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PAPER – 2 : STRATEGIC FINANCIAL MANAGEMENT

Question No.1 is compulsory.

Answer any five questions from the remaining six questions.

Working notes should form part of the answer.

Question 1

- (a) A Bank sold Hong Kong Dollars 40,00,000 value spot to its customer at ₹ 7.15 and covered itself in London Market on the same day, when the exchange rates were:

$$\text{US\$} = \text{HK\$} 7.9250 \quad 7.9290$$

Local interbank market rates for US\$ were

$$\text{Spot US\$ 1} = ₹ 55.00 \quad 55.20$$

You are required to calculate rate and ascertain the gain or loss in the transaction. Ignore brokerage.

You have to show the calculations for exchange rate up to four decimal points. (5 Marks)

- (b) ABC Limited is considering acquisition of DEF Ltd., which has 3.10 crore shares issued and outstanding. The market price per share is ₹ 440.00 at present. ABC Ltd.'s average cost of capital is 12%. The cash inflows of DEF Ltd. for the next three years are as under:

Year	₹ in crores
1	460.00
2	600.00
3	740.00

You are required to calculate the range of valuation that ABC Ltd. has to consider.

Take P.V.F. (12%, 3) = 0.893, 0.797, 0.712 (5 Marks)

- (c) Ramesh owns a plot of land on which he intends to construct apartment units for sale. No. of apartment units to be constructed may be either 10 or 15. Total construction costs for these alternatives are estimated to be ₹ 600 lakhs or ₹ 1025 lakhs respectively. Current market price for each apartment unit is ₹ 80 lakhs. The market price after a year for apartment units will depend upon the conditions of market. If the market is buoyant, each apartment unit will be sold for ₹ 91 lakhs, if it is sluggish, the sale price for the same will be ₹ 75 lakhs. Determine the current value of vacant plot of land. Should Ramesh start construction now or keep the land vacant? The yearly rental per apartment unit is ₹ 7 lakhs and the risk free interest rate is 10% p.a.

Assume that the construction cost will remain unchanged. (5 Marks)

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- (d) XYZ Limited borrows £ 15 Million of six months LIBOR + 10.00% for a period of 24 months. The company anticipates a rise in LIBOR, hence it proposes to buy a Cap Option from its Bankers at the strike rate of 8.00%. The lump sum premium is 1.00% for the entire reset periods and the fixed rate of interest is 7.00% per annum. The actual position of LIBOR during the forthcoming reset period is as under:

Reset Period	LIBOR
1	9.00%
2	9.50%
3	10.00%

You are required to show how far interest rate risk is hedged through Cap Option.

For calculation, work out figures at each stage up to four decimal points and amount nearest to £. It should be part of working notes. (5 Marks)

**Answer**

- (a) The bank (Dealer) covered itself by buying from the London market at market selling rate.

Rupee – US Dollar selling rate	= ₹ 55.20
US Dollar – Hong Kong Dollar	= HK \$ 7.9250
Rupee – Hong Kong cross rate (₹ 55.20 / 7.9250)	= ₹ 6.9653
Gain / Loss to the Bank	
Amount received from customer (HK\$ 40,00,000) × ₹ 7.15	₹ 2,86,00,000
Amount paid on cover deal (HK\$ 40,00,000 × ₹ 6.9653)	<u>₹ 2,78,61,200</u>
Gain to Bank	<u>₹ 7,38,800</u>

*Alternative Calculation*

Gain to bank = 40,00,000 (₹ 7.15 – ₹ 6.9653) = ₹ 7,38,800

- (b) *Valuation based on Market Price*

Market Price per share	₹ 440.00
Thus value of total business is (3.10 crore x ₹ 440)	₹ 1,364.00 Crore

*Valuation based on Discounted Cash Flow*

Present Value of cash flows	
(₹ 460 Crore x 0.893) + (₹ 600 Crore X 0.797) +	
(₹ 740 Crore X 0.712 ) =	₹ 1,415.86 Crore
Value of per share (₹ 1415.86 Crore / 3.10 Crore)	₹ 456.73 per share

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Range of valuation

	Per Share (₹)	Total (₹ Crore)
Minimum	440.00	1364.00
Maximum	456.73	1415.86

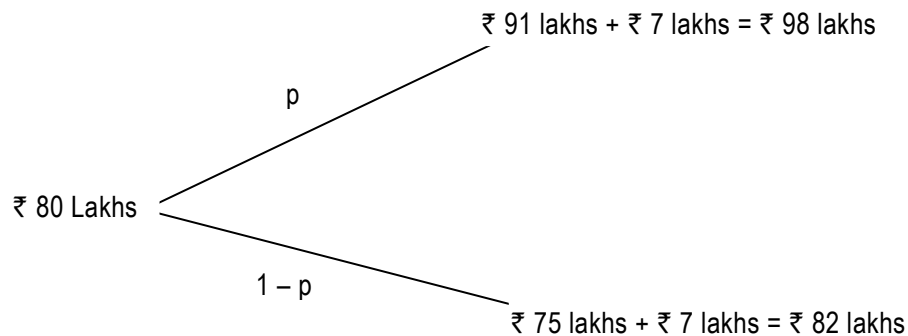
- (c) Presently 10 units apartments shall yield a profit of ₹ 200 lakh (₹ 800 lakhs – ₹ 600 lakhs) and 15 unit apartment will yield a profit of ₹ 175 lakh (₹ 1200 lakhs – ₹ 1025 lakhs). Thus 10 units apartment is the best alternative if Ramesh has to construct now.

However, Ramesh waits for 1 year his pay-off will be as follows:

	Market Conditions	
	Buoyant Market	Sluggish Market
10 units apartments	₹ 91 lakhs X 10 – ₹ 600 lakhs = ₹ 310 lakhs	₹ 75 lakhs X 10 – ₹ 600 lakhs = ₹ 150 lakhs
15 units apartments	₹ 91 lakhs X 15 – ₹ 1025 lakhs = ₹ 340 lakhs	₹ 75 lakhs X 15 – ₹ 1025 lakhs = ₹ 100 lakhs

Thus if market conditions turnout to be buoyant the best alternative is 15 units apartments and net pay-off will be ₹ 340 lakhs and if market turnout to be sluggish the best alternative is the 10 units apartments and net pay-off shall be ₹ 150 lakhs.

To determine the value of vacant plot we shall use Binomial Model (Risk Neutral Method) of option valuation as follows:



Alternatively student can calculate these values as follows (Sale Value + Rent):

If market is buoyant then possible outcome = ₹ 91 lakh + ₹ 7 lakh = ₹ 98 lakhs

If market is sluggish then possible outcome = ₹ 75 lakh + ₹ 7 lakh = ₹ 82 lakhs

Let  $p$  be the probability of buoyant condition then with the given risk-free rate of interest of 10% the following condition should be satisfied:

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$$₹ 80 \text{ lakhs} = \frac{[(p \times ₹ 98 \text{ lakhs}) + (1-p) \times ₹ 82 \text{ lakhs}]}{1.10}$$

$$p = \frac{3}{8} \text{ i.e. } 0.375$$

Thus  $1-p = 0.625$

Expected cash flow next year

$$0.375 \times ₹ 340 \text{ lakhs} + 0.625 \times ₹ 150 \text{ lakhs} = ₹ 221.25 \text{ lakhs}$$

Present Value of expected cash flow:

$$₹ 221.25 \text{ lakhs} (0.909) = ₹ 201.12 \text{ lakhs}$$

Thus the value of vacant plot is ₹ 201.12 lakhs

Since the current value of vacant land is more than profit from 10 units apartments now the land should be kept vacant.

(d) First of all we shall calculate premium payable to bank as follows:

$$P = \frac{rp}{\left[ (1+i)^t - \frac{1}{i} \right]} \times A$$

Where

P = Premium

A = Principal Amount

rp = Rate of Premium

i = Fixed Rate of Interest

t = Time

$$= \frac{0.01}{\left[ (1/0.035)^4 - \frac{1}{0.035 \times 1.035^4} \right]} \times ₹ 15,000,000$$

$$= \frac{0.01}{\left[ (28.5714) - \frac{1}{0.04016} \right]} \times ₹ 15,000,000$$

$$= \frac{0.01}{[3.671]} \times ₹ 15,000,000$$

$$= ₹ 40,861$$

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Please note above solution has been worked out on the basis of four decimal points at each stage.

Now we see the net payment received from bank

Reset Period	Additional interest due to rise in interest rate	Amount received from bank	Premium paid to bank	Net Amt. received from bank
1	£ 75,000	£ 75,000	£ 40,861	£34,139
2	£ 112,500	£ 112,500	£ 40,861	£71,639
3	£ 150,000	£ 150,000	£ 40,861	£109,139
TOTAL	£ 337,500	£ 337,500	£122,583	£ 214,917

Thus, from above it can be seen that interest rate risk amount of £ 337,500 reduced by £ 214,917 by using of Cap option.

Note: It may be possible that student may compute upto three decimal points or may use different basis. In such case their answer is likely to be different.

**Question 2**

- (a) XYZ Ltd. is planning to procure a machine at an investment of ₹ 40 lakhs. The expected cash flow after tax for next three years is as follows :

₹ (in lakh)

Year – 1		Year – 2		Year - 3	
CFAT	Probability	CFAT	Probability	CFAT	Probability
12	.1	12	.1	18	.2
15	.2	18	.3	20	.5
18	.4	30	.4	32	.2
32	.3	40	.2	45	.1

The Company wishes to consider all possible risks factors relating to the machine.

The Company wants to know:

- (i) the expected NPV of this proposal assuming independent probability distribution with 7% risk free rate of interest.
- (ii) the possible deviations on expected values. (8 Marks)
- (b) On January 1, 2013 an investor has a portfolio of 5 shares as given below:

Security	Price	No. of Shares	Beta
A	349.30	5,000	1.15

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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 2013.
- (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:  $\ln(1.105) = 0.0998$

$e^{(0.015858)} = 1.01598$

(8 Marks)

**Answer**

- (i) Expected NPV

(₹ in lakhs)

Year I			Year II			Year III		
CFAT	P	CF×P	CFAT	P	CF×P	CFAT	P	CF×P
12	0.1	1.2	12	0.1	1.2	18	0.2	3.6
15	0.2	3.0	18	0.3	5.4	20	0.5	10
18	0.4	7.2	30	0.4	12	32	0.2	6.4
32	0.3	<u>9.6</u>	40	0.2	<u>8</u>	45	0.1	<u>4.5</u>
	$\bar{x}$ or $\bar{CF}$	<u>21.</u>		$\bar{x}$ or $\bar{CF}$	<u>26.60</u>			$\bar{x}$ or $\bar{CF}$ <u>24.50</u>

NPV (₹ in lakhs)	PV factor @ 7%	Total PV (₹ in lakhs)
21	0.935	19.635
26.60	0.873	23.222

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24.50	0.816	<u>19.992</u>
	PV of cash inflow	62.849
	Less: Cash outflow	<u>40.000</u>
	NPV	<u>22.849</u>

(ii) Possible deviation in the expected value

Year I

$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	$P_1$	$(X - \bar{X})^2 P_1$
12 – 21	-9	81	0.1	8.10
15 – 21	-6	36	0.2	7.2
18 – 21	-3	9	0.4	3.6
32 – 21	11	121	0.3	<u>36.30</u>
				<u>55.20</u>

$$\sigma_1 = \sqrt{55.20} = 7.43$$

Year II

$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	$P_2$	$(X - \bar{X})^2 \times P_2$
12-26.60	-14.60	213.16	0.1	21.32
18-26.60	-8.60	73.96	0.3	22.19
30-26.60	3.40	11.56	0.4	4.62
40-26.60	13.40	179.56	0.2	<u>35.91</u>
				<u>84.04</u>

$$\sigma_2 = \sqrt{84.04} = 9.17$$

Year III

$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	$P_3$	$(X - \bar{X})^2 \times P_3$
18-24.50	-6.50	42.25	0.2	8.45
20-24.50	-4.50	20.25	0.5	10.13
32-24.50	7.50	56.25	0.2	11.25
45-24.50	20.50	420.25	0.1	<u>42.03</u>
				<u>71.86</u>

$$\sigma_3 = \sqrt{71.86} = 8.48$$

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Standard deviation about the expected value:

$$\sqrt{\frac{55.20}{(1.07)^2} + \frac{84.04}{(1.07)^4} + \frac{71.86}{(1.07)^6}} = 12.6574$$

(b) (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  $F = Se^{rt}$

$$F = ₹ 5,900e^{(0.0998)(0.1589)}$$

$$F = ₹ 5,900e^{0.015858}$$

$$F = ₹ 5,900 \times 1.01598 = ₹ 5,994.28$$

(iii) When total portfolio is to be hedged:

$$\begin{aligned}
 &= \frac{\text{Value of Spot Position requiring hedging}}{\text{Value of Future Contract}} \times \text{Portfolio Beta} \\
 &= \frac{1,88,54,860}{5994.28 \times 200} \times 0.849 = 13.35 \text{ contracts say 13 or 14 contracts}
 \end{aligned}$$

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

$$\text{Number of Contracts to be sold} = \frac{P(\beta_P - \beta'_P)}{F}$$

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

**Question 3**

(a) Mr. Suhail has invested in three Mutual Fund Schemes as given below:

Particulars	Scheme A	Scheme B	Scheme C
Date of investment	1-4-2011	1-5-2011	1-7-2011
Amount of Investment (₹)	12,00,000	4,00,000	2,50,000
Net Asset Value (NAV) at entry date (₹)	10.25	10.15	10.00
Dividend received up to 31-7-2011 (₹)	23,000	6,000	Nil
NAV as at 31-7-2011 (₹)	10.20	10.25	9.90

You are required to calculate the effective yield on per annum basis in respect of each of the three Schemes to Mr. Suhail up to 31-7-2011.

Take one year = 365 days.

Show calculations up to two decimal points. (10 Marks)

(b) ABC Limited has a capital of ₹ 10 lakhs in equity shares of ₹ 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of ₹ 15 per share at the end of the current financial year. The capitalisation rate for the risk class of which the company belongs is 10%.

What will be the market price of share at the end of the year, if

- (i) a dividend is declared ?
- (ii) a dividend is not declared ?
- (iii) assuming that the company pays the dividend and has net profits of ₹ 6,00,000 and makes new investment of ₹ 12,00,000 during the period, how many new shares should be issued? Use the MM model. (6 Marks)

**Answer**

(a)

Scheme	Investment	Unit Nos. (Investment/NAV at entry date)	Unit NAV 31.7.2011	Total NAV 31.7.2011 (Unit Nos. X Unit NAV as on 31.7.2011)
	₹		₹	₹
MF A	12,00,000	1,17,073.17	10.20	11,94,146.33
MF B	4,00,000	39,408.87	10.25	4,03,940.92
MF C	2,50,000	25,000	9.90	2,47,500.00

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Scheme	NAV (+) / (-) (NAV as on 31.7.2011 – Investment)	Dividend Received	Total Yield Change in NAV +Dividend	Number of days	Effective Yield (% p.a.) (Total Yield/ Investment) X (365/No. of days) X 100
	₹	₹	₹		
MF A	(-)5,853.67	23,000	17,146.33	122	4.275%
MF B	(+)3,940.92	6,000	9,940.92	92	9.86%
MF C	(-)2,500	Nil	(-)2,500	31	(-)11.77%

(b) As per MM model, the current market price of equity share is:

$$P_0 = \frac{1}{1+k_e} \times (D_1 + P_1)$$

(i) If the dividend is declared:

$$100 = \frac{1}{1+0.10} \times (15 + P_1)$$

$$100 = \frac{15 + P_1}{1.10}$$

$$110 = 15 + P_1$$

$$P_1 = 110 - 15 = ₹ 95$$

The market price of the equity share at the end of the year would be ₹ 95

(ii) If the dividend is not declared:

$$100 = \frac{1}{1+0.10} (0 + P_1)$$

$$100 = \frac{P_1}{1.10}$$

$$P_1 = ₹ 110$$

The Market price of the equity share at the end of the year would be ₹ 110.

(iii) In case the firm pays dividend of ₹ 15 per share out of total profits of ₹ 6,00,000 and plans to make new investment of ₹ 12,00,000, the number of shares to be issued may be found as follows:

Total Earnings	₹ 6,00,000
- Dividends paid	₹ 1,50,000

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Retained earnings	₹ 4,50,000
Total funds required	<u>₹ 12,00,000</u>
Fresh funds to be raised	<u>₹ 7,50,000</u>
Market price of the share	₹ 95
Number of shares to be issued (₹ 7,50,000 / Rs.95)	7,894.74

or, the firm would issue 7895 shares at the rate of ₹ 95

**Question 4**

- (a) X Limited, just declared a dividend of ₹ 14.00 per share. Mr. B is planning to purchase the share of X Limited, anticipating increase in growth rate from 8% to 9%, which will continue for three years. He also expects the market price of this share to be ₹ 360.00 after three years.

You are required to determine:

- the maximum amount Mr. B should pay for shares, if he requires a rate of return of 13% per annum. (4 Marks)
- the maximum price Mr. B will be willing to pay for share, if he is of the opinion that the 9% growth can be maintained indefinitely and require 13% rate of return per annum. (2 Marks)
- the price of share at the end of three years, if 9% growth rate is achieved and assuming other conditions remaining same as in (ii) above.

Calculate rupee amount up to two decimal points.

	Year-1	Year-2	Year-3	
FVIF @ 9%	1.090	1.188	1.295	
FVIF @ 13%	1.130	1.277	1.443	
PVIF @ 13%	0.885	0.783	0.693	(2 Marks)

- (b) On 1-4-2012 ABC Mutual Fund issued 20 lakh units at ₹ 10 per unit. Relevant initial expenses involved were ₹ 12 lakhs. It invested the fund so raised in capital market instruments to build a portfolio of ₹ 185 lakhs. During the month of April 2012 it disposed off some of the instruments costing ₹ 60 lakhs for ₹ 63 lakhs and used the proceeds in purchasing securities for ₹ 56 lakhs. Fund management expenses for the month of April 2012 was ₹ 8 lakhs of which 10% was in arrears. In April 2012 the fund earned dividends amounting to ₹ 2 lakhs and it distributed 80% of the realized earnings. On 30-4-2012 the market value of the portfolio was ₹ 198 lakhs.

Mr. Akash, an investor, subscribed to 100 units on 1-4-2012 and disposed off the same at closing NAV on 30-4-2012. What was his annual rate of earning? (8 Marks)

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**Answer**

(a) (i) Expected dividend for next 3 years.

Year 1 (D<sub>1</sub>)    ₹ 14.00 (1.09) = ₹ 15.26

Year 2 (D<sub>2</sub>)    ₹ 14.00 (1.09)<sup>2</sup> = ₹ 16.63

Year 3 (D<sub>3</sub>)    ₹ 14.00 (1.09)<sup>3</sup> = ₹ 18.13

Required rate of return = 13% (K<sub>e</sub>)

Market price of share after 3 years = (P<sub>3</sub>) = ₹ 360

The present value of share

$$P_0 = \frac{D_1}{(1 + k_e)} + \frac{D_2}{(1 + k_e)^2} + \frac{D_3}{(1 + k_e)^3} + \frac{P_3}{(1 + k_e)^3}$$

$$P_0 = \frac{15.26}{(1 + 0.13)} + \frac{16.63}{(1 + 0.13)^2} + \frac{18.13}{(1 + 0.13)^3} + \frac{360}{(1 + 0.13)^3}$$

$$P_0 = 15.26(0.885) + 16.63(0.783) + 18.13(0.693) + 360(0.693)$$

$$P_0 = 13.50 + 13.02 + 12.56 + 249.48$$

$$P_0 = ₹ 288.56$$

(ii) If growth rate 9% is achieved for indefinite period, then maximum price of share should Mr. A willing be to pay is

$$P_0 = \frac{D_1}{(k_e - g)} = \frac{₹ 15.26}{0.13 - 0.09} = \frac{₹ 15.26}{0.04} = ₹ 381.50$$

(iii) Assuming that conditions mentioned above remain same, the price expected after 3 years will be:

$$P_3 = \frac{D_4}{k_e - g} = \frac{D_3(1.09)}{0.13 - 0.09} = \frac{18.13 \times 1.09}{0.04} = \frac{19.76}{0.04} = ₹ 494$$

(b)

	Amount in ₹ lakhs	Amount in ₹ lakhs	Amount in ₹ lakhs
Opening Bank (200 - 185 - 12)	3.00		
Add: Proceeds from sale of securities	63.00		
Add: Dividend received	<u>2.00</u>	68.00	
Deduct:			
Cost of securities purchased	56.00		

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Fund management expenses paid (90% of 8)	7.20		
Capital gains distributed = 80% of (63 – 60)	2.40		
Dividend distributed =80% of 2.00	<u>1.60</u>	<u>67.20</u>	
Closing Bank			0.80
Closing market value of portfolio			<u>198.00</u>
			198.80
Less: Arrears of expenses			<u>0.80</u>
Closing Net Assets			198.00
Number of units (Lakhs)			<u>20</u>
Closing NAV per unit			9.90

Rate of Earning (Per Unit)

	Amount
Income received (₹ 2.40 + ₹ 1.60)/20	₹ 0.20
Loss: Loss on disposal (₹ 200 - Rs.198)/20	<u>₹ 0.10</u>
Net earning	<u>₹ 0.10</u>
Initial investment	₹ 10.00
Rate of earning (monthly)	1%
Rate of earning (Annual)	12%

Question 5

- (a) M/s. Earth Limited has 11% bond worth of ₹ 2 crores outstanding with 10 years remaining to maturity.

The company is contemplating the issue of a ₹ 2 crores 10 year bond carrying the coupon rate of 9% and use the proceeds to liquidate the old bonds.

The unamortized portion of issue cost on the old bonds is ₹ 3 lakhs which can be written off no sooner the old bonds are called. The company is paying 30% tax and it's after tax cost of debt is 7%. Should Earth Limited liquidate the old bonds?

You may assume that the issue cost of the new bonds will be ₹ 2.5 lakhs and the call premium is 5%. (6 Marks)

- (b) XY Limited is engaged in large retail business in India. It is contemplating for expansion into a country of Africa by acquiring a group of stores having the same line of operation as that of India.

The exchange rate for the currency of the proposed African country is extremely volatile. Rate of inflation is presently 40% a year. Inflation in India is currently 10% a year.

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Management of XY Limited expects these rates likely to continue for the foreseeable future.

Estimated projected cash flows, in real terms, in India as well as African country for the first three years of the project are as follows:

	Year - 0	Year - 1	Year - 2	Year - 3
Cashflows in Indian ₹ (000)	-50,000	-1,500	-2,000	-2,500
Cash flows in African Rands (000)	-2,00,000	+50,000	+70,000	+90,000

XY Ltd. assumes the year 3 nominal cash flows will continue to be earned each year indefinitely. It evaluates all investments using nominal cash flows and a nominal discounting rate. The present exchange rate is African Rand 6 to ₹ 1.

You are required to calculate the net present value of the proposed investment considering the following:

- (i) African Rand cash flows are converted into rupees and discounted at a risk adjusted rate.
- (ii) All cash flows for these projects will be discounted at a rate of 20% to reflect it's high risk.
- (iii) Ignore taxation.

	Year - 1	Year - 2	Year - 3	
PVIF @ 20%	.833	.694	.579	(10 Marks)

**Answer**

(a)	1.	Calculation of initial outlay:-	₹ (lakhs)
	a.	Face value	200.00
		Add:-Call premium	<u>10.00</u>
		Cost of calling old bonds	<u>210.00</u>
	b.	Gross proceed of new issue	200.00
		Less: Issue costs	<u>2.50</u>
		Net proceeds of new issue	<u>197.50</u>
	c.	Tax savings on call premium and unamortized cost 0.30 (10 + 3)	₹ 3.90 lakhs
		∴ Initial outlay = ₹ 210 lakhs – ₹ 197.50 lakhs – ₹ 3.90 lakhs = ₹ 8.60 lakhs	

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2. Calculation of net present value of refunding the bond:-

Saving in annual interest expenses	₹ (lakhs)
[₹ 200 x (0.11 – 0.09)]	4.000
Less:-Tax saving on interest and amortization 0.30 x [4+(3-2.5)/10]	<u>1.215</u>
Annual net cash saving	<u>2.785</u>
PVIFA (7%, 10 years)	7.024
∴ Present value of net annual cash saving	₹ 19.56 lakhs
Less:- Initial outlay	<u>₹ 8.60 lakhs</u>
Net present value of refunding the bond	<u>₹ 10.96 lakhs</u>
Decision: The bonds should be refunded	

(b) Calculation of NPV

Year	0	1	2	3
Inflation factor in India	1.00	1.10	1.21	1.331
Inflation factor in Africa	1.00	1.40	1.96	2.744
Exchange Rate (as per IRP)	6.00	7.6364	9.7190	12.3696
Cash Flows in ₹ '000				
Real	-50000	-1500	-2000	-2500
Nominal (1)	-50000	-1650	-2420	-3327.50
Cash Flows in African Rand '000				
Real	-200000	50000	70000	90000
Nominal	-200000	70000	137200	246960
In Indian ₹ '000 (2)	-33333	9167	14117	19965
Net Cash Flow in ₹ '000 (1)+(2)	-83333	7517	11697	16637
PVF@20%	1	0.833	0.694	0.579
PV	-83333	6262	8118	9633

NPV of 3 years = -59320 (₹ '000)

NPV of Terminal Value =  $\frac{16637}{0.20} \times 0.579 = 48164$  (₹ '000)

Total NPV of the Project = -59320 (₹ '000) + 48164 (₹ '000) = -11156 (₹ '000)

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**Question 6**

- (a) *Longitude Limited is in the process of acquiring Latitude Limited on a share exchange basis. Following relevant data are available:*

		Longitude Limited	Latitude Limited
Profit after Tax (PAT)	₹ in Lakhs	140	60
Number of Shares	Lakhs	15	16
Earning per Share (EPS)	₹	8	5
Price Earnings Ratio (P/E Ratio) (Ignore Synergy)		15	10

*You are required to determine:*

- (i) *Pre-merger Market Value per Share, and*  
 (ii) *The maximum exchange ratio Longitude Limited can offer without the dilution of*  
 (1) *EPS and*  
 (2) *Market Value per Share*

*Calculate Ratio/s up to four decimal points and amounts and number of shares up to two decimal points. (8 Marks)*

- (b) *M/s. Parker & Co. is contemplating to borrow an amount of ₹ 60 crores for a period of 3 months in the coming 6 month's time from now. The current rate of interest is 9% p.a., but it may go up in 6 month's time. The company wants to hedge itself against the likely increase in interest rate.*

*The Company's Bankers quoted an FRA (Forward Rate Agreement) at 9.30% p.a.*

*What will be the effect of FRA and actual rate of interest cost to the company, if the actual rate of interest after 6 months happens to be (i) 9.60% p.a. and (ii) 8.80% p.a.?*

*(8 Marks)*

**Answer**

- (a) (i) Pre Merger Market Value of Per Share  
 P/E Ratio X EPS  
 Longitude Ltd. ₹ 8 X 15 = ₹ 120.00  
 Latitude Ltd. ₹ 5 X 10 = ₹ 50.00

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(ii) (1) Maximum exchange ratio without dilution of EPS

Pre Merger PAT of Longitude Ltd.	₹ 140 Lakhs
Pre Merger PAT of Latitude Ltd.	₹ 60 Lakhs
Combined PAT	₹ 200 Lakhs
Longitude Ltd. 's EPS	₹ 8
Maximum number of shares of Longitude after merger (₹ 200 lakhs/₹ 8)	25 Lakhs
Existing number of shares	15 Lakhs
Maximum number of shares to be exchanged	10 Lakhs

Maximum share exchange ratio 10:16 or 5:8

(2) Maximum exchange ratio without dilution of Market Price Per Share

Pre Merger Market Capitalization of Longitude Ltd. (₹ 120 × 15 Lakhs)	₹ 1800 Lakhs
Pre Merger Market Capitalization of Latitude Ltd. (₹ 50 × 16 Lakhs)	₹ 800 Lakhs
Combined Market Capitalization	₹ 2600 Lakhs
Current Market Price of share of Longitude Ltd.	₹ 120
Maximum number of shares to be exchanged of Longitude (surviving company )(₹ 2600 Lakhs/₹ 120)	21.67 Lakhs
Current Number of Shares of Longitude Ltd.	15.00 Lakhs
Maximum number of shares to be exchanged (Lakhs)	6.67 Lakhs

Maximum share exchange ratio 6.67:16 or 0.4169:1

Note: Since in the question figures given of PAT of both companies are not matching with figures of EPS X Number of Shares. Hence, if students computed PAT by using this formula then alternative answer shall be as follows:

(1) Maximum exchange ratio without dilution of EPS

Pre Merger PAT of Longitude Ltd.	₹ 120 Lakhs
Pre Merger PAT of Latitude Ltd.	₹ 80 Lakhs
Combined PAT	₹ 200 Lakhs
Longitude Ltd. 's EPS	₹ 8
Maximum number of shares of Longitude after merger (₹ 200 lakhs/₹ 8)	25 Lakhs
Existing number of shares	15 Lakhs
Maximum number of shares to be exchanged	10 Lakhs

Maximum share exchange ratio 10:16 or 5:8

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(2) Maximum exchange ratio without dilution of Market Price Per Share

Pre Merger Market Capitalization of Longitude Ltd. (₹ 120 × 15 Lakhs)	₹ 1800 Lakhs
Pre Merger Market Capitalization of Latitude Ltd. (₹ 50 × 16 Lakhs)	₹ 800 Lakhs
Combined Market Capitalization	₹ 2600 Lakhs
Current Market Price of share of Longitude Ltd.	₹ 120
Maximum number of shares to be exchanged of Longitude (surviving company )(₹ 2600 Lakhs/₹ 120)	21.67 Lakhs
Current Number of Shares of Longitude Ltd.	15.00 Lakhs
Maximum number of shares to be exchanged (Lakhs)	6.67 Lakhs

Maximum share exchange ratio 6.67:16 or 0.4169:1

(b) Final settlement amount shall be computed by using formula:

$$= \frac{(N)(RR - FR)(dtm/DY)}{[1 + RR(dt/DY)]}$$

Where,

N = the notional principal amount of the agreement;

RR = Reference Rate for the maturity specified by the contract prevailing on the contract settlement date;

FR = Agreed-upon Forward Rate; and

dtm = maturity of the forward rate, specified in days (FRA Days)

DY = Day count basis applicable to money market transactions which could be 360 or 365 days.

Accordingly,

If actual rate of interest after 6 months happens to be 9.60%

$$= \frac{(\text{₹ } 60 \text{ crore})(0.096 - 0.093)(3/12)}{[1 + 0.096(3/12)]}$$

$$= \frac{(\text{₹ } 60 \text{ crore})(0.00075)}{1.024} = \text{₹ } 4,39,453$$

Thus banker will pay Parker & Co. a sum of ₹ 4,39,453

If actual rate of interest after 6 months happens to be 8.80%

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$$= \frac{(\text{₹}60\text{crore})(0.088-0.093)(3/12)}{[1 + 0.088(3/12)]}$$
$$= \frac{(\text{₹}60\text{crore})(-0.00125)}{1.022} = - \text{₹} 7,33,855$$

Thus Parker & Co. will pay banker a sum of ₹ 7,33,855

Note: It might be possible that students may solve the question on basis of days instead of months (as considered in above calculations). Further there may be also possibility that the FRA days and Day Count convention may be taken in various plausible combinations such as 90 days/360 days, 90 days/ 365 days, 91 days/360 days or 91 days/365days.

#### Question 7

Write short notes on any **four** of the following:

- (a) Credit Rating
- (b) Asset Securitization
- (c) Call Money
- (d) Euro Convertible Bonds
- (e) Financial Restructuring (4 x 4 =16 Marks)

#### Answer

- (a) Credit rating: Credit rating is a symbolic indication of the current opinion regarding the relative capability of a corporate entity to service its debt obligations in time with reference to the instrument being rated. It enables the investor to differentiate between instruments on the basis of their underlying credit quality. To facilitate simple and easy understanding, credit rating is expressed in alphabetical or alphanumerical symbols.

Thus Credit Rating is:

- 1) An expression of opinion of a rating agency.
- 2) The opinion is in regard to a debt instrument.
- 3) The opinion is as on a specific date.
- 4) The opinion is dependent on risk evaluation.
- 5) The opinion depends on the probability of interest and principal obligations being met timely.

Credit rating aims to

- (i) provide superior information to the investors at a low cost;
- (ii) provide a sound basis for proper risk-return structure;

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- (iii) subject borrowers to a healthy discipline and
- (iv) assist in the framing of public policy guidelines on institutional investment.

In India the rating coverage is of fairly recent origin, beginning 1988 when the first rating agency CRISIL was established. At present there are few other rating agencies like:

- (i) Credit Rating Information Services of India Ltd. (CRISIL).
  - (ii) Investment Information and Credit Rating Agency of India (ICRA).
  - (iii) Credit Analysis and Research Limited (CARE).
  - (iv) Duff & Phelps Credit Rating India Pvt. Ltd. (DCRI)
  - (v) ONICRA Credit Rating Agency of India Ltd.
  - (vi) Fitch Ratings India (P) Ltd.
- (b) **Asset Securitisation:** It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this assets pool market securities can be issued. The process can be classified in the following three functions.
1. *The origination function:* A borrower seeks a loan from finance company, bank or housing company. On the basis of credit worthiness repayment schedule is structured over the life of the loan.
  2. *The pooling function:* Similar loans or receivables are clubbed together to create an underlying pool of assets. This pool is transferred in favour of a SPV (Special Purpose Vehicle), which acts as a trustee for the investor. Once, the assets are transferred they are held in the organizers portfolios.
  3. *The securitisation function:* It is the SPV's job to structure and issue the securities on the basis of asset pool. The securities carry coupon and an expected maturity, which can be asset based or mortgage based. These are generally sold to investors through merchant bankers. The investors interested in this type of securities are generally institutional investors like mutual fund, insurance companies etc. The originator usually keeps the spread.

Generally, the process of securitisation is without recourse i.e. the investor bears the credit risk of default and the issuer is under an obligation to pay to investors only if the cash flows are received by issuer from the collateral.

- (c) **Call Money:** The Call Money is a part of the money market where, day to day surplus funds, mostly of banks, are traded. Moreover, the call money market is most liquid of all short-term money market segments.

The maturity period of call loans vary from 1 to 14 days. The money that is lent for one day in call money market is also known as 'overnight money'. The interest paid on call loans are known as the call rates. The call rate is expected to freely reflect the day-to-

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day lack of funds. These rates vary from day-to-day and within the day, often from hour-to-hour. High rates indicate the tightness of liquidity in the financial system while low rates indicate an easy liquidity position in the market.

In India, call money is lent mainly to even out the short-term mismatches of assets and liabilities and to meet CRR requirement of banks. The short-term mismatches arise due to variation in maturities i.e. the deposits mobilized are deployed by the bank at a longer maturity to earn more returns and duration of withdrawal of deposits by customers vary. Thus, the banks borrow from call money markets to meet short-term maturity mismatches.

Moreover, the banks borrow from call money market to meet the cash Reserve Ratio (CRR) requirements that they should maintain with RBI every fortnight and is computed as a percentage of Net Demand and Time Liabilities (NDTL).

- (d) Euro Convertible Bonds: They are bonds issued by Indian companies in foreign market with the option to convert them into pre-determined number of equity shares of the company. Usually price of equity shares at the time of conversion will fetch premium. The Bonds carry fixed rate of interest.

The issue of bonds may carry two options:

*Call option:* Under this the issuer can call the bonds for redemption before the date of maturity. Where the issuer's share price has appreciated substantially, i.e., far in excess of the redemption value of bonds, the issuer company can exercise the option. This call option forces the investors to convert the bonds into equity. Usually, such a case arises when the share prices reach a stage near 130% to 150% of the conversion price.

*Put option:* It enables the buyer of the bond a right to sell his bonds to the issuer company at a pre-determined price and date. The payment of interest and the redemption of the bonds will be made by the issuer-company in US dollars.

- (e) Financial restructuring: It is carried out internally in the firm with the consent of its various stakeholders. Financial restructuring is a suitable mode of restructuring of corporate firms that have incurred accumulated sizable losses for / over a number of years. As a sequel, the share capital of such firms, in many cases, gets substantially eroded / lost; in fact, in some cases, accumulated losses over the years may be more than share capital, causing negative net worth. Given such a dismal state of financial affairs, a vast majority of such firms are likely to have a dubious potential for liquidation. Can some of these Firms be revived? Financial restructuring is one such a measure for the revival of only those firms that hold promise/prospects for better financial performance in the years to come. To achieve the desired objective, 'such firms warrant / merit a restart with a fresh balance sheet, which does not contain past accumulated losses and fictitious assets and shows share capital at its real/true worth.

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