÷ EPS, where EPS is PAT divided by new shares outstanding.

25 = MPS ÷ (4,80,00,000 / 84,00,000)

25 = MPS ÷ 5.71

Market Price per Share after Bonus = 142.75

4. Free Float Market Capitalisation after Bonus issue:

Particulars	Value
(a) Total Outstanding Free Float Shares (in numbers)	21,00,000
(b) Market Price per share after Bonus Issue	₹ 142.75
(c) Free Float Market Market Capitalisation after Bonus issue (a × b)	30,00,00,000 (approx.)

Question 4 (b): Capital Budgeting – Sensitivity Analysis**8 Marks**

The Easygoing Company Limited is considering a new project with initial investment, for a product "Survival". It is estimated that IRR of the project is 16% having an estimated life of 5 years.

Financial Manager has studied the project with sensitivity analysis and informed that annual fixed cost sensitivity is 7.8416%, whereas cost of capital (discount rate) sensitivity is 60%.

Other information available are:

Profit Volume ratio (P/V) is 70%,

Variable cost ₹60/- per unit

Annual Cash Flow ₹57,500/-

Ignore Depreciation on initial investment and impact of taxation.

Calculate

- Initial Investment of the Project
- Net Present Value of the Project
- Annual Fixed Cost
- Estimated annual unit of sales
- Break Even Units

Cumulative Discounting Factor for 5 years

8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%
3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127

Solution:

1. Computation of Initial Investment of the Project:

Initial Investment of the Project is the Annual Cash Flows discounted at the IRR of the Project. Therefore, the Initial Investment of the project is 57,500 at AF at 16% for 5 Years (3.274) = ₹ 1,88,255.

2. Computation of NPV of the Project:

Note: Given that the Cost of Capital Sensitivity is 60%. That is, an increase in Cost of Capital by 60% will make the Project breakeven (in other words it would equate IRR Rate).

- Cost of Capital = X
- Cost of Capital (adjusted for Sensitivity) = 1.6X (X + 60% of X)
- 1.6X = 16%
- X = 10%

NPV of the Project at cost of Capital at 10% = 57,500 × AF at 10% for 5 years (3.791) – Initial Investment of 1,88,255

Therefore, Net Present Value of the Project = 29,727

3. Computation of Annual Fixed Cost:

Note: Given that the Fixed Cost Sensitivity is 7.8416%. That is, an increase in Fixed Cost by 7.8416% will make the Project breakeven, NPV = 0.

- Fixed Cost = X
- Increased Fixed Cost = $0.078416X$
- Cash Flow = $57,500 - 0.078416X$
- $(57,500 - 0.078416X) \times \text{AF at 10\% for 5 years (3.791)} - \text{Initial Investment of 1,88,255} = 0$
- Solving for X, **Fixed Cost is ₹ 1,00,000**

4. Computation of Estimated Annual Unit of Sales:

- Let Sales Price be "X"
- PV Ratio = $\text{Contribution} \div \text{Sales} = 70\%$, where Contribution is Sales Less Variable Costs
- $0.70 = (X - 60) \div X$
- Therefore, Sales Price is ₹ 200
- Contribution per unit = ₹ 200 – ₹ 60 = ₹ 140
- Net Cash Flow = Contribution in total – Fixed Cost
- $57,500 = \text{Contribution in Total} - 1,00,000$
- Contribution in Total = 1,57,500
- Therefore number of units = $\text{Contribution in Total} \div \text{Contribution per unit}$
- Annual Units of Sales = $1,57,500 \div 140 = \mathbf{1125 \text{ Units}}$

5. Computation of Break-Even units:

Break-Even Point (Units) = $\text{Fixed cost} \div \text{Contribution per unit}$

Break-Even Units = $1,00,000 \div 140 = \mathbf{714.29 \text{ Units}}$

Question 5 (a): Mergers & Acquisitions, Business Valuation, etc – Evaluation based on NPV**10 Marks**

M/s Tiger Ltd wants to acquire M/s Leopard Ltd The balance sheet of Leopard Ltd as on 31st March, 2012 is as follows:

Liabilities	Rs.	Assets	Rs.
Equity Capital (70,000 shares)	7,00,000	Cash	50,000
Retained earnings	3,00,000	Debtors	70,000
12% Debentures	3,00,000	Inventories	2,00,000
Creditors and other liabilities	3,20,000	Plants & Equipment	13,00,000
Total	16,20,000	Total	16,20,000

Additional Information:

- Shareholders of Leopard Ltd will get one share in Tiger Ltd for every two shares. External liabilities are expected to be settled at ₹5,00,000. Shares of Tiger Ltd would be issued at its current price of ₹15 per share. Debenture holders will get 13% convertible debentures in the purchasing company for the same amount. Debtors and inventories are expected to realize ₹2,00,000.
- Tiger Ltd has decided to operate the business of Leopard Ltd as a separate division. The division is likely to give cash flows (after tax) to the extent of ₹5,00,000 per year for 6 years. Tiger Ltd has planned that, after 6 years, this division would be demerged and disposed of for ₹2,00,000.
- The company's cost of capital is 16%.

Make a report to the Board of the company advising them about the financial feasibility of this acquisition.

Net present values for 16% for ₹1 are as follows:

Years	1	2	3	4	5	6
PV	.862	.743	.641	.552	.476	.410

Solution:**1. Computation of Cost of Acquisition of Leopard Ltd**

Particulars	₹
Equity Share of Tiger Ltd ($70,000 \times 1/2 = 35,000 \text{ Shares @ ₹ 15}$)	5,25,000
Add: Discharge of Liabilities – 13% Debentures	3,00,000
Less: Realization of Assets – Debtors & Inventories	(2,00,000)
Net Outflow on Acquisition of Leopard Ltd	6,25,000

2. Computation of Net Present Value of the Acquisition

Particulars	Year	Cash Flow	PVF@16 %	Disc.Cash Flow
Annual Cash Inflow	1-6	5,00,000	3.684	18,42,000
Terminal Inflow on sale of Fixed Assets	6	2,00,000	0.410	82,000
Initial Investment on Acquisition	0	6,25,000	1.000	(6,25,000)
Net Present Value of Investment in Leopard Ltd				12,99,000

Recommendation: Since the NPV of the project is positive, the acquisition may be accepted from the financial view point.

Question 5 (b): Futures – Cross Hedge and Net Result on Settlement**6 Marks**

Ram buys 10,000 shares of X Ltd at a price of ₹22 per share whose beta value is 1.5 and sells 5,000 shares of A Ltd, at a price of ₹40 per share having a beta value of 2. He obtains a complete hedge by Nifty futures at ₹1,000 each. He closes out his position at the closing price of the next day when the share of X Ltd dropped by 2%, share of A Ltd appreciated by 3% and Nifty futures dropped by 1.5%.

What is the overall profit / loss to Ram?

Solution:

Company	Amount	Hedge Ratio / Beta	Index Value	Position in Cash Market	Position in Index
X Ltd	2,20,000	1.50	3,30,000	BUY	SELL
A Ltd	2,00,000	2.00	4,00,000	SELL	BUY

Net Buy Position in Index Futures for ₹ 70,000 for a complete Hedge in NIFTY Futures

Computation of Profit or Loss on Settlement

Company	Portfolio Balance	Action to be taken	Increase / Decrease	Gain / Loss
X Ltd	2,20,000	SELL	(2.00%)	(4,400)
A Ltd	2,00,000	BUY	3.00%	(6,000)
NIFTY Futures	70,000	SELL	(1.50%)	(1,050)
Net Loss				11,450

Question 6 (a): Dividends – Gordon's Model**8 Marks**

A share of Tension-free Economy Ltd is currently quoted at a price earnings ratio of 7.5 times. The retained earning being 37.5% is ₹3 per share.

Calculate

- The company's cost of equity, if investors' expected rate of return is 12%.
- Market price of share, if anticipated growth rate is 13% per annum with same cost of capital.
- Market price per share, if the company's cost of capital is 18% and anticipated growth rate is 15% per annum, assuming other conditions remaining the same.

Solution:

$$\text{Market Price of a Share} = \frac{D_1}{K_e - g} \quad [\text{Where } D_1 = D_0 \times (1 + g)], \text{ where } g = \text{br}$$

- Computation of Cost of Equity:** Cost of Equity can be found out by substituting values in the above Gordon's Formula for MPS

- Determination of MPS

- MPS = EPS x PE Ratio
- EPS = Retained Earnings / % of Retained Earnings
= ₹ 3 / 37.5% = ₹ 8
- Therefore MPS = ₹ 8 x 7.5 times = ₹ 60

- Determination of D1 (Dividend at the end of Y1)

- D1 = D0 + Growth rate
- D0 = EPS – Retained Earnings = ₹ 8 – ₹ 3 = ₹ 5
- Growth rate = Retained earnings x Rate of Return
= 37.5% of 12% = 4.5%
- Therefore D1 = ₹ 5 + 4.5% of ₹ 5 = ₹ 5.225

- MPS using Gordon's Formula

$$\text{MPS (60)} = \frac{D_1}{K_e - g} = \frac{5.225}{K_e - 4.5}$$

Solving the above equation, we get **K_e = 13.21%**

- Computation of Market Price of Share** [if Growth rate is 13%]

$$\begin{aligned} \text{MPS} &= \frac{D_1}{K_e - g} = \frac{5.65}{13.21 - 13} \\ &= \text{₹ } 2690.47 \end{aligned}$$

Where, $k_e = 13.21\%$; $G = 13\%$; $D_1 = D_0 + \text{growth} = 5 + 13\% \text{ of } 5 = ₹ 5.65$

3. **Computation of Market Price** [if $K_e=18\%$ and $G=15\%$]

$$\begin{aligned} \text{MPS} &= D_1 / [K_e - g] = 5.75 / [18\% - 15\%] \\ &= \text{₹ } 191.67 \end{aligned}$$

Where $k_e = 18\%$; $G = 15\%$; $D_1 = D_0 + G = 5 + 15\% \text{ of } 5 = 5.75$

Question 6 (b): International Finance – Effective utilization of funds with Cross Currency Investment**8 Marks**

Your bank's London office has surplus funds to the extent of USD 5,00,000/- for a period of 3 months. The cost of the funds to the bank is 4% p.a. It proposes to invest these funds in London, New York or Frankfurt and obtain the best yield, without any exchange risk to the bank. The following rates of interest are available at the three centres for investment of domestic funds there at for a period of 3 months.

London	5% p.a.
New York	8% p.a.
Frankfurt	3% p.a.

The market rates in London for US dollars and Euro are as under:

London on New York

Spot	1.5350/90
1 month	15/18
2 month	30/35
3 month	80/85

London on Frankfurt

Spot	1.8260/90
1 month	60/55
2 month	95/90
3 month	145/140

At which centre, will the investment be made & what will be the net gain (to the nearest pound) to the bank on the invested funds?

Solution:**1. Facts**

1	Place	London Office of a Bank
2	Funds available for Investment	USD 5,00,000
3	Time period of Investment	3 Months
4	Cost of Funds	4% p.a.
5	Return on Investment (In Respective Home Currency)	London – 5% p.a.; New York – 8% p.a.; Frankfurt – 3% p.a.

2. Notes and Assumptions:

- (a) Investment will be made in a center where the Return on Investments (adjusted for FOREX conversion Costs) is maximum.
 (b) It is assumed that the amount is invested for the entire period of 3 months and there are no intermittent cash flows.

Case 1 – In London Center

(a)	Amount Available	=	USD 5,00,000
(b)	Spot Rate [USD / GBP]	=	1.5350 – 1.5390
(c)	Spot Rate [GBP / USD]	=	$1/1.5390 - 1/1.5350 = 0.6498 - 0.6515$
(d)	Amount Available in GBP	=	$USD\ 5,00,000 \times 0.6498 = GBP\ 3,24,900$
(e)	Interest earned thereon	=	$324900 \times 5\% \times 3/12 = \text{GBP } 4061.25$
(f)	Value of Investment – t_3	=	GBP 3,28,961.25 [(e) + (f)]

Case 2 – In New York Center

(a)	Amount Available	=	USD 5,00,000
(b)	Interest earned thereon	=	$5,00,000 \times 8\% \times 3/12 = \text{USD } 10,000$
(c)	Value of Investment – t_3	=	USD 5,10,000
(d)	Spot Rate [USD / GBP] – t_0	=	1.5350 – 1.5390
(e)	Spot Rate [USD / GBP] – t_3	=	$1.5430 - 1.5475$ [i.e., $t_0 \text{ spot} + 0.0080 / 0.0085$]
(f)	Total funds at t_3 in GBP	=	$5,10,000 \times [1/1.5475] = \text{GBP } 3,29,563.81$

Case 3 – In Frankfurt Center

- (a) Amount Available = USD 5,00,000 [i.e., 3,24,900 GBP as computed in Case 1]
 (b) Spot Rate [GBP / EUR] – t_0 = 1.8260 – 1.8290
 (c) Amount available in EUR = 3,24,900 x 1.8290 = EUR 5,94,242
 (d) Interest earned thereon = 5,94,242 x 3% x 3/12 = **EUR 4456.82**
 (e) Total funds at t_3 in EUR = **EUR 5,98,698.82** [(d) + (c)]
 (f) Spot Rate [GBP / EUR] – t_3 = 1.8115 – 1.8150 [Rates as in (b) Less 0.0415 / 0.0140] (**see note below**)
 (g) Amount at in t_3 London = **GBP 3,29,861.61** [EUR 5,98,698.82 x 1/1.8150]

Note: Since the swap points are decreasing, the same should be subtracted from the Current Spot Rate to arrive at the Future Spot Rate.

Comment: Out of the above, it is clear that Case 3 results in higher value of Investments. Hence Investments will be made in Frankfurt Centre.

3. Net Gain on Investment –

- (a) Amount Invested = 3,24,900 GBP
 (b) Interest Cost thereon = 3,24,900 x 4% x 3/12 = GBP 3249
 (c) Balance in Investment = GBP 3,29,861.61
 (d) Interest Gain = GBP 4,961.61 [(c) – (a)]
 (e) Net Gain (d) – (b) = **GBP 1,712.61**

Question 7: Write Short notes on any FOUR of the following**4 × 4 = 16 Marks**

Questions	Answer / Reference
Explain “Zero date of the Project” in Project Management.	Refer Page 1.9, Question No. 15
XYZ Bank, Amsterdam, wants to purchase Rupees 25 million against £ for funding their Nostro account and they have credited LORO account with Bank of London, London. Calculate the amount of £'s credited. Ongoing inter-bank rates are per \$, ₹61.3625/3700 & per £. \$ 1.5260/70.	1. \$ required for buying ₹ 25 Million = ₹ 25 Million / ₹ 61.3625 [i.e., the rate at which dealer would buy \$ 1] = \$ 4,07,415 [The above sum of \$ 4,07,415 is required to settle the liability of ₹ 25 Million, i.e., intended transfer amount] 2. The above amount in \$ is transferred to Bank of London in EUR. Hence the equivalent EUR = 2,66,807 (407415 / 1.5270 [i.e., the rate at which the dealer would sell 1 EUR])
What is an Exchange Traded Fund? What are its key features?	Refer Page 8.5, Question No. 10
What is an Equity Curve out? How does it differ from a Spin Off?	Refer Page 18.14, Question No. 32
What is Money Market? What are its features? What kind of inefficiencies it is suffering from?	Refer Page 12.1, Question No. 1, 2 and 5