QUESTIONS

Security Valuation

1. Calculate the value of share from the following information:

Profit after tax of the company	₹ 290 crores
Equity capital of company	₹ 1,300 crores
Par value of share	₹ 40 each
Debt ratio of company (Debt/ Debt + Equity)	27%
Long run growth rate of the company	8%
Beta 0.1; risk free interest rate	8.7%
Market returns	10.3%
Capital expenditure per share	₹ 47
Depreciation per share	₹ 39
Change in Working capital	₹ 3.45 per share

2. M/s Agfa Industries is planning to issue a debenture series on the following terms:

Face value	₹ 100
Term of maturity	10 years
Yearly coupon rate	
Years	
1 – 4	9%
5 – 8	10%
9 – 10	14%

    The current market rate on similar debentures is 15 per cent per annum. The Company proposes to price the issue in such a manner that it can yield 16 per cent compounded rate of return to the investors. The Company also proposes to redeem the debentures at 5 per cent premium on maturity. Determine the issue price of the debentures.

Portfolio Management

3. The distribution of return of security 'F' and the market portfolio 'P' is given below:

Probability	Return %	
	F	P
0.30	30	-10

0.40	20	20
0.30	0	30

You are required to calculate the expected return of security 'F' and the market portfolio 'P', the covariance between the market portfolio and security and beta for the security.

4. A Portfolio Manager (PM) has the following four stocks in his portfolio:

Security	No. of Shares	Market Price per share (₹)	β
VSL	10,000	50	0.9
CSL	5,000	20	1.0
SML	8,000	25	1.5
APL	2,000	200	1.2

Compute the following:

(i) Portfolio beta.

(ii) If the PM seeks to reduce the beta to 0.8, how much risk free investment should he bring in?

(iii) If the PM seeks to increase the beta to 1.2, how much risk free investment should he bring in?

Mutual Fund

5. On 01-07-2016, Mr. X Invested ₹ 50,000/- at initial offer in Mutual Funds at a face value of ₹ 10 each per unit. On 31-03-2017, a dividend was paid @ 10% and annualized yield was 120%. On 31-03-2018, 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 31-03-2017, 31-03-2018 and 31-03-2019.

For calculations consider a year of 12 months.

Derivatives

6. From the following data for certain stock, find the value of a call option:

Price of stock now	=	₹ 80
Exercise price	=	₹ 75
Standard deviation of continuously compounded annual return	=	0.40
Maturity period	=	6 months
Annual interest rate	=	12%

Given

Number of S.D. from Mean, (z)	Area of the left or right (one tail)
0.25	0.4013
0.30	0.3821
0.55	0.2912
0.60	0.2743

$e^{0.12 \times 0.5}$ = 1.062

In 1.0667 = 0.0646

7. On January 1, 2018 an investor has a portfolio of 5 shares as given below:

Security	Price	No. of Shares	Beta
A	349.30	5,000	1.15
B	480.50	7,000	0.40
C	593.52	8,000	0.90
D	734.70	10,000	0.95
E	824.85	2,000	0.85

The cost of capital to the investor is 10.5% per annum.

You are required to calculate:

(i) The beta of his portfolio.

(ii) The theoretical value of the NIFTY futures for February 2018.

(iii) The number of contracts of NIFTY the investor needs to sell to get a full hedge until February for his portfolio if the current value of NIFTY is 5900 and NIFTY futures have a minimum trade lot requirement of 200 units. Assume that the futures are trading at their fair value.

(iv) The number of future contracts the investor should trade if he desires to reduce the beta of his portfolios to 0.6.

No. of days in a year be treated as 365.

Given: In (1.105) = 0.0998 and $e^{(0.015858)}$ = 1.01598

Foreign Exchange Exposure and Risk Management

8. Followings are the spot exchange rates quoted at three different forex markets:

USD/INR	48.30 in Mumbai
GBP/INR	77.52 in London
GBP/USD	1.6231 in New York

The arbitrageur has USD 1,00,00,000. Assuming that there are no transaction costs, explain whether there is any arbitrage gain possible from the quoted spot exchange rates.

9. Nitrogen Ltd, a UK company is in the process of negotiating an order amounting to €4 million with a large German retailer on 6 months credit. If successful, this will be the first time that Nitrogen Ltd has exported goods into the highly competitive German market. The following three alternatives are being considered for managing the transaction risk before the order is finalized.

   (i)   Invoice the German firm in Sterling using the current exchange rate to calculate the invoice amount.

   (ii) Alternative of invoicing the German firm in € and using a forward foreign exchange contract to hedge the transaction risk.

   (iii) Invoice the German first in € and use sufficient 6 months sterling future contracts (to the nearly whole number) to hedge the transaction risk.

   Following data is available:

Spot Rate	€ 1.1750 - €1.1770/£
6 months forward premium	0.55-0.60 Euro Cents
6 months future contract is currently trading at	€1.1760/£
6 months future contract size is	£62500
Spot rate and 6 months future rate	€1.1785/£

   Required:

   (a) Calculate to the nearest £ the receipt for Nitrogen Ltd, under each of the three proposals.

   (b) In your opinion, which alternative would you consider to be the most appropriate and the reason thereof.

International Financial Management

10. XYZ Ltd., a company based in India, manufactures very high quality modem furniture and sells to a small number of retail outlets in India and Nepal. It is facing tough competition. Recent studies on marketability of products have clearly indicated that the customer is now more interested in variety and choice rather than exclusivity and exceptional quality. Since the cost of quality wood in India is very high, the company is reviewing the proposal for import of woods in bulk from Nepalese supplier.

   The estimate of net Indian (₹) and Nepalese Currency (NC) cash flows in Nominal terms for this proposal is shown below:

	Net Cash Flow (in millions)			
Year	0	1	2	3
NC	-25.000	2.600	3.800	4.100
Indian (₹)	0	2.869	4.200	4.600

The following information is relevant:

(i)   XYZ Ltd. evaluates all investments by using a discount rate of 9% p.a. All Nepalese customers are invoiced in NC. NC cash flows are converted to Indian (₹) at the forward rate and discounted at the Indian rate.

(ii)   Inflation rates in Nepal and India are expected to be 9% and 8% p.a. respectively. The current exchange rate is ₹ 1= NC 1.6

Assuming that you are the finance manager of XYZ Ltd., calculate the net present value (NPV) and modified internal rate of return (MIRR) of the proposal.

You may use following values with respect to discount factor for ₹ 1 @ 9%.

	Present Value	Future Value
Year 1	0.917	1.188
Year 2	0.842	1.090
Year 3	0.772	1

Interest Rate Risk Management

11.   A Inc. and B Inc. intend to borrow $200,000 and $200,000 in ¥ respectively for a time horizon of one year. The prevalent interest rates are as follows:

Company	¥ Loan	$ Loan
A Inc	5%	9%
B Inc	8%	10%

The prevalent exchange rate is $1 = ¥120.

They entered in a currency swap under which it is agreed that B Inc will pay A Inc @ 1% over the ¥ Loan interest rate which the later will have to pay as a result of the agreed currency swap whereas A Inc will reimburse interest to B Inc only to the extent of 9%. Keeping the exchange rate invariant, quantify the opportunity gain or loss component of the ultimate outcome, resulting from the designed currency swap.

Corporate Valuation

12.   ABC Co. is considering a new sales strategy that will be valid for the next 4 years. They want to know the value of the new strategy. Following information relating to the year which has just ended, is available:

Income Statement	₹
Sales	20,000
Gross margin (20%)	4,000
Administration, Selling & distribution expense (10%)	2,000
PBT	2,000
Tax (30%)	600
PAT	1,400
Balance Sheet Information	
Fixed Assets	8,000
Current Assets	4,000
Equity	12,000

If it adopts the new strategy, sales will grow at the rate of 20% per year for three years. The gross margin ratio, Assets turnover ratio, the Capital structure and the income tax rate will remain unchanged.

Depreciation would be at 10% of net fixed assets at the beginning of the year.

The Company's target rate of return is 15%.

Determine the incremental value due to adoption of the strategy.

Mergers, Acquisitions and Corporate Restructuring

13. The following information relating to the acquiring Company Abhiman Ltd. and the target Company Abhishek Ltd. are available. Both the Companies are promoted by Multinational Company, Trident Ltd. The promoter's holding is 50% and 60% respectively in Abhiman Ltd. and Abhishek Ltd.:

	Abhiman Ltd.	Abhishek Ltd.
Share Capital (₹)	200 lakh	100 lakh
Free Reserve and Surplus (₹)	800 lakh	500 lakh
Paid up Value per share (₹)	100	10
Free float Market Capitalisation (₹)	400 lakh	128 lakh
P/E Ratio (times)	10	4

Trident Ltd. is interested to do justice to the shareholders of both the Companies. For the swap ratio weights are assigned to different parameters by the Board of Directors as follows:

Book Value   25%

EPS (Earning per share)   50%

Market Price   25%

(a) What is the swap ratio based on above weights?

(b) What is the Book Value, EPS and expected Market price of Abhiman Ltd. after acquisition of Abhishek Ltd. (assuming P.E. ratio of Abhiman Ltd. remains unchanged and all assets and liabilities of Abhishek Ltd. are taken over at book value).

(c) Calculate:

  (i) Promoter's revised holding in the Abhiman Ltd.

  (ii) Free float market capitalization.

  (iii) Also calculate No. of Shares, Earning per Share (EPS) and Book Value (B.V.), if after acquisition of Abhishek Ltd., Abhiman Ltd. decided to :

    (a) Issue Bonus shares in the ratio of 1 : 2; and

    (b) Split the stock (share) as ₹ 5 each fully paid.

Theoretical Questions

14. (a) How financial goals can be balanced vis-à-vis sustainable growth?

  (b) What is Value at Risk? Identify its main features.

  (c) Explain the factors affecting economic analysis.

15. (a) Discuss briefly the steps in securitization mechanism.

  (b) What are some of the innovative ways to finance a start up?

  (c) What is the difference between Management Buy Out and Leveraged Buyout? State the purpose of a leveraged buyout with the help of an example.

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SUGGESTED ANSWERS/HINTS

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1. No. of Shares = $\dfrac{₹\ 1,300\ \text{crores}}{₹\ 40}$ = 32.5 Crores

EPS = $\dfrac{\text{PAT}}{\text{No.of shares}}$

EPS = $\dfrac{₹\ 290\ \text{crores}}{32.5\ \text{crores}}$ = ₹ 8.923

FCFE = Net income – [(1-b) (capex – dep) + (1-b) (ΔWC)]

FCFE = 8.923 – [(1-0.27) (47-39) + (1-0.27) (3.45)]

    = 8.923 – [5.84 + 2.5185] = 0.5645

Cost of Equity = R_f + ß $(R_m - R_f)$

= 8.7 + 0.1 (10.3 – 8.7) = 8.86%

Po $\quad = \dfrac{FCFE(1+g)}{K_e - g} = \dfrac{0.5645(1.08)}{0.0886 - .08} = \dfrac{0.60966}{0.0086} = ₹\,70.89$

2.   The issue price of the debentures will be the sum of present value of interest payments during 10 years of its maturity and present value of redemption value of debenture.

Years	Cash out flow (₹)	PVIF @ 16%	PV
1	9	.862	7.758
2	9	.743	6.687
3	9	.641	5.769
4	9	.552	4.968
5	10	.476	4.76
6	10	.410	4.10
7	10	.354	3.54
8	10	.305	3.05
9	14	.263	3.682
10	14 + 105 = 119	.227	3.178 + 23.835
			71.327

Thus the debentures should be priced at ₹ 71.327

3.   **Security F**

Prob(P)	R_f	$P \times R_f$	Deviations of F $(R_f - ER_f)$	(Deviation)² of F	(Deviations)² P_X
0.3	30	9	13	169	50.7
0.4	20	8	3	9	3.6
0.3	0	0	-17	289	86.7
		ER_f=17			Var_f =141

STDEV $\sigma_f = \sqrt{141}$ = 11.87

Market Portfolio, P

R_M %	P_M	Exp. Return $R_M \times P_M$	Dev. of P $(R_M - ER_M)$	(Dev. of P)²	(DeV.)² P_M	(Deviation of F) x (Deviation of P)	Dev. of F x Dev. of P) x P
-10	0.3	-3	-24	576	172.8	-312	-93.6

20	0.4	8	6	36	14.4	18	7.2
30	0.3	9	16	256	76.8	-272	-81.6
		$ER_M=14$			$Var_M=264$		$=Co\ Var\ P_M$
					$\sigma_M=16.25$		$=-168$

Beta= $\dfrac{Co\ Var\ P_M}{\sigma_M^2} = \dfrac{-168}{264} = -.636$

4.

Security	No. of shares (1)	Market Price of Per Share (2)	(1) × (2)	% to total (w)	ß (x)	wx
VSL	10000	50	500000	0.4167	0.9	0.375
CSL	5000	20	100000	0.0833	1	0.083
SML	8000	25	200000	0.1667	1.5	0.250
APL	2000	200	400000	0.3333	1.2	0.400
			1200000	1		1.108

Portfolio beta   1.108

(i)   Required Beta   0.8

It should become (0.8 / 1.108)   72.2 % of present portfolio

If ₹ 12,00,000 is 72.20%, the total portfolio should be
₹ 12,00,000 × 100/72.20 or   ₹ 16,62,050

Additional investment in zero risk should be (₹ 16,62,050 – ₹ 12,00,000) = ₹ 4,62,050

Revised Portfolio will be

Security	No. of shares (1)	Market Price of Per Share (2)	(1) × (2)	% to total (w)	ß (x)	wx
VSL	10000	50	500000	0.3008	0.9	0.271
CSL	5000	20	100000	0.0602	1	0.060
SML	8000	25	200000	0.1203	1.5	0.180
APL	2000	200	400000	0.2407	1.2	0.289
Risk free asset	46205	10	462050	0.2780	0	0
			1662050	1		0.800

(ii) To increase Beta to   1.2

Required beta   1.2

It should become 1.2 / 1.108   108.30% of present beta

If 1200000 is 108.30%, the total portfolio should be

1200000 × 100/108.30 or 1108033 say 1108030

Additional investment should be (-) 91967 i.e. Divest ₹ 91970 of Risk Free Asset

Revised Portfolio will be

Security	No. of shares (1)	Market Price of Per Share (2)	(1) × (2)	% to total (w)	ß (x)	wx
VSL	10000	50	500000	0.4513	0.9	0.406
CSL	5000	20	100000	0.0903	1	0.090
SML	8000	25	200000	0.1805	1.5	0.271
APL	2000	200	400000	0.3610	1.2	0.433
Risk free asset	-9197	10	-91970	-0.0830	0	0
			1108030	1		1.20

Portfolio beta   1.20

5. Yield for 9 months (120% x 9/12) = 90%

Market value of Investments as on 31.03.2017 = ₹ 50,000/- + (₹ 50,000x 90%)= ₹ 95,000/-

Therefore, NAV as on 31.03.2017 = (₹ 95,000 - ₹ 5,000)/5,000 = ₹ 18.00

Since dividend was reinvested by Mr. X, additional units acquired = $\dfrac{₹\,5,000}{₹\,18}$ = 277.78 unit

Therefore, units as on 31.03.2017 = 5,000 + 277.78 = 5,277.78

Alternatively, units as on 31.03.2017 = (₹ 95,000/₹18) = 5,277.78

Dividend as on 31.03.2018 = 5,277.78 x ₹ 10 x 0.2   = ₹10,555.56

Capital Gain (5277.78 x ₹ 0.60)   = ₹ 3,166.67

                                                                             = ₹13,722.23

Let X be the NAV on 31.03.2018, then number of new units reinvested will be ₹13,722.23/X.

Accordingly, 6,271.98 units shall consist of reinvested units and 5277.78 (as on 31.03.2017).

Thus, by way of equation it can be shown as follows:

$$6{,}271.98 = \frac{₹\,13{,}722.23}{X} + 5{,}277.78$$

Therefore, NAV as on 31.03.2018 = ₹ 13,722.23/(6,271.98 – 5,277.78) = ₹ 13.80

NAV as on 31.03.2019 = ₹ 50,000 (1+0.715x33/12)/6,271.98 = ₹23.656

6. Applying the Black Scholes Formula,

Value of the Call option now:

The Formula $C = SN(d_1) - Ke^{(-rt)}\,N(d_2)$

$$d_1 = \frac{\ln(S/K) + (r + \sigma^2/2)t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

Where,

C = Theoretical call premium

S = Current stock price

t = time until option expiration

K = option striking price

r = risk-free interest rate

N = Cumulative standard normal distribution

e = exponential term

σ = Standard deviation of continuously compounded annual return.

In = natural logarithim

$$d_1 = \frac{\ln(1.0667) + (12\% + 0.08)0.5}{0.40\sqrt{0.5}}$$

$$= \frac{0.0646 + (0.2)0.5}{0.40 \times 0.7071}$$

$$= \frac{0.1646}{0.2828}$$

$$= 0.5820$$

$$d_2 = 0.5820 - 0.2828 = 0.2992$$

$N(d_1) = N(0.5820)$

$N(d_2) = N(0.2992)$

Price $= SN(d_1) - Ke^{(-rt)}N(d_2)$

$= 80 \times N(d_1) - (75/1.062) \times N(d_2)$

Value of option

$= 80\, N(d_1) - \dfrac{75}{1.062} \times N(d_2)$

$N(d_1) = N(0.5820) = 0.7197$

$N(d_2) = N(0.2992) = 0.6176$

Price $= 80 \times 0.7197 - \dfrac{75}{1.062} \times 0.6176$

$= 57.57 - 70.62 \times 0.6176$

$= 57.57 - 43.61$

$= ₹13.96$

Teaching Notes:

Students may please note following important point:

Values of $N(d_1)$ and $N(d_2)$ have been computed by interpolating the values of areas under respective numbers of SD from Mean (Z) given in the question.

It may also be possible that in question paper areas under Z may be mentioned otherwise e.g. Cumulative Area or Area under Two tails. In such situation the areas of the respective Zs given in the question will be as follows:

Cumulative Area

Number of S.D. from Mean, (z)	Cumulative Area
0.25	0.5987
0.30	0.6179
0.55	0.7088
0.60	0.7257

Two tail area

Number of S.D. from Mean, (z)	Area of the left and right (two tail)
0.25	0.8026
0.30	0.7642

| 0.55 | 0.5823 |
| 0.60 | 0.5485 |

7. (i) Calculation of Portfolio Beta

Security	Price of the Stock	No. of shares	Value	Weightage w_i	Beta B_i	Weighted Beta
A	349.30	5,000	17,46,500	0.093	1.15	0.107
B	480.50	7,000	33,63,500	0.178	0.40	0.071
C	593.52	8,000	47,48,160	0.252	0.90	0.227
D	734.70	10,000	73,47,000	0.390	0.95	0.370
E	824.85	2,000	16,49,700	0.087	0.85	0.074
			1,88,54,860			0.849

Portfolio Beta = 0.849

(ii) Calculation of Theoretical Value of Future Contract

Cost of Capital = 10.5% p.a. Accordingly, the Continuously Compounded Rate of Interest ln (1.105) = 0.0998

For February 2013 contract, t= 58/365= 0.1589

Further F= Se^{rt}

F= ₹ 5,900$e^{(0.0998)(0.1589)}$

F= ₹ 5,900$e^{0.015858}$

F= ₹ 5,900X1.01598 = ₹ 5,994.28

Alternatively, it can also be taken as follows:

= ₹ 5900 $e^{0.105 \times 58/365}$

= ₹ 5900 $e^{0.01668}$

= ₹ 5900 x 1.01682 = ₹ 5,999.24

(iii) When total portfolio is to be hedged:

$$= \frac{\text{Value of Spot Position requiring hedging}}{\text{Value of Future Contract}} \times \text{Portfolio Beta}$$

$$= \frac{1,88,54,860}{5994.28 \times 200} \times 0.849 = 13.35 \text{ contracts say 13 or 14 contracts}$$

(iv) When total portfolio beta is to be reduced to 0.6:

Number of Contracts to be sold = $\dfrac{P(\beta_P - \beta_P')}{F}$

$= \dfrac{1,88,54,860\,(0.849 - 0.600)}{5994.28 \times 200}$ = 3.92 contracts say 4 contract

8. The arbitrageur can proceed as stated below to realize arbitrage gains.

   (i)   Buy ₹ from USD 10,000,000 at Mumbai 48.30 × 10,000,000 = ₹483,000,000

   (ii)   Convert these ₹ to GBP at London $\left(\dfrac{₹\ 483,000,000}{Rs.\ 77.52}\right)$ = GBP 6,230,650.155

   (iii) Convert GBP to USD at New York GBP 6,230,650.155 × 1.6231 USD 10,112,968.26

          There is net gain of USD 10,112968.26 less USD 10,000,000 i.e. USD 112,968.26

9. (i)   **Receipt under three proposals**

          (a) Invoicing in Sterling

               Invoicing in £ will produce $= \dfrac{€\,4\,million}{1.1770}$ = £3398471

          (b) Use of Forward Contract

               Forward Rate   = €1.1770+0.0055 = 1.1825

               Using Forward Market hedge Sterling receipt would be $\dfrac{€\,4\,million}{1.1825}$ = £ 3382664

          (c) Use of Future Contract

               The equivalent sterling of the order placed based on future price (€1.1760)

               $= \dfrac{€\,4.00\,million}{1.1760}$ = £ 3401360

               Number of Contracts = $\dfrac{£3401360}{62,500}$ = 54 Contracts (to the nearest whole number)

               Thus, € amount hedged by future contract will be = 54 × £62,500 = £3375000

               Buy Future at   €1.1760

               Sell Future at   €1.1785
                                                 ‾‾‾‾‾‾‾
                                                  €0.0025
                                                 ‾‾‾‾‾‾‾

               Total profit on Future Contracts = 54 × £62,500 × €0.0025 = €8438

After 6 months

Amount Received	€4000000
Add: Profit on Future Contracts	€ 8438
	€ 4008438

Sterling Receipts

On sale of € at spot $= \dfrac{€4008438}{1.1785} = €3401305$

(ii) Proposal of option (c) is preferable because the option (a) & (b) produces least receipts**.**

10. **Working Notes:**

(i) Computation of Forward Rates

End of Year	NC	NC/₹
1	$NC1.60 \times \left(\dfrac{(1+0.09)}{(1+0.08)} \right)$	1.615
2	$NC1.615 \times \left(\dfrac{(1+0.09)}{(1+0.08)} \right)$	1.630
3	$NC1.630 \times \left(\dfrac{(1+0.09)}{(1+0.08)} \right)$	1.645

(ii) NC Cash Flows converted in Indian Rupees

Year	NC (Million)	Conversion Rate	₹ (Million)
0	-25.00	1.600	-15.625
1	2.60	1.615	1.61
2	3.80	1.630	2.33
3	4.10	1.645	2.49

Net Present Value

(₹ Million)

Year	Cash Flow in India	Cash Flow in Nepal	Total	PVF @ 9%	PV
0	---	-15.625	-15.625	1.000	-15.625
1	2.869	1.61	4.479	0.917	4.107

2	4.200	2.33	6.53	0.842	5.498
3	4.600	2.49	7.09	0.772	5.473
					-0.547

Modified Internal Rate of Return

	Year			
	0	**1**	**2**	**3**
Cash Flow (₹ Million)	-15.625	4.479	6.53	7.09
Year 1 Cash Inflow reinvested for 2 years (1.188 x 4.479)				5.32
Year 2 Cash Inflow reinvested for 1 years (1.090 x 6.53)				7.12
				19.53

$$\text{MIRR} = \sqrt[n]{\frac{\text{Terminal Cash Flow}}{\text{Initial Outlay}}} - 1 = \sqrt[3]{\frac{19.53}{15.625}} - 1 = 0.0772 \text{ say } 7.72\%$$

11.

Opportunity gain of A Inc under currency swap	Receipt	Payment	Net
Interest to be remitted to B. Inc in $ 2,00,000x9%=$18,000 Converted into ($18,000 x ¥120)		¥21,60,000	
Interest to be received from B. Inc in $ converted into ¥ (6%x$2,00,000 x ¥120)	¥14,40,000	-	
Interest payable on ¥ loan	-	¥12,00,000	
	¥14,40,000	¥33,60,000	
Net Payment	¥19,20,000	-	
	¥33,60,000	¥33,60,000	
$ equivalent paid ¥19,20,000 x(1/¥120)			$16,000
Interest payable without swap in $			$18,000
Opportunity gain in $			$ 2,000

Opportunity gain of B Inc under currency swap	Receipt	Payment	Net
Interest to be remitted to A Inc in ($ 2,00,000 x 6%)		$12,000	

Interest to be received from A. Inc in ¥ converted into $ =¥21,60,000/¥120	$18,000		
Interest payable on $ loan@10%	-	$20,000	
	$18,000	$32,000	
Net Payment	$14,000	-	
	$32,000	$32,000	
¥ equivalent paid $14,000 X ¥120			¥16,80,000
Interest payable without swap in ¥ ($2,00,000X¥120X8%)			¥19,20,000
Opportunity gain in ¥			¥ 2,40,000

Alternative Solution

Cash Flows of A Inc

(i) At the time of exchange of principal amount

Transactions		Cash Flows
Borrowings	$2,00,000 x ¥120	+ ¥240,00,000
Swap		- ¥240,00,000
Swap		+$2,00,000
Net Amount		+$2,00,000

(ii) At the time of exchange of interest amount

Transactions		Cash Flows
Interest to the lender	¥240,00,000X5%	¥12,00,000
Interest Receipt from B Inc.	¥2,00,000X120X6%	¥14,40,000
Net Saving (in $)	¥2,40,000/¥120	$2,000
Interest to B Inc.	$2,00,000X9%	-$18,000
Net Interest Cost		-$16,000

A Inc. used $2,00,000 at the net cost of borrowing of $16,000 i.e. 8%. If it had not opted for swap agreement the borrowing cost would have been 9%. Thus there is saving of 1%.

Cash Flows of B Inc

(i) At the time of exchange of principal amount

Transactions		Cash Flows
Borrowings		+ $2,00,000
Swap		- $2,00,000

Swap	$2,00,000X¥120	+¥240,00,000
Net Amount		+¥240,00,000

(ii) At the time of exchange of interest amount

Transactions		Cash Flows
Interest to the lender	$2,00,000X10%	- $20,000
Interest Receipt from A Inc.		+$18,000
Net Saving (in ¥)	-$2,000X¥120	- ¥2,40,000
Interest to A Inc.	$2,00,000X6%X¥120	- ¥14,40,000
Net Interest Cost		- ¥16,80,000

B Inc. used ¥240,00,000 at the net cost of borrowing of ¥16,80,000 i.e. 7%. If it had not opted for swap agreement the borrowing cost would have been 8%. Thus there is saving of 1%.

12.

Projected Balance Sheet				
	Year 1	Year 2	Year 3	Year 4
Fixed Assets (40% of Sales)	9,600	11,520	13,824	13,824
Current Assets (20% of Sales)	4,800	5,760	6,912	6,912
Total Assets	14,400	17,280	20,736	20,736
Equity	14,400	17,280	20,736	20,736

Projected Cash Flows:-

	Year 1	Year 2	Year 3	Year 4
Sales	24,000	28,800	34,560	34,560
PBT (10% of sale)	2,400	2,880	3,456	3,456
PAT (70%)	1,680	2,016	2,419.20	2,419.20
Depreciation	800	960	1,152	1,382
Addition to Fixed Assets	2,400	2,880	3,456	1,382
Increase in Current Assets	800	960	1,152	-
Operating cash flow (FCFF)	(720)	(864)	(1,036.80)	2,419.20

Projected Cash Flows:-

Present value of Projected Cash Flows:-

Cash Flows	PVF at 15%	PV
-720	0.870	-626.40

-864	0.756	-653.18
-1,036.80	0.658	-682.21
		-1,961.79

Residual Value	-	2419.20/0.15 = 16,128	
Present value of Residual value	=	16128/(1.15)^3	
	=	16128/1.521 = 10603.55	
Total shareholders' value	=	10,603.55 – 1,961.79 =	8,641.76
Pre strategy value	=	1,400 / 0.15 = 9,333.33	
∴ Value of strategy	=	8,641.76 – 9,333.33 =	– 691.57

Conclusion: The strategy is not financially viable.

13. (a)   Swap Ratio

	Abhiman Ltd.	Abhishek Ltd.
Share Capital	200 Lakh	100 Lakh
Free Reserves	800 Lakh	500 Lakh
Total	1000 Lakh	600 Lakh
No. of Shares	2 Lakh	10 Lakh
Book Value per share	₹ 500	₹ 60
Promoter's holding	50%	60%
Non promoter's holding	50%	40%
Free Float Market Cap. i.e. relating to Public's holding	400 Lakh	128 Lakh
Hence Total market Cap.	800 Lakh	320 Lakh
No. of Shares	2 Lakh	10 Lakh
Market Price	₹ 400	₹ 32
P/E Ratio	10	4
EPS	40	8
Profits (₹ 2 X 40 lakh)	₹ 80 lakh	-
(₹ 8 X 10 lakh)	-	₹ 80 lakh

Calculation of Swap Ratio

Book Value   1 : 0.12 i.e.   0.12 x 25%   0.03

EPS	1 : 0.2	0.20 x 50%	0.10
Market Price	1 : 0.08	0.08 x 25%	0.02
		Total	0.15

Swap ratio is for every one share of Abhishek Ltd., to issue 0.15 shares of Abhiman Ltd. Hence total no. of shares to be issued

= 10 Lakh x 0.15 = 1.50 lakh shares

(b) Book Value, EPS & Market Price

Total No of Shares   2 Lakh + 1.5 Lakh = 3.5 Lakh

Total Capital   ₹ 200 Lakh + ₹ 150 Lakh = ₹ 350 Lakh

Reserves   ₹ 800 Lakh + ₹ 450 Lakh = ₹ 1,250 Lakh

Book Value $\dfrac{₹ 350 \text{ Lakh} + ₹ 1,250 \text{ Lakh}}{3.5 \text{ Lakh}}$ = ₹ 457.14 per share

EPS $\dfrac{\text{Total Profit}}{\text{No. of Share}}$ = $\dfrac{₹ 80 \text{ Lakh} + ₹ 80 \text{ Lakh}}{3.5 \text{ Lakh}}$ = $\dfrac{₹ 160 \text{ Lakh}}{3.5}$ = ₹ 45.71

Expected Market Price EPS (₹ 45.71) x P/E Ratio (10) = ₹ 457.10

(c) (1) Promoter's holding

Promoter's Revised   Abhiman 50% i.e.   1.00 Lakh shares

Holding   Abhishek 60% i.e.   0.90 Lakh shares

    Total   1.90 Lakh shares

Promoter's % = 1.90/3.50 x 100 = 54.29%

(2) Free Float Market Capitalisation

Free Float Market   = (3.5 Lakh – 1.9 Lakh) x ₹ 457.10

Capitalisation   = ₹ 731.36 Lakh

(3) (i) & (ii)

Revised Capital   ₹ 350 Lakh + ₹ 175 Lakh = ₹ 525 Lakh

No. of shares before Split (F.V ₹ 100)   5.25 Lakh

No. of Shares after Split (F.V. ₹ 5)   5.25 x 20 = 105 Lakh

EPS   160 Lakh / 105 Lakh = 1.523

Book Value $\dfrac{\text{Cap. ₹ 525 Lakh} + ₹ 1075 \text{ Lakh}}{105 \text{ Lakh}}$

= ₹ 15.238 per share

14. (a) The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also. To take an illustration, let us refer to fuel industry where resources are limited in quantity and a judicial use of resources is needed to cater to the need of the future customers along with the need of the present customers. One may have noticed the save fuel campaign, a demarketing campaign that deviates from the usual approach of sales growth strategy and preaches for conservation of fuel for their use across generation. This is an example of stable growth strategy adopted by the oil industry as a whole under resource constraints and the long run objective of survival over years. Incremental growth strategy, profit strategy and pause strategy are other variants of stable growth strategy.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

(b) 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.

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.

(c) Some of the factors affecting economic analysis are discussed as under:

(i) **Growth Rates of National Income and Related Measures***:* For most purposes, what is important is the difference between the nominal growth rate quoted by GDP and the 'real' growth after taking inflation into account. The estimated growth rate of the economy would be a pointer to the prospects for the industrial sector, and therefore to the returns investors can expect from investment in shares.

(ii) **Growth Rates of Industrial Sector***:* This can be further broken down into growth rates of various industries or groups of industries if required. The growth rates in various industries are estimated based on the estimated demand for its products.

(iii) **Inflation***:* Inflation is measured in terms of either wholesale prices (the Wholesale Price Index or WPI) or retail prices (Consumer Price Index or CPI). The demand in some industries, particularly the consumer products industries, is significantly influenced by the inflation rate. Therefore, firms in these industries make continuous assessment about inflation rates likely to prevail in the near future so as to fine-tune their pricing, distribution and promotion policies to the anticipated impact of inflation on demand for their products.

(iv) **Monsoon:** Because of the strong forward and backward linkages, monsoon is of great concern to investors in the stock market too.

15. (a) The various steps in securitization mechanism are discussed as below:

Creation of Pool of Assets

The process of securitization begins with creation of pool of assets by segregation of assets backed by similar type of mortgages in terms of interest rate, risk, maturity and concentration units.

Transfer to SPV

One assets have been pooled, they are transferred to Special Purpose Vehicle (SPV) especially created for this purpose.

Sale of Securitized Papers

SPV designs the instruments based on nature of interest, risk, tenure etc. based on pool of assets. These instruments can be Pass Through Security or Pay Through Certificates, (discussed later).

Administration of assets

The administration of assets in subcontracted back to originator which collects principal and interest from underlying assets and transfer it to SPV, which works as a conduct.

Recourse to Originator

Performance of securitized papers depends on the performance of underlying assets and unless specified in case of default they go back to originator from SPV.

Repayment of funds

SPV will repay the funds in form of interest and principal that arises from the assets pooled.

Credit Rating to Instruments

Sometime before the sale of securitized instruments credit rating can be done to assess the risk of the issuer.

(b) Some of the innovative steps to finance a startup are as follows:

(i) **Personal financing.** It may not seem to be innovative but you may be surprised to note that most budding entrepreneurs never thought of saving any money to start a business. This is important because most of the investors will not put money into a deal if they see that you have not contributed any money from your personal sources.

(ii) **Personal credit lines.** One qualifies for personal credit line based on one's personal credit efforts. Credit cards are a good example of this. However, banks are very cautious while granting personal credit lines. They provide this facility only when the business has enough cash flow to repay the line of credit.

(iii) **Family and friends.** These are the people who generally believe in you, without even thinking that your idea works or not. However, the loan obligations to friends and relatives should always be in writing as a promissory note or otherwise.

(iv) **Peer-to-peer lending.** In this process group of people come together and lend money to each other. Peer to peer to lending has been there for many years. Many small and ethnic business groups having similar faith or interest generally support each other in their start up endeavors.

(v) **Crowdfunding**. Crowdfunding is the use of small amounts of capital from a large number of individuals to finance a new business initiative. Crowdfunding makes use of the easy accessibility of vast networks of people through social media and crowdfunding websites to bring investors and entrepreneurs together.

(vi) **Microloans.** Microloans are small loans that are given by individuals at a lower interest to a new business ventures. These loans can be issued by a single individual or aggregated across a number of individuals who each contribute a portion of the total amount.

(vii) **Vendor financing.** Vendor financing is the form of financing in which a company lends money to one of its customers so that he can buy products from the company itself. Vendor financing also takes place when many manufacturers and distributors are convinced to defer payment until the goods are sold. This means extending the payment terms to a longer period for e.g. 30 days payment period can be extended to 45 days or 60 days. However, this depends on one's credit worthiness and payment of more money.

(viii) **Purchase order financing.** The most common scaling problem faced by startups is the inability to find a large new order. The reason is that they don't have the necessary cash to produce and deliver the product. Purchase order financing companies often advance the required funds directly to the supplier. This allows the transaction to complete and profit to flow up to the new business.

(ix) **Factoring accounts receivables.** In this method, a facility is given to the seller who has sold the good on credit to fund his receivables till the amount is fully received. So, when the goods are sold on credit, and the credit period (i.e. the date upto which payment shall be made) is for example 6 months, factor will pay most of the sold amount up front and rest of the amount later. Therefore, in this way, a startup can meet his day to day expenses.

(c) The difference between Management Buy Outs and Leveraged Buy Outs has been discussed as below:

Management Buy Outs

Buyouts initiated by the management team of a company are known as a management buyout. In this type of acquisition, the company is bought by its own management team.

MBOs are considered as a useful strategy for exiting those divisions that does not form part of the core business of the entity.

Leveraged Buyout (LBO)

An acquisition of a company or a division of another company which is financed entirely or partially (50% or more) using borrowed funds is termed as a leveraged

buyout. The target company no longer remains public after the leveraged buyout; hence the transaction is also known as going private. The deal is usually secured by the acquired firm's physical assets.

The intention behind an LBO transaction is to improve the operational efficiency of a firm and increase the volume of its sales, thereby increasing the cash flow of the firm. This extra cash flow generated will be used to pay back the debt in LBO transaction. After an, LBO the target entity is managed by private investors, which makes it easier to have a close control of its operational activities. The LBOs do not stay permanent. Once the LBO is successful in increasing its profit margin and improving its operational efficiency and the debt is paid back, it will go public again. Companies that are in a leading market position with proven demand for product, have a strong management team, strong relationships with key customers and suppliers and steady growth are likely to become the target for LBOs. In India the first LBO took place in the year 2000 when Tata Tea acquired Tetley in the United Kingdom. The deal value was ₹ 2135 crores out of which almost 77% was financed by the company using debt. The intention behind this deal was to get direct access to Tetley's international market. The largest LBO deal in terms of deal value (7.6 Billion) by an Indian company is the buyout of Corus by Tata Steel.