PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT

QUESTIONS

Security Valuation

1. XL Ispat Ltd. has made an issue of 14 per cent non-convertible debentures on January 1, 2007. These debentures have a face value of ₹ 100 and is currently traded in the market at a price of ₹ 90.

   Interest on these NCDs will be paid through post-dated cheques dated June 30 and December 31. Interest payments for the first 3 years will be paid in advance through post-dated cheques while for the last 2 years post-dated cheques will be issued at the third year. The bond is redeemable at par on December 31, 2011 at the end of 5 years.

   Required:

   (i) CALCULATE the current yield and YTM of the bond.

   (ii) CALCULATE the duration of the NCD.

   (iii) CALCULATE the realized yield on the NCD assuming that intermediate coupon payments are, not available for reinvestment calculate.

2. SAM Ltd. has just paid a dividend of ₹ 2 per share and it is expected to grow @ 6% p.a. After paying dividend, the Board declared to take up a project by retaining the next three annual dividends. It is expected that this project is of same risk as the existing projects. The results of this project will start coming from the 4th year onward from now. The dividends will then be ₹ 2.50 per share and will grow @ 7% p.a.

   An investor has 1,000 shares in SAM Ltd. and wants a receipt of at least ₹ 2,000 p.a. from this investment.

   Required:

   (i) EVALUATE whether the market value of the share is affected by the decision of the Board.

   (ii) RECOMMEND how the investor can maintain his target receipt from the investment for first 3 years and improved income thereafter, given that the cost of capital of the firm is 8%.

Portfolio Management

3. Expected returns on two stocks for particular market returns are given in the following table:

Market Return	Aggressive	Defensive
7%	4%	9%
25%	40%	18%

CALCULATE:

(i) The Betas of the two stocks.

(ii) Expected return of each stock, if the market return is equally likely to be 7% or 25%.

(iii) The Security Market Line (SML), if the risk free rate is 7.5% and market return is equally likely to be 7% or 25%.

(iv) The Alphas of the two stocks.

4. Following are the details of a portfolio consisting of three shares:

Share	Portfolio weight	Beta	Expected return in %	Total variance
A	0.20	0.40	14	0.015
B	0.50	0.50	15	0.025
C	0.30	1.10	21	0.100

Standard Deviation of Market Portfolio Returns = 10%

You are given the following additional data:

Covariance (A, B) = 0.030

Covariance (A, C) = 0.020

Covariance (B, C) = 0.040

CALCULATE:

(i) The Portfolio Beta

(ii) Residual variance of each of the three shares

(iii) Portfolio variance using Sharpe Index Model

(iv) Portfolio variance (on the basis of modern portfolio theory given by Markowitz)

Mutual Funds

5. Sun Moon Mutual Fund (Approved Mutual Fund) sponsored open-ended equity oriented scheme "Chanakya Opportunity Fund". There were three plans viz. 'A' – Dividend Re-investment Plan, 'B' – Bonus Plan & 'C' – Growth Plan.

At the time of Initial Public Offer on 1.4.2009, Mr. Anand, Mr. Bacchan & Mrs. Charu, three investors invested ₹ 1,00,000 each & chosen 'B', 'C' & 'A' Plan respectively.

The History of the Fund is as follows:

Date	Dividend %	Bonus Ratio	Net Asset Value per Unit (F.V. ₹ 10)		
			Plan A	Plan B	Plan C
28.07.2013	20		30.70	31.40	33.42

31.03.2014	70	5 : 4	58.42	31.05	70.05
31.10.2017	40		42.18	25.02	56.15
15.03.2018	25		46.45	29.10	64.28
31.03.2018		1 : 3	42.18	20.05	60.12
24.03.2019	40	1 : 4	48.10	19.95	72.40
31.07.2019			53.75	22.98	82.07

On 31st July 2019 all three investors redeemed all the balance units.

CALCULATE:

(i) Annual rate of return of Mrs. Charu who has invested in 'A' – Dividend Re-investment Plan.

(ii) Annual rate of return of Mr. Anand who has invested in 'B' – Bonus Plan.

(iii) Annual rate of return of Mr. Bacchan who has invested 'C' – Growth Plan.

Assumptions:

1. Long-term Capital Gain is exempt from Income tax.
2. Short-term Capital Gain is subject to 10% Income tax.
3. Security Transaction Tax 0.2 per cent only on sale/redemption of units.
4. Ignore Education Cess

Derivative Analysis and Valuation

6. The following market data is available:

Spot USD/JPY 116.00

Deposit rates p.a.	**USD**	**JPY**
3 months	4.50%	0.25%
6 months	5.00%	0.25%

Forward Rate Agreement (FRA) for Yen is Nil.

Required:

(i) CALCULATE 3 months FRA rate at 3 months forward?

(ii) RECOMMEND arbitrage strategy, when 6 & 12 months LIBORS are 5% & 6.5% respectively and X Ltd. bank is quoting 6/12 USD FRA at 6.50 – 6.75%.?

7. TMC Holding Ltd. has a portfolio of shares of diversified companies valued at ₹ 400 crore enters into a swap arrangement with None Bank on the terms that it will get 1.15% quarterly on notional principal of ₹ 400 crore in exchange of return on portfolio which is exactly tracking the Sensex which is presently 21600.

CALCULATE the net payment to be received/ paid at the end of each quarter if Sensex turns out to be 21,860, 21,780, 22,080 and 21,960.

Foreign Exchange Exposure and Risk Management

8. An importer booked a forward contract with his bank on 10th April for USD 2,00,000 due on 10th June @ ₹ 64.4000. The bank covered its position in the market at ₹ 64.2800.

The exchange rates for dollar in the interbank market on 10th June and 20th June were:

	10th June	20th June
Spot USD 1=	₹ 63.8000/8200	₹ 63.6800/7200
Spot/June	₹ 63.9200/9500	₹ 63.8000/8500
July	₹ 64.0500/0900	₹ 63.9300/9900
August	₹ 64.3000/3500	₹ 64.1800/2500
September	₹ 64.6000/6600	₹ 64.4800/5600

Exchange Margin 0.10% and interest on outlay of funds @ 12%. The importer requested on 20th June for extension of contract with due date on 10th August.

Rates rounded to 4 decimal in multiples of 0.0025.

On 10th June, Bank Swaps by selling spot and buying one month forward.

CALCULATE:

(i) Cancellation rate

(ii) Amount payable on $ 2,00,000

(iii) Swap loss

(iv) Interest on outlay of funds, if any

(v) New contract rate

(vi) Total Cost

9. 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 months	80/85
London on Frankfurt	
Spot	1.8260/90
1 month	60/55
2 month	95/90
3 month	145/140

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

International Financial Management

10. A foreign based company is planning to set up a software development unit in India. Software developed at the Indian unit will be bought back by the foreign parent company at a transfer price of US $10 millions. The unit will remain in existence in India for one year; the software is expected to get developed within this time frame.

The foreign based company will be subject to corporate tax of 30 per cent and a withholding tax of 10 per cent in India and will not be eligible for tax credit. The software developed will be sold in the international market for US $ 12.0 millions. Other estimates are as follows:

Rent for fully furnished unit with necessary hardware in India	₹ 20,00,000
Man power cost (80 software professional will be working for 10 hours each day)	₹ 540 per man hour
Administrative and other costs	₹ 16,20,000

The rupee-dollar rate is ₹65/$.

ADVISE the foreign company on the financial viability of the project.

Assumption: 365 days in a year.

Interest Rate Risk Management

11. Electraspace is consumer electronics wholesaler. The business of the firm is highly seasonal in nature. In 6 months of a year, firm has a huge cash deposits and especially near Christmas time and other 6 months firm cash crunch, leading to borrowing of money to cover up its exposures for running the business.

It is expected that firm shall borrow a sum of €50 million for the entire period of slack season in about 3 months.

A Bank has given the following quotations:

Spot	5.50% - 5.75%
3 × 6 FRA	5.59% - 5.82%
3 × 9 FRA	5.64% - 5.94%

3 month €50,000 future contract maturing in a period of 3 months is quoted at 94.15 (5.85%).

ADVISE:

(i) How a FRA, shall be useful if the actual interest rate after 3 months turnout to be:

(a) 4.5% (b) 6.5%

(ii) How 3 months Future contract shall be useful for company if interest rate turns out as mentioned in part (a) above.

Corporate Valuation

12. BRS Inc deals in computer and IT hardwares and peripherals. The expected revenue for the next 8 years is as follows:

Years	Sales Revenue ($ Million)
1	8
2	10
3	15
4	22
5	30
6	26
7	23
8	20

Summarized financial position as on 31 March 2012 was as follows:

$ Million

Liabilities	Amount	Assets	Amount
Equity Stocks	12	Fixed Assets (Net)	17
12% Bonds	8	Current Assets	3
	20		20

Additional Information:

(a) Its variable expenses is 40% of sales revenue and fixed operating expenses (cash) are estimated to be as follows:

Period	Amount ($ Million)
1- 4 years	1.6
5-8 years	2

(b) An additional advertisement and sales promotion campaign shall be launched requiring expenditure as per following details:

Period	Amount ($ Million)
1 year	0.50
2-3 years	1.50
4-6 years	3.00
7-8 years	1.00

(c) Fixed assets are subject to depreciation at 15% as per WDV method.

(d) The company has planned additional capital expenditures (in the beginning of each year) for the coming 8 years as follows:

Period	Amount ($ Million)
1	0.50
2	0.80
3	2.00
4	2.50
5	3.50
6	2.50
7	1.50
8	1.00

(e) Investment in Working Capital is estimated to be 20% of Revenue.

(f) Applicable tax rate for the company is 30%.

(g) Cost of Equity is estimated to be 16%.

(h) The Free Cash Flow of the firm is expected to grow at 5% per annum after 8 years.

CALCULATE:

(i) Value of Firm

(ii) Value of Equity

Mergers, Acquisitions and Corporate Restructuring

13. T Ltd. and E Ltd. are in the same industry. The former is in negotiation for acquisition of the latter. Important information about the two companies as per their latest financial statements is given below:

	T Ltd.	E Ltd.
₹ 10 Equity shares outstanding	12 Lakhs	6 Lakhs
Debt:		
10% Debentures (₹ Lakhs)	580	--
12.5% Institutional Loan (₹ Lakhs)	--	240
Earning before interest, depreciation and tax (EBIDAT) (₹ Lakhs)	400.86	115.71
Market Price/share (₹)	220.00	110.00

T Ltd. plans to offer a price for E Ltd., business as a whole which will be 7 times EBIDAT reduced by outstanding debt, to be discharged by own shares at market price.

E Ltd. is planning to seek one share in T Ltd. for every 2 shares in E Ltd. based on the market price. Tax rate for the two companies may be assumed as 30%.

CALCULATE the following under both alternatives - T Ltd.'s offer and E Ltd.'s plan:

(i) Net consideration payable.

(ii) No. of shares to be issued by T Ltd.

(iii) EPS of T Ltd. after acquisition.

(iv) Expected market price per share of T Ltd. after acquisition.

Note: Calculations (except EPS) may be rounded off to 2 decimals in lakhs

Theoretical Questions

14. DISTINGUISH between:

(a) Banking and Non-Banking financial institutions

(b) Primary participants and secondary participants in securitization

(c) Islamic Finance and Conventional Finance

15. (a) DESCRIBE Value at Risk and its application.

(b) EXPLAIN the concept of Bootstrapping and describe the various methods of bootstrapping used by start ups.

(c) DESCRIBE the guidelines for SME listing and its benefits.

SUGGESTED ANSWERS/HINTS

1. (i) Current yield = $\frac{₹\ 7}{₹\ 90} \times \frac{12}{6}$ = 0.1555 or 15.55%

YTM can be determined from the following equation

7 × PVIFA (YTM, 10) + 100 × PVIF (YTM, 10) = 90

Let us discount the cash flows using two discount rates 7.50% and 9% as follows:

Year	Cash Flows	PVF@7.50%	PV@7.50%	PVF@9%	PV@9%
0	-90	1	-90	1	-90
1	7	0.930	6.51	0.917	6.419
2	7	0.865	6.055	0.842	5.894
3	7	0.805	5.635	0.772	5.404
4	7	0.749	5.243	0.708	4.956
5	7	0.697	4.879	0.650	4.550
6	7	0.648	4.536	0.596	4.172
7	7	0.603	4.221	0.547	3.829
8	7	0.561	3.927	0.502	3.514
9	7	0.522	3.654	0.460	3.220
10	107	0.485	51.90	0.422	45.154
			6.560		-2.888

Now we use interpolation formula

$$7.50\% + \frac{6.560}{6.560-(-2.888)} \times 1.50\%$$

$$7.50\% + \frac{6.560}{9.448} \times 1.50\% = 7.50\% + 1.041\%$$

YTM = 8.541% say 8.54%

Note: Students can also compute the YTM using rates other than 15% and 18%.

(ii) The duration can be calculated as follows:

Year	Cash Flow	PVF@ 8.54%	PV @ 8.54%	Proportion of NCD value	Proportion of NCD value × time
1	7	0.921	6.447	0.0717	0.0717
2	7	0.849	5.943	0.0661	0.1322

3	7	0.782	5.474	0.0608	0.1824
4	7	0.721	5.047	0.0561	0.2244
5	7	0.664	4.648	0.0517	0.2585
6	7	0.612	4.284	0.0476	0.2856
7	7	0.563	3.941	0.0438	0.3066
8	7	0.519	3.633	0.0404	0.3232
9	7	0.478	3.346	0.0372	0.3348
10	107	0.441	47.187	0.5246	5.2460
			89.95		7.3654

Duration = 7.3654 half years i.e. 3.683 years.

(iii) Realized Yield can be calculated as follows:

$$\frac{(7\times 10)+100}{(1+R)^{10}} = 90$$

$$(1 + R)^{10} = \frac{170}{90}$$

$$R = \left(\frac{170}{90}\right)^{1/10} - 1 = 0.06380 \text{ or } 6.380\% \text{ for half yearly and } 12.76\% \text{ annually.}$$

2. (i) Value of share at present = $\frac{D_1}{k_e - g}$

$$= \frac{2(1.06)}{0.08-0.06} = ₹\ 106$$

However, if the Board implement its decision, no dividend would be payable for 3 years and the dividend for year 4 would be ₹ 2.50 and growing at 7% p.a. The price of the share, in this case, now would be:

$$P_0 = \frac{2.50}{0.08-0.07}\times\frac{1}{(1+0.08)^3} = ₹\ 198.46$$

So, the price of the share is expected to increase from ₹ 106 to ₹ 198.45 after the announcement of the project. The investor can take up this situation as follows:

Expected market price after 3 years	$= \frac{2.50}{0.08-0.07}$	₹ 250.00

Expected market price after 2 years	$\frac{2.50}{0.08-0.07}\times\frac{1}{(1+0.08)}$	₹ 231.48
Expected market price after 1 years	$\frac{2.50}{0.08-0.07}\times\frac{1}{(1+0.08)^2}$	₹ 214.33

(ii) In order to maintain his receipt at ₹ 2,000 for first 3 year, he would sell

10 shares in first year @ ₹ 214.33 for	₹ 2,143.30
9 shares in second year @ ₹ 231.48 for	₹ 2,083.32
8 shares in third year @ ₹ 250 for	₹ 2,000.00

At the end of 3rd year, he would be having 973 shares valued @ ₹ 250 each i.e. ₹ 2,43,250. On these 973 shares, his dividend income for year 4 would be @ ₹ 2.50 i.e. ₹ 2,432.50.

Thus, if the project is taken up by the company, the investor would be able to maintain his receipt of at least ₹ 2,000 for first three years and would be getting increased income thereafter.

3. (i) The Betas of two stocks:

Aggressive stock - 40% - 4%/25% - 7% = 2

Defensive stock - 18% - 9%/25% - 7% = 0.50

Alternatively, it can also be solved by using the Characteristic Line Relationship as follows:

$R_s = \alpha + \beta R_m$

Where

α = Alpha

β = Beta

R_m= Market Return

For Aggressive Stock

4% = α + β(7%)

40% = α + β(25%)

36% = β(18%)

β = 2

For Defensive Stock

9% = α + β(7%)

18% = α + β(25%)

9% = β(18%)

β =0.50

(ii) Expected returns of the two stocks:-

Aggressive stock - 0.5 x 4% + 0.5 x 40% = 22%

Defensive stock - 0.5 x 9% + 0.5 x 18% = 13.5%

(iii) Expected return of market portfolio = 0.5 x 7% + 0.5% x 25% = 16%

∴ Market risk prem. = 16% - 7.5% = 8.5%

∴ SML is, required return = 7.5% + βi 8.5%

(iv) $R_s = \alpha + \beta R_m$

For Aggressive Stock

22% = α_A + 2(16%)

α_A = -10%

For Defensive Stock

13.5% = α_D + 0.50(16%)

α_D = 5.5%

4. (i) Portfolio Beta

0.20 x 0.40 + 0.50 x 0.50 + 0.30 x 1.10 = 0.66

(ii) Residual Variance

To determine Residual Variance first of all we shall compute the Systematic Risk as follows:

$\beta_A^2 \times \sigma_M^2 = (0.40)^2(0.01) = 0.0016$

$\beta_B^2 \times \sigma_M^2 = (0.50)^2(0.01) = 0.0025$

$\beta_C^2 \times \sigma_M^2 = (1.10)^2(0.01) = 0.0121$

Residual Variance

A 0.015 – 0.0016 = 0.0134

B 0.025 – 0.0025 = 0.0225

C 0.100 – 0.0121 = 0.0879

(iii) Portfolio variance using Sharpe Index Model

Systematic Variance of Portfolio = $(0.10)^2$ x $(0.66)^2$ = 0.004356

Unsystematic Variance of Portfolio = 0.0134 x $(0.20)^2$ + 0.0225 x $(0.50)^2$ + 0.0879 x $(0.30)^2$ = 0.014072

Total Variance = 0.004356 + 0.014072 = 0.018428

(iv) Portfolio variance on the basis of Markowitz Theory

= $(w_A \times w_A \times \sigma_A^2) + (w_A \times w_B \times Cov_{AB}) + (w_A \times w_C \times Cov_{AC}) + (w_B \times w_A \times Cov_{AB}) + (w_B \times w_B \times \sigma_B^2) + (w_B \times w_C \times Cov_{BC}) + (w_C \times w_A \times Cov_{CA}) + (w_C \times w_B \times Cov_{CB}) + (w_C \times w_C \times \sigma_c^2)$

= (0.20 x 0.20 x 0.015) + (0.20 x 0.50 x 0.030) + (0.20 x 0.30 x 0.020) + (0.20 x 0.50 x 0.030) + (0.50 x 0.50 x 0.025) + (0.50 x 0.30 x 0.040) + (0.30 x 0.20 x 0.020) + (0.30 x 0.50 x 0.040) + (0.30 x 0.30 x 0.10)

= 0.0006 + 0.0030 + 0.0012 + 0.0030 + 0.00625 + 0.0060 + 0.0012 + 0.0060 + 0.0090

= 0.0363

5. (i) Return of Mrs. Charu invested in Plan A (Dividend Reinvestment)

(Amount in ₹)

Date	*Investment*	*Dividend payout (%)*	*Dividend Re-invested (Closing Units X Face value of '10 X Dividend Payout %)*	*NAV*	*Units*	*Closing Unit Balance ∑ Units*
01.04.2009	1,00,000.00			10.00	10,000.00	10,000.00
28.07.2013		*20*	20,000.00	30.70	651.47	10,651.47
31.03.2014		*70*	74,560.29	58.42	1,276.28	11,927.75
31.10.2017		*40*	47,711.00	42.18	1,131.13	13,058.88
15.03.2018		*25*	32,647.20	46.45	702.85	13,761.73
24.03.2019		40	55,046.92	48.10	1,144.43	14,906.16

Redemption value 14,906.16 × 53.75	8,01,206.10
Less: Security Transaction Tax (STT) is 0.2%	1,602.41
Net amount received	7,99,603.69
Less: Short term capital gain tax @ 10% on 1,144.43 (53.64* – 48.10≈) = 6,340	634
Net of tax	7,98,969.69
Less: Investment	1,00,000.00
	6,98,969.69

*(53.75 – STT @ 0.2%) ≈ This value can also be taken as zero

Annual average return (%) $\frac{6,98,969.69}{1,00,000} \times \frac{12}{124} \times 100 = 67.64\ \%$

(ii) Return of Mr. Anand invested in Plan B – (Bonus)

				(Amount in ₹)
Date	*Units*	*Bonus units*	*Total Balance*	*NAV per unit*
01.04.2009	10,000		10,000	10
31.03.2014		12,500	22,500	31.05
31.03.2018		7,500	30,000	20.05
24.03.2019		7,500	37,500	19.95

Redemption value 37,500 × 22.98	8,61,750.00
Less: Security Transaction Tax (STT) is 0.2%	1,723.50
Net amount received	8,60,026.50
Less: Short term capital gain tax @ 10%	
7,500 × (22.93† – 19.95) = 22,350	2,235.00
Net of tax	8,57,791.50
Less: Investment	1,00,000.00
Net gain	7,57,791.50

†(22.98 – STT @ 0.2%)

Annual average return (%) $\frac{7,57,791.50}{1,00,000} \times \frac{12}{124} \times 100 = 73.33\ \%$

(iii) Return of Mr. Bacchan invested in Plan C – (Growth)

Particulars	*(Amount in ₹)*
Redemption value 10,000 × 82.07	8,20,700.00
Less: Security Transaction Tax (S.T.T) is .2%	1,641.40
Net amount received	8,19,058.60
Less: Short term capital gain tax @ 10%	0.00
Net of tax	8,19,058.60
Less: Investment	1,00,000.00
Net gain	7,19,058.60

Annual average return (%) $\frac{7,19,058}{1,00,000} \times \frac{12}{124} \times 100 = 69.59\ \%$

Note: Alternatively, figure of * and † can be taken as without net of Tax because, as per Proviso 5 of Section 48 of IT Act, no deduction of STT shall be allowed in computation of Capital Gain.

6. (i) 3 Months Interest rate is 4.50% & 6 Months Interest rate is 5% p.a.

Future Value 6 Months from now is a product of Future Value 3 Months now & 3 Months

Future Value from after 3 Months.

$(1+0.05*6/12) = (1+0.045*3/12) \times (1+i_{3,6} *3/12)$

$i_{3,6} = [(1+0.05* 6/12) /(1+0.045 *3/12) – 1] *12/3$

i.e. 5.44% p.a.

(ii) To find arbitrage opportunity first we shall find out the 6 Months forward 6 month rate as follows:

$(1+0.065) = (1+0.05*6/12) \times (1+i_{6,6} *6/12)$

$i_{6,6} = [(1+0.065/1.025) – 1] *12/6$

6 Months forward 6 month rate is 7.80% p.a.

The Bank is quoting 6/12 USD FRA at 6.50 – 6.75%

Therefore, there is an arbitrage Opportunity of earning interest @ 7.80% p.a. & Paying @ 6.75%

Strategy: Borrow for 6 months, buy an FRA & invest for 12 months

To get $ 1.065 at the end of 12 months for $ 1 invested today

To pay$ 1.060# at the end of 12 months for every $ 1 Borrowed today

Net gain $ 0.005 i.e. risk less profit for every $ borrowed

(1+0.05/2) (1+.0675/2) = (1.05959) say 1.060

7.

Qtrs.	Sensex	Sensex Return (%)	Amount Payable (₹ Crore)	Fixed Return (Receivable) (₹ Crore)	Net (₹ Crore)
(1)	(2)	(3)	(4)	(5)	(5) – (4)
0	21,600	-	-	-	-
1	21,860	1.2037	4.8148	4.6000	- 0.2148
2	21,780	-0.3660	-1.4640	4.6000	6.0640
3	22,080	1.3774	5.5096	4.6000	- 0.9096
4	21,960	-0.5435	-2.1740	4.6000	6.7740

8. (i) Cancellation Rate:

The forward sale contract shall be cancelled at Spot TT Purchase for $ prevailing on the date of cancellation as follows:

$/ ₹ Market Buying Rate	₹ 63.6800
Less: Exchange Margin @ 0.10%	₹ 0.0636
	₹ 63.6163

Rounded off to ₹ 63.6175

(ii) Amount payable on $ 2,00,000

Bank sells $2,00,000 @ ₹ 64.4000	₹ 1,28,80,000
Bank buys $2,00,000 @ ₹ 63.6163	₹ 1,27,23,260
Amount payable by customer	₹ 1,56,740

(iii) Swap Loss

On 10th June the bank does a swap sale of $ at market buying rate of ₹ 63.8300 and forward purchase for June at market selling rate of ₹ 63.9500.

Bank buys at	₹ 63.9500
Bank sells at	₹ 63.8000
Amount payable by customer	₹ 0.1500

Swap Loss for $ 2,00,000 in ₹ = ₹ 30,000

(iv) Interest on Outlay of Funds

On 10thApril, the bank receives delivery under cover contract at ₹ 64.2800 and sell spot at ₹ 63.8000.

Bank buys at	₹ 64.2800
Bank sells at	₹ 63.8000
Amount payable by customer	₹ 0.4800

Outlay for $ 2,00,000 in ₹ 96,000

Interest on ₹ 96,000 @ 12% for 10 days ₹ 320

(v) New Contract Rate

The contract will be extended at current rate

$/ ₹ Market forward selling Rate for August	₹ 64.2500
Add: Exchange Margin @ 0.10%	₹ 0.0643
	₹ 64.3143

Rounded off to ₹ 64.3150

(vi) Total Cost

Cancellation Charges	₹ 1,56,740.00
Swap Loss	₹ 30,000.00
Interest	₹ 320.00
	₹ 1,87,060.00

9. To determine the centre of investment by bank except New York (in whose currency the surplus is available) Arbitrage Profit for remaining two centres shall be computed as follows:

(a) If investment is made at London

Convert US$ 5,00,000 at Spot Rate (5,00,000/1.5390)		= £ 3,24,886
Add: £ Interest for 3 months on £ 324,886 @ 5%		= £ 4,061
		= £ 3,28,947
Less: Amount Invested	$ 5,00,000	
Interest accrued thereon	$ 5,000	
	= $ 5,05,000	
Equivalent amount of £ required to pay the above sum ($ 5,05,000/1.5430)		= £ 3,27,285
Arbitrage Profit		= £ 1,662

(b) If investment is made at New York

Gain $ 5,00,000 (8% - 4%) x 3/12	= $ 5,000
Equivalent amount in £ 3 months ($ 5,000/ 1.5475)	£ 3,231

(c) If investment is made at Frankfurt

Convert US$ 500,000 at Spot Rate (Cross Rate) 1.8260/1.5390	= € 1.1865
Euro equivalent US$ 500,000	= € 5,93,250
Add: Interest for 3 months @ 3%	= € 4,449
	= € 5,97,699
3 month Forward Rate of selling € (1/1.8150)	= £ 0.5510
Sell € in Forward Market € 5,97,699 x £ 0.5510	= £ 3,29,332
Less: Amounted invested and interest thereon	= £ 3,27,285
Arbitrage Profit	= £ 2,047

Recommendation: Since out of three options the maximum profit is in case investment is made in New York. Hence it shall be opted and arbitrage gain would be £3,231.

10. Proforma profit and loss account of the Indian software development unit

	₹	₹
Revenue		65,00,00,000
Less: Costs:		
Rent	20,00,000	
Manpower (₹540 x 80 x 10 x 365)	15,76,80,000	
Administrative and other costs	16,20,000	16,13,00,000
Earnings before tax		48,87,00,000
Less: Tax		14,66,10,000
Earnings after tax		34,20,90,000
Less: Withholding tax		3,42,09,000
Repatriation amount (in rupees)		30,78,81,000
Repatriation amount (in dollars)		$4.7366 million

Advise: The cost of development software in India for the foreign based company is $5.3 million. As the USA based Company is expected to sell the software in the international market at $12.0 million, it is advised to develop the software in India.

11. (i) By entering into an FRA, firm shall effectively lock in interest rate for a specified future in the given it is 6 months. Since, the period of 6 months is starting in 3 months, the firm shall opt for 3 × 9 FRA locking borrowing rate at 5.94%.

In the given scenarios, the net outcome shall be as follows:

	If the rate turns out to be 4.50%	**If the rate turns out to be 6.50%**
FRA Rate	5.94%	5.94%
Actual Interest Rate	4.50%	6.50%
Loss/ (Gain)	1.44%	(0.56%)
FRA Payment / (Receipts)	€50 m × 1.44% × ½ = €360,000	€50m × 0.56% × ½ = (€140,000)
Interest after 6 months on €50 Million at actual rates	= €50m × 4.5% × ½ = €1,125,000	= € 50m × 6.5% × ½ = €1,625,000
Net Out Flow	€ 1,485,000	€1,485,000

Thus, by entering into FRA, the firm has committed itself to a rate of 5.94% shown as follows:

$$\frac{€\ 1,485,000}{€\ 50,000,000} \times 100 \times \frac{12}{6} = 5.94\%$$

(ii) Since firm is a borrower it will like to off-set interest cost by profit on Future Contract. Accordingly, if interest rate rises it will gain hence it should sell interest rate futures.

$$\text{No. of Contracts} = \frac{\text{Amount of Borrowing}}{\text{Contract Size}} \times \frac{\text{Duration of Loan}}{\text{3 months}}$$

$$= \frac{€\ 50,000,000}{€\ 50,000} \times \frac{6}{3} = 2000 \text{ Contracts}$$

The final outcome in the given two scenarios shall be as follows:

	If the interest rate turns out to be 4.5%	**If the interest rate turns out to be 6.5%**
Future Course Action:		
Sell to open	94.15	94.15
Buy to close	95.50 (100 - 4.5)	93.50 (100 - 6.5)
Loss/ (Gain)	1.35%	(0.65%)
Cash Payment (Receipt) for Future Settlement	€50,000×2000×1.35%×3/12 = €337,500	€50,000×2000×0.65% × 3/12 = (€162,500)
Interest for 6 months on €50 million at actual rates	€50 million × 4.5% × ½ = €11,25,000	€50 million × 6.5% × ½ = €16,25,000
	€1,462,500	€1,462,500

Thus, the firm locked itself in interest rate of 5.85% shown as follows:

$$\frac{€\ 1,462,500}{€\ 50,000,000} \times 100 \times \frac{12}{6} = 5.85\%$$

12. Working Notes:

(a) Determination of Weighted Average Cost of Capital

Sources of funds	**Cost (%)**	**Proportions**	**Weights**	**Weighted Cost**
Equity Stock	16	12/20	0.60	9.60
12% Bonds	12%(1-0.30) = 8.40	8/20	0.40	3.36
				12.96 say 13

(b) Schedule of Depreciation

$ Million

Year	Opening Balance of Fixed Assets	Addition during the year	Total	Depreciation @ 15%
1	17.00	0.50	17.50	2.63
2	14.87	0.80	15.67	2.35
3	13.32	2.00	15.32	2.30
4	13.02	2.50	15.52	2.33
5	13.19	3.50	16.69	2.50
6	14.19	2.50	16.69	2.50
7	14.19	1.50	15.69	2.35
8	13.34	1.00	14.34	2.15

(c) Determination of Investment

$ Million

Year	Investment Required			Existing Investment in CA	Additional Investment required
	For Capital Expenditure	CA (20% of Revenue)	Total		
1	0.50	1.60	2.10	3.00	0.00
2	0.80	2.00	2.80	2.50*	0.30
3	2.00	3.00	5.00	2.00**	3.00
4	2.50	4.40	6.90	3.00	3.90
5	3.50	6.00	9.50	4.40	5.10
6	2.50	5.20	7.70	6.00	1.70
7	1.50	4.60	6.10	5.20	0.90
8	1.00	4.00	5.00	4.60	0.40

* Balance of CA in Year 1 ($3 Million) – Capital Expenditure in Year 1($ 0.50 Million)

** Similarly balance of CA in Year 2 ($2.80) – Capital Expenditure in Year 2($ 0.80 Million)

(d) Determination of Present Value of Cash Inflows

$ Million

Particulars	Years							
	1	2	3	4	5	6	7	8
Revenue (A)	8.00	10.00	15.00	22.00	30.00	26.00	23.00	20.00

Less: Expenses								
Variable Costs	3.20	4.00	6.00	8.80	12.00	10.40	9.20	8.00
Fixed cash operating cost	1.60	1.60	1.60	1.60	2.00	2.00	2.00	2.00
Advertisement Cost	0.50	1.50	1.50	3.00	3.00	3.00	1.00	1.00
Depreciation	2.63	2.35	2.30	2.33	2.50	2.50	2.35	2.15
Total Expenses (B)	7.93	9.45	11.40	15.73	19.50	17.90	14.55	13.15
EBIT (C) = (A) - (B)	0.07	0.55	3.60	6.27	10.50	8.10	8.45	6.85
Less: Taxes@30% (D)	0.02	0.16	1.08	1.88	3.15	2.43	2.53	2.06
NOPAT (E) = (C) - (D)	0.05	0.39	2.52	4.39	7.35	5.67	5.92	4.79
Gross Cash Flow (F) = (E) + Dep	2.68	2.74	4.82	6.72	9.85	8.17	8.27	6.94
Less: Investment in Capital Assets								
plus Current Assets (G)	0	0.30	3.00	3.90	5.10	1.70	0.90	0.40
Free Cash Flow (H) = (F) - (G)	2.68	2.44	1.82	2.82	4.75	6.47	7.37	6.54
PVF@13% (I)	0.885	0.783	0.693	0.613	0.543	0.480	0.425	0.376
PV (H)(I)	2.371	1.911	1.261	1.729	2.579	3.106	3.132	2.46

Total present value = $ 18.549 million

(e) Determination of Present Value of Continuing Value (CV)

$$CV = \frac{FCF_9}{k-g} = \frac{\$6.54\,\text{million}(1.05)}{0.13-0.05} = \frac{\$6.867\,\text{million}}{0.08} = \$85.8375 \text{ million}$$

Present Value of Continuing Value (CV) = $85.8376 million X $PVF_{13\%,8}$ = $85.96875 million X 0.376 = $32.2749 million

(i) Value of Firm

	$ Million
Present Value of cash flow during explicit period	18.5490
Present Value of Continuing Value	32.2749
Total Value	50.8239

(ii) Value of Equity

	$ Million
Total Value of Firm	50.8239
Less: Value of Debt	8.0000
Value of Equity	42.8239

13. As per T Ltd.'s Offer

	₹ in lakhs
(i) Net Consideration Payable	
7 times EBIDAT, i.e. 7 x ₹ 115.71 lakh	809.97
Less: Debt	240.00
	569.97
(ii) No. of shares to be issued by T Ltd	
₹ 569.97 lakh/₹ 220 (rounded off) (Nos.)	2,59,000
(iii) EPS of T Ltd after acquisition	
Total EBIDT (₹ 400.86 lakh + ₹ 115.71 lakh)	516.57
Less: Interest (₹ 58 lakh + ₹ 30 lakh)	88.00
	428.57
Less: 30% Tax	128.57
Total earnings (NPAT)	300.00
Total no. of shares outstanding (12 lakh + 2.59 lakh)	14.59 lakh
EPS (₹ 300 lakh/ 14.59 lakh)	₹ 20.56

(iv) Expected Market Price:

	₹ in lakhs
Pre-acquisition P/E multiple:	
EBIDAT	400.86
Less: Interest ($580 X \frac{10}{100}$)	58.00
	342.86
Less: 30% Tax	102.86
	240.00

No. of shares (lakhs)	12.00
EPS	₹ 20.00
Hence, PE multiple $\frac{220}{20}$	11
Expected market price after acquisition (₹ 20.56 x 11)	₹ 226.16

As per E Ltd's Plan

	₹ in lakhs
(i) Net consideration payable	
6 lakhs shares x ₹ 110	660
(ii) No. of shares to be issued by T Ltd	
₹ 660 lakhs ÷ ₹ 220	3 lakh
(iii) EPS of T Ltd after Acquisition	
NPAT (as per earlier calculations)	300.00
Total no. of shares outstanding (12 lakhs + 3 lakhs)	15 lakh
Earning Per Share (EPS) ₹ 300 lakh/15 lakh	₹ 20.00
(iv) Expected Market Price (₹ 20 x 11)	220.00

14. (a) Distinction between Banking and Non-Banking financial institutions

Basis for comparison	Banking Institutions	Non-Banking Institutions
Meaning	Bank is a financial intermediary which provides banking services to general people. And it requires a bank license for that.	Non-banking institutions are basically company form of organization that provides banking services to people without holding a banking license.
Transaction Services	Banks provide transaction services like providing overdraft facility, issue of cheque books, travelers cheque, demand draft, transfer of funds, etc.	The non-banking institutions do not provide any transaction services.
Money supply	Bank deposits constitute a major part of the national money supply.	The money supply of the nonbanking institutions is small.
Credit creation	Banks create credit.	Non-banking institutions do not create credit.

Compliance	Banks are required to comply with some of the legal requirements like Cash Reserve Ratio (CRR), Statutory Liquidity Ratio and Capital Adequacy Ratio (CAR).	Non-banking institutions are not required to comply with these legal requirements.
Demand Deposit	They are not accepted.	They are accepted.
Payment and settlement system	Contains an integral part of the system.	Not a part of the system.

(b) Distinction between Primary Participants and Secondary Participants in securitization

Primary Participants: Primary Participants are main parties to this process. The primary participants in the process of securitization are as follows:

(i) **Originator**: It is the initiator of deal or can be termed as securitizer. It is an entity which sells the assets lying in its books and receives the funds generated through the sale of such assets.

(ii) **Special Purpose Vehicle**: Also, called SPV is created for the purpose of executing the deal. Since issuer originator transfers all rights in assets to SPV, it holds the legal title of these assets. It is created especially for the purpose of securitization only and normally could be in form of a company, a firm, a society or a trust.

(iii) **The Investors**: Investors are the buyers of securitized papers which may be an individual, an institutional investor such as mutual funds, provident funds, insurance companies, mutual funds, Financial Institutions etc.

Secondary Participants

Besides, the primary participants, other parties involved into the securitization process are as follows:

(i) **Obligors**: Actually they are the main source of the whole securitization process. They are the parties who owe money to the firm and are assets in the Balance Sheet of Originator.

(ii) **Rating Agency**: Since the securitization is based on the pools of assets rather than the originators, the assets have to be assessed in terms of its credit quality and credit support available and that is where the credit rating agencies come.

(iii) **Receiving and Paying Agent (RPA)**: Also, called Servicer or Administrator, it collects the payment due from obligor(s) and passes it to SPV. It also follow up

with defaulting borrower and if required initiate appropriate legal action against them.

(iv) Agent or Trustee: Trustees are appointed to oversee that all parties to the deal perform in the true spirit of terms of agreement. Normally, it takes care of interest of investors who acquires the securities.

(v) Credit Enhancer: Since investors in securitized instruments are directly exposed to performance of the underlying and sometime may have limited or no recourse to the originator, they seek additional comfort in the form of credit enhancement. In other words, they require credit rating of issued securities which also empowers marketability of the securities.

Originator itself or a third party say a bank may provide an additional comfort called Credit Enhancer. While originator provides his comfort in the form of over collateralization or cash collateral, the third party provides it in form of letter of credit or surety bonds.

(vi) Structurer: It brings together the originator, investors, credit enhancers and other parties to the deal of securitization. Normally, these are investment bankers also called arranger of the deal. It ensures that deal meets all legal, regulatory, accounting and tax laws requirements.

(c) Distinction between Islamic Finance and Conventional Finance

How Islamic Finance is different from Conventional Finance

Major differences between Islamic finance and other form of finance (Conventional Finance) are as follows:

Basis	Islamic Finance	Conventional Finance
Promotion	Islamic Finance promotes just, fair and balanced society. Hence, interest is prohibited.	Based on commercial objectives and interest must be paid irrespective of outcome of business.
Ethical framework	Structured on ethical and moral framework of Sharia. Verses from the holy Quran and tradition from As-Sunnah are two divine guidance.	No such framework.
Speculation	The financial transactions should be free from the element of uncertainty (Gharar) and gambling (Maisir)	No such restrictions.
Unlawful Goods and Services	Islamic Finance must not be involved in any transactions	There are no such restrictions.

	not involve trade not allowed as per Islamic principles such as alcohol, armaments, pork and other socially detrimental products.	

15. (a) VAR is a measure of risk of investment. Given the normal market condition in a set of period, say, one day it estimates how much an investment might lose. This investment can be a portfolio, capital investment or foreign exchange etc., VAR answers two basic questions -

(i) What is worst case scenario?

(ii) What will be loss?

It was first applied in 1922 in New York Stock Exchange, entered the financial world in 1990s and become world's most widely used measure of financial risk.

Features of VAR

Following are main features of VAR

(i) Components of Calculations: VAR calculation is based on following three components :

(a) Time Period

(b) Confidence Level – Generally 95% and 99%

(c) Loss in percentage or in amount

(ii) Statistical Method: It is a type of statistical tool based on Standard Deviation.

(iii) Time Horizon: VAR can be applied for different time horizons say one day, one week, one month and so on.

(iv) Probability: Assuming the values are normally attributed, probability of maximum loss can be predicted.

(v) Control Risk: Risk can be controlled by selling limits for maximum loss.

(vi) Z Score: Z Score indicates how many standard Deviations is away from Mean value of a population. When it is multiplied with Standard Deviation it provides VAR.

Application of VAR

VAR can be applied

(i) to measure the maximum possible loss on any portfolio or a trading position.

(ii) as a benchmark for performance measurement of any operation or trading.

(iii) to fix limits for individuals dealing in front office of a treasury department.

(iv) to enable the management to decide the trading strategies.

(v) as a tool for Asset and Liability Management especially in banks.

(b) An individual is said to be boot strapping when he or she attempts to found and build a company from personal finances or from the operating revenues of the new company.

A common mistake made by most founders is that they make unnecessary expenses towards marketing, offices and equipment they cannot really afford. So, it is true that more money at the inception of a business leads to complacency and wasteful expenditure. On the other hand, investment by startups from their own savings leads to cautious approach. It curbs wasteful expenditures and enable the promoter to be on their toes all the time.

Methods: Here are some of the methods in which a startup firm can bootstrap:

(i) Trade Credit: When a person is starting his business, suppliers are reluctant to give trade credit. They will insist on payment of their goods supplied either by cash or by credit card. However, a way out in this situation is to prepare a well-crafted financial plan. The next step is to pay a visit to the supplier's office. If the business organization is small, the owner can be directly contacted. On the other hand, if it is a big firm, the Chief Financial Officer can be contacted and convinced about the financial plan.

(ii) Factoring: This is a financing method where accounts receivable of a business organization is sold to a commercial finance company to raise capital. The factor then got hold of the accounts receivable of a business organization and assumes the task of collecting the receivables as well as doing what would've been the paperwork. Factoring can be performed on a non-notification basis. It means customers may not be told that their accounts have been sold.

(iii) Leasing: Another popular method of bootstrapping is to take the equipment on lease rather than purchasing it. It will reduce the capital cost and also help lessee (person who take the asset on lease) to claim tax exemption. So, it is better to a take a photocopy machine, an automobile or a van on lease to avoid paying out lump sum money which is not at all feasible for a startup organization.

(c) Guidelines for SME Listing

(i) Capital: The post issue face value capital should not exceed ₹ Twenty-five crores.

(ii) Trading lot size

- The minimum application and trading lot size shall not be less than ₹ 1,00,000/-.

- ❖ The minimum depth shall be ₹ 1,00,000/- and at any point of time it shall not be less than ₹ 1,00,000/-.
- ❖ The investors holding with less than ₹ 1,00,000/- shall be allowed to offer their holding to the Market Maker in one lot.
- ❖ However in functionality the market lot will be subject to revival after a stipulated time.

(iii) *Participants:* The existing Members of the Exchange shall be eligible to participate in SME Platform.

(iv) *Underwriting:* The issues shall be 100% underwritten and Merchant Bankers shall underwrite 15% in their own account.

Benefits of Listing in SME

(i) *Easy access to Capital:* BSE SME provides an avenue to raise capital through equity infusion for growth oriented SME's.

(ii) *Enhanced Visibility and Prestige:* The SME's benefit by greater credibility and enhanced financial status leading to demand in the company's shares and higher valuation of the company.

(iii) *Encourages Growth of SMEs:* Equity financing provides growth opportunities like expansion, mergers and acquisitions thus being a cost effective and tax efficient mode.

(iv) *Ensures Tax Benefits:* In case of listed securities Short Term Gains Tax is 15% and there is absolutely no Long Term Capital Gains Tax.

(v) *Enables Liquidity for Shareholders*: Equity financing enables liquidity for shareholders provides growth opportunities like expansion, mergers and acquisitions, thus being a cost effective and tax efficient mode.

(vi) *Equity financing through Venture Capital*: Provides an incentive for Venture Capital Funds by creating an Exit Route and thus reducing their lock in period.

(vii) *Efficient Risk Distribution*: Capital Markets ensure that the capital flows to its best uses and those riskier activities with higher payoffs are funded.

(viii) Employee Incentives: Employee Stock Options ensures stronger employee commitment, participation and recruitment incentive.