

PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT

QUESTIONS

Valuation

1. T Ltd. Recently made a profit of ₹ 50 crore and paid out ₹ 40 crore (slightly higher than the average paid in the industry to which it pertains). The average PE ratio of this industry is 9. As per Balance Sheet of T Ltd., the shareholder's fund is ₹ 225 crore and number of shares is 10 crore. In case company is liquidated, building would fetch ₹ 100 crore more than book value and stock would realize ₹ 25 crore less.

The other data for the industry is as follows:

Projected Dividend Growth	4%
Risk Free Rate of Return	6%
Market Rate of Return	11%
Average Dividend Yield	6%

The estimated beta of T Ltd. is 1.2. You are required to calculate valuation of T Ltd. using

- (i) P/E Ratio
- (ii) Dividend Yield
- (iii) Valuation as per:
 - (a) Dividend Growth Model
 - (b) Book Value
 - (c) Net Realizable Value

Foreign Exchange Risk Management

2. India Imports co., purchased USD 100,000 worth of machines from a firm in New York, USA. The value of the rupee in terms of the Dollar has been decreasing. The firm in New York offers 2/10, net 90 terms. The spot rate for the USD is ₹ 55; the 90 days forward rate is ₹ 56.
- i. Compute the Rupee cost of paying the account within the 10 days.
 - ii. Compute the Rupee cost of buying a forward contract to liquidate the account in 10 days.
 - iii. The difference between part a and part b is the result of the time value of money (the discount for prepayment) and protection from currency value fluctuation. Determine the magnitude of each of these components.
3. 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

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

Mutual Funds

4. Based on the following data, estimate the Net Asset Value (NAV) 1st July 2016 on per unit basis of a Debt Fund:

Name of Security	Face Value ₹	Purchase Price ₹	Maturity Date	No. of Securities	Coupon Date(s)	Duration of Bonds
10.71% GOI 2028	100	104.78	31 st March, 2028	100000	31 st March	7.3494
10 % GOI 2023	100	100.00	31 st March, 2023	50000	31 st March & 30 th September	5.086
9.5 % GOI 2021	100	97.93	31 st December, 2021	40000	30 th June & 31 st December	4.3949
8.5% SGL 2025	100	91.36	30 th June 2025	20000	30 th June	6.5205

Number of Units (₹ 10 face value each): 100000

All securities were purchased at a time when applicable Yield to Maturity (YTM) was 10%. On NAV date, the required yield increased by 75 basis point and Cash in hand and accrued expenses were ₹ 6,72,800 and ₹ 2,37,400 respectively.

Security Analysis

5. The data given below relates to a convertible bond:

Face value	₹ 250
Coupon rate	12%
No. of shares per bond	20
Market price of share	₹ 12
Straight value of bond	₹ 235
Market price of convertible bond	₹ 265

Calculate:

- (i) Stock value of bond.
 - (ii) The percentage of downside risk.
 - (iii) The conversion premium
 - (iv) The conversion parity price of the stock
6. Rahul Ltd. has surplus cash of ₹ 100 lakhs and wants to distribute 27% of it to the shareholders. The company decides to buy back shares. The Finance Manager of the company estimates that its share price after re-purchase is likely to be 10% above the buyback price-if the buyback route is taken. The number of shares outstanding at present is 10 lakhs and the current EPS is ₹ 3.

You are required to determine:

- (i) The price at which the shares can be re-purchased, if the market capitalization of the company should be ₹ 210 lakhs after buyback,
- (ii) The number of shares that can be re-purchased, and
- (iii) The impact of share re-purchase on the EPS, assuming that net income is the same.

Portfolio Management

7. ABC Ltd. manufactures Car Air Conditioners (ACs), Window ACs and Split ACs constituting 60%, 25% and 15% of total market value. The stand-alone Standard Deviation and Coefficient of Correlation with market return of Car AC and Window AC is as follows:

	S.D.	Coefficient of Correlation
Car AC	0.30	0.6
Window AC	0.35	0.7

No data for stand-alone SD and Coefficient of Correlation of Split AC is not available. However, a company who derives its half value from Split AC and half from Window AC has a SD of 0.50 and Coefficient of correlation with market return is 0.85. Index has a return of 10% and has SD of 0.20. Further, the risk-free rate of return is 4%.

You are required to determine:

- (i) Beta of ABC Ltd.
- (ii) Cost of Equity of ABC Ltd.

Assuming that ABC Ltd. wants to raise debt of an amount equal to half of its Market Value then determine equity beta, if yield of debt is 5%.

8. Following is the data regarding six securities:

	A	B	C	D	E	F
Return (%)	8	8	12	4	9	8
Risk (Standard deviation)	4	5	12	4	5	6

- (i) Assuming three will have to be selected, state which ones will be picked.
 - (ii) Assuming perfect correlation, show whether it is preferable to invest 75% in A and 25% in C or to invest 100% in E
9. Mr. Tamarind intends to invest in equity shares of a company the value of which depends upon various parameters as mentioned below:

Factor	Beta	Expected value in %	Actual value in %
GNP	1.20	7.70	7.70
Inflation	1.75	5.50	7.00
Interest rate	1.30	7.75	9.00
Stock market index	1.70	10.00	12.00
Industrial production	1.00	7.00	7.50

If the risk free rate of interest be 9.25%, how much is the return of the share under Arbitrage Pricing Theory?

10. The following are the data on five mutual funds:

Fund	Return	Standard Deviation	Beta
A	15	7	1.25
B	18	10	0.75

C	14	5	1.40
D	12	6	0.98
E	16	9	1.50

You are required to compute Reward to Volatility Ratio and rank these portfolio using:

- ◆ Sharpe method and
- ◆ Treynor's method

assuming the risk free rate is 6%.

International Financial Management

11. Odessa Limited has proposed to expand its operations for which it requires funds of \$ 15 million, net of issue expenses which amount to 2% of the issue size. It proposed to raise the funds through a GDR issue. It considers the following factors in pricing the issue:

- (i) The expected domestic market price of the share is ₹ 300
- (ii) 3 shares underly each GDR
- (iii) Underlying shares are priced at 10% discount to the market price
- (iv) Expected exchange rate is ₹ 60/\$

You are required to compute the number of GDR's to be issued and cost of GDR to Odessa Limited, if 20% dividend is expected to be paid with a growth rate of 20%.

Money Market Instruments

12. Wonderland Limited has excess cash of ₹ 20 lakhs, which it wants to invest in short term marketable securities. Expenses relating to investment will be ₹ 50,000.

The securities invested will have an annual yield of 9%.

The company seeks your advice

- (i) as to the period of investment so as to earn a pre-tax income of 5%.
- (ii) the minimum period for the company to breakeven its investment expenditure overtime value of money.

Indian Capital Market

13. The share of X Ltd. is currently selling for ₹ 300. Risk free interest rate is 0.8% per month. A three months futures contract is selling for ₹ 312. Develop an arbitrage strategy and show what your riskless profit will be 3 month hence assuming that X Ltd. will not pay any dividend in the next three months.
14. 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:

- (i) Current portfolio beta
 - (ii) Portfolio beta after 3 months if the trader on current date goes for long position on ₹ 100 lakhs Nifty futures.
15. Sumana wanted to buy shares of EIL which has a range of ₹ 411 to ₹ 592 a month later. The present price per share is ₹ 421. Her broker informs her that the price of this share can sore up to ₹ 522 within a month or so, so that she should buy a one month CALL of EIL. In order to be prudent in buying the call, the share price should be more than or at least ₹ 522 the assurance of which could not be given by her broker.

Though she understands the uncertainty of the market, she wants to know the probability of attaining the share price ₹ 592 so that buying of a one month CALL of EIL at the execution price of ₹ 522 is justified. Advice her. Take the risk free interest to be 3.60% and $e^{0.036} = 1.037$.

16. Derivative Bank entered into a plain vanilla swap through on OIS (Overnight Index Swap) on a principal of ₹ 10 crores and agreed to receive MIBOR overnight floating rate for a fixed payment on the principal. The swap was entered into on Monday, 2nd August, 2010 and was to commence on 3rd August, 2010 and run for a period of 7 days.

Respective MIBOR rates for Tuesday to Monday were:

7.75%, 8.15%, 8.12%, 7.95%, 7.98%, 8.15%.

If Derivative Bank received ₹ 317 net on settlement, calculate Fixed rate and interest under both legs.

Notes:

- (i) Sunday is Holiday.
 - (ii) Work in rounded rupees and avoid decimal working.
17. 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.

- (a) What should be 3 months FRA rate at 3 months forward?
- (b) The 6 & 12 months LIBORS are 5% & 6.5% respectively. A bank is quoting 6/12 USD FRA at 6.50 – 6.75%. Is any arbitrage opportunity available?

Calculate profit in such case.

Mergers and Acquisitions

18. Teer Ltd. is considering acquisition of Nishana Ltd. CFO of Teer Ltd. is of opinion that Nishana Ltd. will be able to generate operating cash flows (after deducting necessary capital expenditure) of ₹ 10 crore per annum for 5 years.

The following additional information was not considered in the above estimations.

- (i) Office premises of Nishana Ltd. can be disposed of and its staff can be relocated in Teer Ltd.'s office not impacting the operating cash flows of either businesses. However, this action will generate an immediate capital gain of ₹ 20 crore.
- (ii) Synergy Gain of ₹ 2 crore per annum is expected to be accrued from the proposed acquisition.
- (iii) Nishana Ltd. has outstanding Debentures having a market value of ₹ 15 crore. It has no other debts.
- (iv) It is also estimated that after 5 years if necessary, Nishana Ltd. can also be disposed of for an amount equal to five times its operating annual cash flow.

Calculate the maximum price to be paid for Nishana Ltd. if cost of capital of Teer Ltd. is 20%. Ignore any type of taxation.

19. AB Ltd., is planning to acquire and absorb the running business of XY Ltd. The valuation is to be based on the recommendation of merchant bankers and the consideration is to be discharged in the form of equity shares to be issued by AB Ltd. As on 31.3.2006, the paid up capital of AB Ltd. consists of 80 lakhs shares of ₹10 each. The highest and the lowest market quotation during the last 6 months were ₹570 and ₹430. For the purpose of the exchange, the price per share is to be reckoned as the average of the highest and lowest market price during the last 6 months ended on 31.3.06.

XY Ltd.'s Balance Sheet as at 31.3.2006 is summarised below:

	₹ lakhs
Sources	
Share Capital	
20 lakhs equity shares of ₹10 each fully paid	200
10 lakhs equity shares of ₹10 each, ₹5 paid	50
Loans	<u>100</u>
Total	<u>350</u>
Uses	
Fixed Assets (Net)	150
Net Current Assets	<u>200</u>
	<u>350</u>

An independent firm of merchant bankers engaged for the negotiation, have produced the following estimates of cash flows from the business of XY Ltd.:

Year ended	By way of	₹ lakhs
31.3.07	after tax earnings for equity	105
31.3.08	do	120
31.3.09	Do	125
31.3.10	Do	120
31.3.11	Do	100
	terminal value estimate	200

It is the recommendation of the merchant banker that the business of XY Ltd. may be valued on the basis of the average of (i) Aggregate of discounted cash flows at 8% and (ii) Net assets value. Present value factors at 8% for years

1-5: 0.93 0.86 0.79 0.74 0.68

You are required to:

- Calculate the total value of the business of XY Ltd.
- The number of shares to be issued by AB Ltd.; and
- The basis of allocation of the shares among the shareholders of XY Ltd.

20. Write a short note on

- Project appraisal under inflationary conditions
- Salient features of Operating Lease
- Radical approach in Dividend Policies
- Synergy in the context of Mergers and Acquisitions
- Main functions of an investment bank

SUGGESTED ANSWERS/HINTS

1. (i) ₹ 50 crore x 9 = ₹ 450 crore

(ii) ₹ 50 crore x $\left(\frac{0.80}{0.06}\right)$ = ₹ 666.70

(iii) (a) $K_e = 6\% + 1.2 (11\% - 6\%) = 12\%$

$$\text{Value of Firm} = \frac{40 \text{ crore} \times 1.04}{0.12 - 0.04} = ₹ 520 \text{ crore}$$

(b) ₹ 225 crore

(c) ₹ 225 crore + ₹ 100 crore – ₹ 25 crore = 300 crore

2. (i) (98,000) (₹55) = ₹53,90,000

(ii) (100,000) (₹56) = ₹56,00,000

Differences = ₹56,00,000 – ₹53,90,000 = ₹2,10,000

(iii) Time value of money = (100,000 – 98,000) (₹ 56) = ₹1,12,000

Protection from devaluation = (98,000) (₹56 – ₹55) = ₹98,000

3. (i) 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

(ii) 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

(iii) 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: Amount invested and interest thereon = £ 3,27,285

Arbitrage Profit = £ 2,047

Since out of three options the maximum profit is in case investment is made in New York. Hence it should be opted.

4. Working Notes:

(i) Calculation of Interest Accrued

Name of Security	Maturity Date	Amount (₹)
10.71% GOI 2028	$100 \times 100000 \times 10.71\% \times \frac{3}{12}$	2,67,750
10 % GOI 2023	$100 \times 50000 \times 10.00\% \times \frac{3}{12}$	1,25,000
Total		3,92,750

Note: Interests on two remaining securities shall not be considered as last interest was paid on 30.06.2016

(ii) Valuation of Securities

Name of Security	Purchase Amount ₹	Duration of Bonds	Volatility (%)	(+)/(-)	Total Amount ₹
10.71% GOI 2028	1,04,78,000	7.3494	$\frac{7.3494}{1.10} \times 0.75$ = 5.0110	- 5,25,053	99,52,947
10% GOI 2023	50,00,000	5.086	$\frac{5.086}{1.05} \times 0.75$ = 3.6329	- 1,81,645	48,18,355
9.5% GOI 2021	39,17,200	4.3949	$\frac{4.3949}{1.05} \times 0.75$ = 3.1392	- 1,22,969	37,94,231
8.5% SGL 2025	18,27,200	6.5205	$\frac{6.5205}{1.10} \times 0.75$ = 4.4456	- 81,230	17,45,970
					2,03,11,503

Calculation of NAV

Particulars	₹ crores
Value of Securities as computed above	2,03,11,503
Cash in hand	6,72,800
Interest accrued	3,92,750

Sub total assets (A)	2,13,77,053
Less: Liabilities	
Expenditure accrued	2,37,400
Sub total liabilities (B)	2,37,400
Net Assets Value (A) – (B)	2,11,39,653
No. of units	1,00,000
Net Assets Value per unit (₹ 2,11,39,653/ 1,00,000)	₹ 211.40

5. (i) **Stock value or conversion value of bond**

$$12 \times 20 = ₹ 240$$

(ii) **Percentage of the downside risk**

$$\frac{₹ 265 - ₹ 235}{₹ 235} = 0.1277 \text{ or } 12.77\% \quad \text{or} \quad \frac{₹ 265 - ₹ 235}{₹ 265} = 0.1132 \text{ or } 11.32\%$$

This ratio gives the percentage price decline experienced by the bond if the stock becomes worthless.

(iii) **Conversion Premium**

$$\frac{\text{Market Price} - \text{Conversion Value}}{\text{Conversion Value}} \times 100$$

$$\frac{₹ 265 - ₹ 240}{₹ 240} \times 100 = 10.42\%$$

(iv) **Conversion Parity Price**

$$\frac{\text{Bond Price}}{\text{No. of Shares on Conversion}}$$

$$\frac{₹ 265}{20} = ₹ 13.25$$

This indicates that if the price of shares rises to ₹ 13.25 from ₹ 12 the investor will neither gain nor lose on buying the bond and exercising it. Observe that ₹ 1.25 (₹ 13.25 – ₹ 12.00) is 10.42% of ₹ 12, the Conversion Premium.

6. (i) **Let P be the buyback price decided by Rahul Ltd.**

Market Capitalisation after Buyback

$$1.1P (\text{Original Shares} - \text{Shares Bought Back})$$

$$= 1.1P \left(10 \text{ lakhs} - \frac{27\% \text{ of } 100 \text{ lakhs}}{P} \right)$$

$$= 11 \text{ lakhs} \times P - 27 \text{ lakhs} \times 1.1 = 11 \text{ lakhs} P - 29.7 \text{ lakhs}$$

Again, $11 \text{ lakhs} P - 29.7 \text{ lakhs}$

or $11 \text{ lakhs} P = 210 \text{ lakhs} + 29.7 \text{ lakhs}$

$$\text{or } P = \frac{239.7}{11} = ₹ 21.79 \text{ per share}$$

(ii) **Number of Shares to be Bought Back :-**

$$\frac{₹ 27 \text{ lakhs}}{₹ 21.79} = 1.24 \text{ lakhs (Approx.) or } 123910 \text{ share}$$

(iii) **New Equity Shares :-**

$$10 \text{ lakhs} - 1.24 \text{ lakhs} = 8.76 \text{ lakhs or } 1000000 - 123910 = 876090 \text{ shares}$$

$$\therefore \text{EPS} = \frac{3 \times 10 \text{ lakhs}}{8.76 \text{ lakhs}} = ₹ 3.43$$

Thus, EPS of Rahul Ltd., increases to ₹ 3.43.

7. (i) **Determination of Beta of Car AC and Window AC**

$$\frac{\sigma_{sm} \sigma_s}{\sigma_m}$$

Car AC

$$\frac{0.6 \times 0.3}{0.2} = 0.90$$

Window AC

$$\frac{0.7 \times 0.35}{0.2} = 1.225$$

Beta of Split AC/ Window AC is

$$\frac{0.85 \times 0.50}{0.2} = 2.125$$

The Beta of Split AC alone is

$$2.125 = 0.50\beta_s + 0.50\beta_c$$

$$= 0.50\beta_s + 0.50 \times 1.225$$

$$\beta_s = 3.025$$

ABC Ltd.'s Beta shall be:

$$0.6 \times 0.9 + 0.25 \times 1.225 + 0.15 \times 3.025 = 1.30$$

(ii) Cost of Equity of ABC Ltd.

$$K_e = 4\% + 1.30(10\% - 4\%) = 11.80\%$$

(iii) Calculation of Debt Beta

$$\frac{5\% - 4\%}{10\% - 4\%} = 0.167$$

Accordingly, Beta of Equity shall be

$$1.30 = 0.50 \times 0.167 + 0.50 \times \beta_e$$

$$= 2.433$$

8. (i) Security A has a return of 8% for a risk of 4, whereas B and F have a higher risk for the same return. Hence, among them A dominates.

For the same degree of risk 4, security D has only a return of 4%. Hence, D is also dominated by A.

Securities C and E remain in reckoning as they have a higher return though with higher degree of risk.

Hence, the ones to be selected are A, C & E.

- (ii) The average values for A and C for a proportion of 3 : 1 will be :

$$\text{Risk} = \frac{(3 \times 4) + (1 \times 12)}{4} = 6\%$$

$$\text{Return} = \frac{(3 \times 8) + (1 \times 12)}{4} = 9\%$$

Therefore:	75% A	E
	25% C	–
Risk	6	5
Return	9%	9%

For the same 9% return the risk is lower in E. Hence, E will be preferable.

9. Return of the stock under APT

<i>Factor</i>	<i>Actual value in %</i>	<i>Expected value in %</i>	<i>Difference</i>	<i>Beta</i>	<i>Diff. x Beta</i>
GNP	7.70	7.70	0.00	1.20	0.00

Inflation	7.00	5.50	1.50	1.75	2.63
Interest rate	9.00	7.75	1.25	1.30	1.63
Stock index	12.00	10.00	2.00	1.70	3.40
Ind. Production	7.50	7.00	0.50	1.00	<u>0.50</u>
					8.16
Risk free rate in %					<u>9.25</u>
Return under APT					<u>17.41</u>

10. Sharpe Ratio $S = (R_p - R_f)/\sigma_p$

Treynor Ratio $T = (R_p - R_f)/\beta_p$

Where,

R_p = Return on Fund

R_f = Risk-free rate

σ_p = Standard deviation of Fund

β_p = Beta of Fund

Reward to Variability (Sharpe Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	σ_p	Reward to Variability	Ranking
A	15	6	9	7	1.285	2
B	18	6	12	10	1.20	3
C	14	6	8	5	1.60	1
D	12	6	6	6	1.00	5
E	16	6	10	9	1.11	4

Reward to Volatility (Treynor Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	β_p	Reward to Volatility	Ranking
A	15	6	9	1.25	7.2	2
B	18	6	12	0.75	16	1
C	14	6	8	1.40	5.71	5
D	12	6	6	0.98	6.12	4
E	16	6	10	1.50	6.67	3

11. Net Issue Size = \$15 million

$$\text{Gross Issue} = \frac{\$15 \text{ million}}{0.98} = \$15.306 \text{ million}$$

$$\text{Issue Price per GDR in ₹ (300 x 3 x 90\%)} \quad ₹ 810$$

$$\text{Issue Price per GDR in \$ (₹ 810/ ₹ 60)} \quad \$13.50$$

$$\text{Dividend Per GDR (D}_1\text{)} = ₹ 2^* \times 3 = ₹ 6$$

* Assumed to be on based on Face Value of ₹ 10 each share.

$$\text{Net Proceeds Per GDR} = ₹ 810 \times 0.98 = ₹ 793.80$$

- (a) Number of GDR to be issued

$$\frac{\$15.306 \text{ million}}{\$13.50} = 1.1338 \text{ million}$$

- (b) Cost of GDR to Odessa Ltd.

$$k_e = \frac{6.00}{793.80} + 0.20 = 20.76\%$$

12. (i) Pre-tax Income required on investment of ₹ 20,00,000

Let the period of Investment be 'P' and return required on investment ₹ 1,00,000
(₹ 20,00,000 x 5%)

Accordingly,

$$\left(₹ 20,00,000 \times \frac{9}{100} \times \frac{P}{12} \right) - ₹ 50,000 = ₹ 1,00,000$$

$$P = 10 \text{ months}$$

- (ii) Break-Even its investment expenditure

$$\left(₹ 20,00,000 \times \frac{9}{100} \times \frac{P}{12} \right) - ₹ 50,000 = 0$$

$$P = 3.33 \text{ months}$$

13. The appropriate value of the 3 months futures contract is –

$$F_0 = ₹ 300 (1.008)^3 = ₹ 307.26$$

Since the futures price exceeds its appropriate value it pays to do the following:

Action	Initial Cash flow	Cash flow at time T (3 months)
Borrow ₹ 300 now and repay with interest after 3 months	+ ₹ 300	- ₹ 300 (1.008) ³ = - ₹ 307.26

Buy a share	- ₹ 300	ST
Sell a futures contract (Fo = 312/-)	<u>0</u>	<u>₹ 312 - ST</u>
Total	<u>₹ 0</u>	<u>₹ 4.74</u>

Such an action would produce a risk less profit of ₹ 4.74.

14. (i) Current portfolio

$$\begin{aligned}\text{Current Beta for share} &= 1.6 \\ \text{Beta for cash} &= 0 \\ \text{Current portfolio beta} &= 0.85 \times 1.6 + 0 \times 0.15 = 1.36\end{aligned}$$

(ii) Portfolio beta after 3 months:

$$\begin{aligned}\text{Beta for portfolio of shares} &= \frac{\text{Change in value of portfolio of share}}{\text{Change in value of market portfolio (Index)}} \\ 1.6 &= \frac{0.032}{\text{Change in value of market portfolio (Index)}}\end{aligned}$$

$$\text{Change in value of market portfolio (Index)} = (0.032 / 1.6) \times 100 = 2\%$$

Position taken on 100 lakh Nifty futures : Long

$$\begin{aligned}\text{Value of index after 3 months} &= ₹ 100 \text{ lakh} \times (100 - 0.02) \\ &= ₹ 98 \text{ lakh}\end{aligned}$$

$$\text{Mark-to-market paid} = ₹ 2 \text{ lakh}$$

$$\text{Cash balance after payment of mark-to-market} = ₹ 13 \text{ lakh}$$

$$\begin{aligned}\text{Value of portfolio after 3 months} &= ₹ 85 \text{ lakh} \times (1 - 0.032) + ₹ 13 \text{ lakh} \\ &= ₹ 95.28 \text{ lakh}\end{aligned}$$

$$\text{Change in value of portfolio} = \frac{₹ 100 \text{ lakh} - ₹ 95.28 \text{ lakh}}{₹ 100 \text{ lakh}} = 4.72\%$$

$$\text{Portfolio beta} = 0.0472 / 0.02 = 2.36$$

15. $p = \frac{e^{rt} - d}{u - d}$

$$e^{rt} = e^{0.036}$$

$$d = 411/421 = 0.976$$

$$u = 592/421 = 1.406$$

$$p = \frac{e^{0.036} - 0.976}{1.406 - 0.976} = \frac{1.037 - 0.976}{0.43} = \frac{0.061}{0.43} = 0.1418$$

Thus probability of rise in price 0.1418

16.

Day	Principal (₹)	MIBOR (%)	Interest (₹)
Tuesday	10,00,00,000	7.75	21,233
Wednesday	10,00,21,233	8.15	22,334
Thursday	10,00,43,567	8.12	22,256
Friday	10,00,65,823	7.95	21,795
Saturday & Sunday (*)	10,00,87,618	7.98	43,764
Monday	10,01,31,382	8.15	<u>22,358</u>
Total Interest @ Floating			1,53,740
Less: Net Received			<u>317</u>
Expected Interest @ fixed			<u>1,53,423</u>
Thus Fixed Rate of Interest			0.07999914
Approx.			8%

(*) i.e. interest for two days.

Note: Alternatively, answer can also be calculated on the basis of 360 days in a year.

17. (a) **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.

(b) **6 Months Interest rate is 5% p.a. & 12 Month interest rate is 6.5% p.a.**

Future value 12 month from now is a product of Future value 6 Months from now and 6

Months Future value from after 6 Months.

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

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

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%

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

$$\# (1+0.05/2) (1+.0675/2) = (1.05959) \text{ say } 1.060$$

18. Calculation of Maximum Price to be paid for the acquisition of Nishana Ltd.

(₹ Crore)

Year	0	1	2	3	4	5
Operating cash flow	-	10.00	10.00	10.00	10.00	10.00
Gain on Sale of office premises	20.00	-	-	-	-	-
Synergy Benefits	-	2.00	2.00	2.00	2.00	2.00
Disposal of Nishana Ltd.	-	-	-	-	-	50.00
Net cash flow	20.00	12.00	12.00	12.00	12.00	62.00
PVF @ 20%	1	0.833	0.694	0.579	0.482	0.402
Present value	20.00	10.00	8.328	6.948	5.784	24.924

Total of Present value 75.984

Less: Market Value of Debentures (15.000)

60.984

Thus, the maximum price to be paid for acquisition of Nishana Ltd. ₹ 60.984 crore.

19.

Price/share of AB Ltd. for determination of number of shares to be issued: (₹ 570 + ₹ 430)/2	₹	500
Value of XY Ltd based on future cash flow capitalization (105×0.93)+(120×0.86)+(125×0.79)+(120×0.74)×(300×0.68)	₹ lakhs	592.40
Value of XY Ltd based on net assets	₹ lakhs	250.00
Average value (592.40+250)/2		421.20
No. of shares in AB Ltd to be issued ₹ 4,21,20,000/500	Nos.	84240

Basis of allocation of shares		
Fully paid equivalent shares in XY Ltd. (20+5) lakhs		2500000
Distribution to fully paid shareholders 84240×20/25		67392
Distribution to partly paid shareholders 84240-67392		16848

20. (a) Project Appraisal normally involves feasibility evaluation from technical, commercial, economic and financial aspects. It is generally an exercise in measurement and analysis of cash flows expected to occur over the life of the project. The project cash outflows usually occur initially and inflows come in the future.

During inflationary conditions, the project cost increases on all heads viz. labour, raw material, fixed assets such as equipments, plant and machinery, building material, remuneration of technicians and managerial personnel etc. Beside this, inflationary conditions erode purchasing power of consumers and affect the demand pattern. Thus, not only cost of production but also the projected statement of profitability and cash flows are affected by the change in demand pattern. Even financial institutions and banks may revise their lending rates resulting in escalation in financing cost during inflationary conditions. Under such circumstances, project appraisal has to be done generally keeping in view the following guidelines which are usually followed by government agencies, banks and financial institutions.

- (i) It is always advisable to make provisions for cost escalation on all heads of cost, keeping in view the rate of inflation during likely period of delay in project implementation.
- (ii) The various sources of finance should be carefully scrutinised with reference to probable revision in the rate of interest by the lenders and the revision which could be effected in the interest bearing securities to be issued. All these factors will push up the cost of funds for the organization.
- (iii) Adjustments should be made in profitability and cash flow projections to take care of the inflationary pressures affecting future projections.
- (iv) It is also advisable to examine the financial viability of the project at the revised rates and assess the same with reference to economic justification of the project. The appropriate measure for this aspect is the economic rate of return for the project which will equate the present value of capital expenditures to net cash flows over the life of the projects. The rate of return should be acceptable which also accommodates the rate of inflation per annum.
- (v) In an inflationary situation, projects having early payback periods should be preferred because projects with long payback period are more risky.

Under conditions of inflation, the project cost estimates that are relevant for a future date will suffer escalation. Inflationary conditions will tend to initiate the

measurement of future cash flows. Either of the following two approaches may be used while appraising projects under such conditions:

- (i) Adjust each year's cash flows to an inflation index, recognising selling price increases and cost increases annually; or
- (ii) Adjust the 'Acceptance Rate' (cut-off) suitably retaining cash flow projections at current price levels.

An example of approach (ii) above can be as follows:

Normal Acceptance Rate	:	15.0%
Expected Annual Inflation	:	5.0%
Adjusted Discount Rate	:	15.0×1.05 or 15.75%

It must be noted that measurement of inflation has no standard approach nor is easy. This makes the job of appraisal a difficult one under such conditions.

- (b)
 - (i) The lease term is significantly less than the economic life of the equipment.
 - (ii) It can be cancelled by the lessee prior to its expiration date.
 - (iii) The lease rental is generally not sufficient to fully amortize the cost of the asset.
 - (iv) The cost of maintenance, taxes, insurance are the responsibility of the lessor.
 - (v) The lessee is protected against the risk of obsolescence.
 - (vi) The lessor has the option to recover the cost of the asset from another party on cancellation of the lease by leasing out the asset.
- (c) This approach takes into consideration the tax aspects on dividend i.e. the corporate tax and the personal tax. Also it considers the fact that tax on dividend and capital gains are taxed as different rate. The approach is based on one premise that if tax on dividend is higher than tax on capital gains, the share of the company will be attractive if the company is offering capital gain. Similarly, if tax on dividend is less than the tax on capital gains, i.e. company offering dividend rather than capital gains, will be priced better.
- (d) Synergy May be defined as follows:

$$V(AB) > V(A) + V(B).$$

In other words the combined value of two firms or companies shall be more than their individual value. This may be result of complimentary services economics of scale or both.

A good example of complimentary activities can a company may have a good networking of branches and other company may have efficient production system. Thus the merged companies will be more efficient than individual companies.

On Similar lines, economics of large scale is also one of the reason for synergy benefits. The main reason is that, the large scale production results in lower average cost of production e.g. reduction in overhead costs on account of sharing of central services such as accounting and finances, Office executives, top level management, legal, sales promotion and advertisement etc.

These economics can be “real” arising out of reduction in factor input per unit of output, whereas pecuniary economics are realized from paying lower prices for factor inputs to bulk transactions.

(e) The following are, briefly, a summary of investment banking functions:

- Underwriting: The underwriting function within corporate finance involves shepherding the process of raising capital for a company. In the investment banking world, capital can be raised by selling either stocks or bonds to the investors.
- Managing an IPO (Initial Public Offering): This includes hiring managers to the issue, due diligence and marketing the issue.
- Issue of debt: When a company requires capital, it sometimes chooses to issue public debt instead of equity.
- Follow-on hiring of stock: A company that is already publicly traded will sometimes sell stock to the public again. This type of offering is called a follow-on offering, or a secondary offering.
- Mergers and Acquisitions: Acting as intermediary between Acquirer and target company
- Sales and Trading: This includes calling high networth individuals and institutions to suggest trading ideas (on a caveat emptor basis), taking orders and facilitating the buying and selling of stock, bonds or other securities such as currencies.
- Research Analysis: Research analysts study stocks and bonds and make recommendations on whether to buy, sell, or hold those securities.
- Private Placement: A private placement differs little from a public offering aside from the fact that a private placement involves a firm selling stock or equity to private investors rather than to public investors.
- Financial Restructuring: When a company cannot pay its cash obligations - it goes bankrupt. In this situation, a company can, of course, choose to simply shut down operations and walk away or, it can also restructure and remain in business.