PAPER-2 : STRATEGIC FINANCIAL MANAGEMENT

*Question No. **1** is compulsory.*

*Candidates are also required to answer any **four** questions from the remaining **five** questions*

Working notes should form part of the respective answer

Question 1

(a) M/s KPMS Ltd. wants to purchase M/s. BRB Ltd., by exchanging 0.7 of its share for each share of M/s BRB Ltd., relevant financial data are as follows:

	M/s KPMS Ltd.	M/s BRB Ltd.
Equity shares outstanding	20,00,000	8,00,000
EPS (₹)	40	28
Market price per Share (₹)	250	160

(i) Illustrate the impact of merger on EPS of both companies

(ii) The management of M/s. BRB Ltd., has quoted share exchange ratio of 1:1 for the merger. Assuming that P/E ratio of M/s. KPMS Ltd. will remain unchanged after the merger, what will be gain from merger for M/s. BRB Ltd.?

(iii) Find out the gain/loss to the shareholders of M/s. KPMS Ltd. if the exchange ratio is 1:1?

(iv) Determine the maximum exchange ratio acceptable to shareholders of M/s/ KPMS Ltd. ***(8 Marks)***

(b) Following are the details of closed ended equity schemes of two mutual funds as on 31/08/2021:

Particulars	AJ Mutual Fund	RP Mutual Fund
NAV (p.u.)	₹ 80 (consisting 95% equity & remaining cash balance)	₹ 61(consisting ₹ 60 equity & remaining cash balance)
Sharpe Ratio	1.5	3
Treynor Ratio	1.2	10
Standard Deviation	10	6

There is no change in portfolios during the September month.

Monthly cost is ₹ 0.50 per unit for each mutual fund scheme.

Share market rose by 2% in the month of September.

You are required to calculate Expected NAV p.u. as on 30/09/2021 for both the schemes.

(8 Marks)

(c) What is the mode of financing is called in Startups, when a person attempts to found & build a company from personal finances or from the operating revenues of a new company. Explain briefly the methods of this mode. ***(4 Marks)***

Answer

(a) Working Notes:

(1) Market Price Per Share

	KPMS Ltd.	***BRB Ltd.***
Equity shares outstanding (Nos.)	20,00,000	8,00,000
EPS	₹ 40	₹ 28
Profit	₹ 800,00,000	₹ 224,00,000
P/E Ratio	6.25	5.71
Market price per share	₹ 250	₹ 160

(2) EPS after merger

No. of shares to be issued (8,00,000 x 0.70)	5,60,000
Exiting Equity shares outstanding	20,00,000
Equity shares outstanding after merger	25,60,000
Total Profit (₹ 800,00,000 + ₹ 224,00,000)	₹ 1024,00,000
EPS	₹ 40

(i) Impact of merger on EPS of both the companies

	KPMS Ltd.	***BRB Ltd.***
EPS after Merger	₹ 40	₹ 28
EPS before Merger	₹ 40	(₹40 x 0.70) = ₹ 28
	Nil	Nil

(ii) Gain from the Merger if exchange ratio is 1 : 1

No. of shares to be issued	8,00,000
Exiting Equity shares outstanding	20,00,000
Equity shares outstanding after merger	28,00,000
Total Profit (₹ 800,00,000 + ₹ 224,00,000)	₹ 1024,00,000
EPS	₹ 36.57
Market Price of Share (₹ 36.57 x 6.25)	₹ 228.56
Market Price of Share before Merger	₹ 160.00
Impact (Increase/ Gain)	₹ 68.56

(iii) Gain/ loss from the Merger to the shareholders of KPMS Ltd.

Market Price of Share	₹ 228.56
Market Price of Share before Merger	₹ 250.00
Loss from the merger (per share)	₹ 21.44

(iv) Maximum Exchange Ratio acceptable to KPMS Ltd. shareholders

	₹ Lakhs
Market Value of Merged Entity (₹ 228.56 x 2800000)	6,399.68
Less: Value acceptable to shareholders of KPMS Ltd.	5,000.00
Value of merged entity available to shareholders of BRB Ltd.	1,399.68
Market Price Per Share	₹ 250
No. of shares to be issued to the shareholders of BRB Ltd. (lakhs)	₹ 5.60

Thus maximum ratio of issue shall be 5.60 : 8.00 or 0.70 share of KPMS Ltd. for one share of BRB Ltd.

Alternatively, it can also be computed as follows:

	₹ Lakhs
Earning after Merger (40 x 2000000 + 28 x 800000)	₹ 1,024
P/E Ratio of KPMS Ltd.	6.25
Market Value of Firm after Merger (1024 x 6.25)	₹ 6,400
Existing Value of Shareholders of KPMS Ltd.	₹ 5,000
Value of Merged entity available to Shareholders of BRB Ltd.	₹ 1,400
Market Price per Share	₹ 250
Total No. of shares to be issued	5.60

Thus, maximum acceptable ratio shall be 5.60 : 8.00 i.e. 0.70 share of KPMS Ltd. for one share of BRB Ltd.

(b) Working Notes:

(i) Decomposition of Funds in Equity and Cash Components

	AJ Mutual Fund	**RP Mutual Fund**
NAV on 31.08.21	₹ 80.00	₹ 61.00
% of Equity	95%	98.36%
Equity element in NAV	₹ 76.00	₹ 60.00
Cash element in NAV	₹ 4.00	₹ 1.00

(ii) Calculation of Beta

(a) **AJ Mutual Fund**

$$\text{Sharpe Ratio} = 1.5 = \frac{E(R) - R_f}{\sigma_{AJ}} = \frac{E(R) - R_f}{10}$$

$E(R) - R_f = 15$

$$\text{Treynor Ratio} = 12 = \frac{E(R) - R_f}{\beta_{AJ}} = \frac{15.00}{\beta_{AJ}}$$

$\beta_{AJ} = 15.00/12 = 1.25$

(b) **RP Mutual Fund**

$$\text{Sharpe Ratio} = 3 = \frac{E(R) - R_f}{\sigma_{RP}} = \frac{E(R) - R_f}{6}$$

$E(R) - R_f = 18$

$$\text{Treynor Ratio} = 10 = \frac{E(R) - R_f}{\beta_{RP}} = \frac{18}{\beta_{RP}}$$

$\beta_K = 18/10 = 1.80$

(iii) Increase in the Value of Equity

	AJ Mutual Fund	RP Mutual Fund
Market rose by	2.00%	2.00%
Beta	1.25	1.80
Equity component goes up	2.50%	3.60%

(iv) Balance of Cash after 1 month

	AJ Mutual Fund	RP Mutual Fund
Cash in Hand on 30.09.21	₹ 4.00	₹ 1.00
Less: Exp. Per month	₹ 0.50	₹ 0.50
Balance after 1 month	₹ 3.50	₹ 0.50

NAV after 1 month

	AJ Mutual Fund	RP Mutual Fund
Value of Equity after 1 month		
76 x (1 + 0.025)	₹ 77.90	-
60 x (1 + 0.036)	-	₹ 62.16

Cash Balance	₹ 3.50	₹ 0.50
NAV	₹ 81.40	₹ 62.66

(c) When a person attempts to found & build a company from personal finances or from the operating revenues of the new company is called 'Bootstrapping'.

Some of the methods of this mode are as follows:

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

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

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

Question 2

(a) Following is the information of M/s. DY Ltd. for the year ending 31/03/2021:

Particulars	
Sales	*₹ 1000 Lakh*
Operating Expenses Including Interest	*₹ 620 Lakh*
8% Debentures	*₹ 250 Lakh*
Equity Share Capital (Face value of ₹ 10 each)	*₹ 250 Lakh*
Reserves and Surplus	*₹ 250 Lakh*
Market Value of DY Ltd	*₹ 900 Lakh*
Corporate Tax Rate	*30%*
Risk free Rate of Return	*7%*
Market Rate of Return	*12%*
Equity Beta	1.4

You are required to-

i. Calculate Weighted Average Cost of Capital of DY Ltd.

ii. Calculate Economic Value Added

iii. Calculate Market Value Added ***(8 Marks)***

(b) On 31/08/2021 Mr. R has taken a Long position of Two lots of Nifty Futures at 17300.

One lot of Nifty future is 50 units.

Initial Margin required is 10% of Contract Value.

Maintenance Margin required is 80% of Initial Margin.

The closing price of 5 days are given below-

Date	*Closing Price of Nifty Future*
01/09/2021	*17340*
02/09/2021	*17180*
03/09/2021	*16990*
06/09/2021	*16900*
07/09/2021	*17120*

You are required to-

(i) Prepare a statement showing the daily balances in the margin account & payment on margin calls, if any.

(ii) Compute the Gain or Loss of Mr. R, if contract squared off on 07/09/2021.

(iii) What would be the Gain or Loss if Mr. R, had taken the short position? ***(8 Marks)***

(c) Which type of risk covers the default by the counterparty? List out the ways to manage this type of risk. ***(4 Marks)***

Answer

(a) (i) Weighted Average Cost of Capital of DY Ltd.

Cost of Equity as per CAPM

$k_e = R_f + \beta$ x Market Risk Premium

= 7% + 1.4 x [12% - 7%]

= 7% + 7% = 14%

Cost of Debt k_d = 8% (1 – 0.30) = 5.60%

$$\text{WACC } (k_o) \quad = k_e \times \frac{E}{E+D} + k_d \times \frac{D}{E+D} = 14.00 \times \frac{500}{750} + 5.60 \times \frac{250}{750}$$

= 9.33% + 1.87% = 11.20%

(ii) Economic Value Added (EVA) of DY Ltd.

		₹ Lakhs
Sales		₹ 1,000
Operating Expenses (excluding interest)	₹ 620	
	₹ 20	₹ 600
		₹ 400
Less: Tax @ 30%		₹ 120
Net Operating Profit after Tax (NOPAT)		₹ 280

Calculation of Capital Employed

	₹ Lakhs
Equity Share Capital	250
Reserves & Surplus	250
8% Debentures	250
Total Capital Employed	750

EVA = NOPAT – (WACC × Total Capital)

EVA = ₹ 280 Lakh – 0.1120 × ₹ 750 lakhs

EVA = 196.00 lakhs

(iii) Determination of Market Value Added (MVA)

	₹ Lakh
Market value of Equity Stock [₹ 900 Lakh - ₹ 250 Lakh]	650
Equity Fund [₹ 250 Lakh + ₹ 250 Lakh]	500
Market Value Added	150

Alternatively, it can also be computed as follows:

	₹ Lakh
Market value of DY Ltd.	900
Capital employed [₹ 250 Lakh + ₹ 250 Lakh + ₹ 250 Lakh]	750
Market Value Added	150

(b) (i) Contract Size (₹ 17,300 x 50 x 2) = ₹ 17,30,000
Initial Margin (10% of 17,30,000) = ₹ 1,73,000
Maintenance Margin (80% of 1,73,000) = ₹ 1,38,400
Statement showing the daily balances in Margin A/c and margin call if any,

Day	Change in Future value (₹)	Margin A/c (₹)	Call Money (₹)
31/08/21	-----	1,73,000	-----
01/09/21	(₹ 17,340 - ₹ 17,300) x 50 x 2 = 4,000	1,77,000	-----
02/09/21	(₹ 17,180 - ₹ 17,340) x 50 x 2 = -16,000	1,61,000	-----
03/09/21	(₹ 16,990 - ₹ 17,180) x 50 x 2 = - 19,000	1,42,000	-----
06/09/21	(₹ 16,900 - ₹ 16,990) x 50 x 2 = - 9,000	1,73,000	40,000
07/09/21	(₹ 17,120 - ₹ 16,900) x 50 x 2 = 22,000	1,95,000	-----

(ii) Gain or Loss of Mr. R squared off position on 07/09/21

	(₹)
Ending margin	1,95,000
Less: Initial Margin	1,73,000
Profit	22,000
Less: Margin Call	40,000
Net Loss	(18,000)

(iii) Gain/ Loss if Mr. R has taken Short Position

Day	Change in Future value (₹)	Margin A/c (₹)	Call Money (₹)
31/08/21	-----	1,73,000	-----
01/09/21	(₹ 17,300 - ₹ 17,340) x 50 x 2 = - 4,000	1,69,000	-----
02/09/21	(₹ 17,340 - ₹ 17,180) x 50 x 2 = 16,000	1,85,000	-----
03/09/21	(₹ 17,180 - ₹ 16,990) x 50 x 2 = 19,000	2,04,000	-----
06/09/21	(₹ 16,990 - ₹ 16,900) x 50 x 2 = 9,000	2,13,000	-----
07/09/21	(₹ 16,900 - ₹ 17,120) x 50 x 2 = - 22,000	1,91,000	-----

Profit or Loss on Short Position

	(₹)
Ending margin	1,91,000

Less: Initial Margin	1,73,000
Profit	18,000

(c) This risk occurs due to non-honoring of obligations by the counter party which can be failure to deliver the goods for the payment already made or vice-versa or repayment of borrowings and interest etc. Thus, this risk also covers the credit risk i.e. default by the counter party.

The various techniques to manage this type of risk are as follows:

(1) Carrying out Due Diligence before dealing with any third party.

(2) Do not over commit to a single entity or group or connected entities.

(3) Know your exposure limits.

(4) Review the limits and procedure for credit approval regularly.

(5) Rapid action in the event of any likelihood of defaults.

(6) Use of performance guarantee, insurance or other instruments.

Question 3

(a) On 01/04/2020 Mr. K Invested in the following companies to make his portfolio:

Name of Company	***No. of Equity Share Purchase***	***Face Value per Equity Share***	***Purchase Price per Equity Share***
PK Ltd.	*2000*	*₹ 10*	*₹ 210*
KD Ltd.	*1000*	*₹ 10*	*₹ 290*

Mr. K expects that-

(i) Dividend for the financial year 2020-21 of PK Ltd. & KD Ltd. will be 40% & 50% respectively.

(ii) Probabilities of the Market Price as on 31/03/2021 as under-

Probability Factor	***Market Value per Equity Share of PK Ltd.***	***Market Value per Equity Share of KD Ltd.***
0.4	*₹ 200*	*₹ 300*
0.4	*₹ 240*	*₹ 320*
0.2	*₹ 260*	*₹ 350*

You are required to -

(i) Calculate the Expected Market Price of Equity Shares of both the Companies as on 31/03/2021.

(ii) Calculate the Expected Average Return of the Portfolio for the year 2020-21. ***(8 Marks)***

(b) On 1st July 2021 Mr. P has made the following investment:

Name of Company	*No. of Equity Share*	*Beta Value*	*Purchase Price per Equity Share*
ML Ltd	*1000*	*1.25*	*₹ 700*

He wants to hold the investment till end of September 2021 with an expectation of huge dividends to be announced in the AGM.

On the date of investment, September Nifty Futures are quoting at 175000 and tradeable with lot size of 50 for each contract.

You are the Investment advisor to Mr. P,

(i) Please advise Mr. P how to hedge his market exposure using the available data.

(ii) Calculate the profit or loss of Mr. P during the expiry of September 2021 futures in following situation:

(a) Nifty Future rise by 10%

(b) ML Ltd. falls by 5%

(iii) Is it possible stock as well as nifty to raise or fall at the same percentage? Please state the reason. ***(8 Marks)***

(c) Describe briefly on which principles Technical Analysis is based. ***(4 Marks)***

Answer

(a) (i) Expected Market Price of Shares on 31/03/2021

	PK Ltd.	KD Ltd.
(200 x 0.4) + (240 x 0.4) + (260 x 0.2)	228.00	-
(300 x 0.4) + (320 x 0.4) + (350 x 0.2)	-	318.00

(ii) Calculation of estimated return on Portfolio for 2020-21

	(Calculation in ₹ / share)	
	PK Ltd.	KD Ltd.
Expected dividend	4.00	5.00
Capital gain by 31.03.21	(228 – 210) = 18.00	(318 – 290) = 28.00
Yield	22.00	33.00
Market Value 01.04.20	210	290
% return	10.48%	11.38%

Weight in portfolio (2,000 x 210) : (1000 x 290)	59.15	40.85
Weighted average (Expected) return (59.15 x 10.48%) + (40.85 x 11.38%)	10.85%	

(b) (i) To hedge his market exposure Mr. P should take short position in the Nifty Futures.

$$\text{No. of Contract of Nifty Future to be Short} = \frac{1.25 \times \text{Rs. } 700 \times 1,000}{17,500 \times 50} = 1$$

(ii) a. Profit or loss of Mr. P during the expiry of September 2021 Futures:

Particulars	If Nifty rises by 10%
Loss on Nifty Futures (17,500 x 50 x 0.10)	₹ 87,500
Gain on Stock of ML Ltd. (1.25 x 0.10 x ₹ 7,00,000)	₹ 87,500
Net Gain/ (Loss)	Nil

b. Profit or loss of Mr. P during the expiry of September 2021 Futures:

Particulars	If ML Ltd. falls by 5%
Gain on Nifty Futures (17,500 x 50 x 0.05)/1.25	₹ 35,000
Gain on Stock of ML Ltd. (0.05 x ₹ 7,00,000)	₹ 35,000
Net Gain/ (Loss)	Nil

(iii) Normally it is not possible that Nifty to rise or fall by same percentage because of systematic risk i.e. Beta may not be the same as of market.

(c) Technical analysis is based on the following three principals:

(1) The Market Discounts Everything: Although many experts criticize technical analysis because it only considers price movements and ignores fundamental factors but the Efficient Market Hypothesis (discussed later in detail) contradicts it according to which a company's share price already reflects everything that has or could affect a company and it includes fundamental factors. So, technical analysts generally have the view that a company's share price includes everything including the fundamentals of a company.

(2) Price Moves in Trends: Technical analysts believe that prices move in trends. In other words, a stock price is more likely to continue a past trend than move in a different direction.

(3) History Tends to Repeat Itself: Technical analysts believe that history tends to repeat itself. Technical analysis uses chart patterns to analyze subsequent market movements to understand trends. While many form of technical analysis have been used for many years, they are still considered to be significant because they illustrate patterns in price movements that often repeat themselves.

Question 4

(a) A US company wants to setup a manufacturing plant in India which requires an initial outlay of ₹ 8 Million. It is expected to have a useful life of 5 years with a salvage of ₹ 2 Million. The company follows straight line method of depreciation. To support additional level of activity, investment would require one time additional working capital of ₹ 1 Million.

Since the cost of production lower in India, the variable cost of production would be ₹ 30 per unit. Additional fixed cost per annum is estimated at ₹ 0.5 Million. The company is projecting its annual sales to 80000 units at the price of ₹ 100 per unit. Applicable tax rate to the company is 34% and its cost of capital is 8%.

Inflation rates in US and India are expected to be 8% and 9% respectively. The current exchange rate is ₹ 72 per US Dollar.

Assuming that all profit will be repatriated every year and there will be no withholding taxes, estimate the net present value of the proposed project in India and evaluate its feasibility.

PVF @ 8% for the five years are as under:

Rate	1 Year	2 Year	3 Year	4 Year	5 Year
8%	0.926	0.857	0.794	0.735	0.681

(8 Marks)

(b) A Japanese Company effected sales to X Ltd., an Indian Company, the payment being due after 3 months. The invoice amount is JPY 216 lakhs, at today's spot rate it is equalent to ₹ 50 lakhs. It is anticipated that exchange rate will decline by 8% over the 3 months period and in order to protect the JPY payments, the importer proposes to take appropriate action in the foreign exchange market. The 3 months forward rate is presently quoted as JPY 4.12 per rupee.

You are required to calculate the expected loss and show how it can be hedged by a forward contract ***(8 Marks)***

(c) Explain the pricing of the securitized instruments. ***(4 Marks)***

Answer

(a) Working Notes:

(i) Initial Investment in US$

Particulars	Amount
Initial Outlay	₹ 80,00,000
Additional Working Capital	₹ 10,00,000
Total	₹ 90,00,000
Exchange Rate	₹ 72/US$
Initial Investment in US$	US$ 1,25,000

(ii) Expected Exchange Rates

Year		₹ /USD
1	₹ 72.00 x $\frac{(1+0.09)}{(1+0.08)}$	72.67
2	₹ 72.67 x $\frac{(1+0.09)}{(1+0.08)}$	73.34
3	₹ 73.34 x $\frac{(1+0.09)}{(1+0.08)}$	74.02
4	₹ 74.02 x $\frac{(1+0.09)}{(1+0.08)}$	74.71
5	₹ 74.71 x $\frac{(1+0.09)}{(1+0.08)}$	75.40

(iii) Annual Cash Inflows

Particulars	Amount (₹)
Sales (80000 X ₹ 100)	80,00,000
Less: Variable Cost (80000 x ₹ 30)	24,00,000
Additional Fixed Cost	5,00,000
Depreciation $\frac{(₹\ 80,00,000 - ₹\ 20,00,000)}{5}$	12,00,000
Profit Before Tax (PBT)	39,00,000
Less: Tax @ 34%	13,26,000
	25,74,000
Add: Depreciation	12,00,000
	37,74,000

(iv) Amount repatriated each year in US$

Year		in ₹	Expected Exchange Rate (₹/ US$)	in US$
1	Annual Cash Flow	37,74,000	72.67	51,933.40
2	---do----	37,74,000	73.34	51,458.96
3	---do----	37,74,000	74.02	50,986.22
4	---do----	37,74,000	74.71	50,513.33
5	---do----	37,74,000	75.40	50,053.05

(v) Release of Working Capital in US$ at the end (₹ 10,00,000/ ₹ 75.40) = US$ 13,262.60

(vi) Salvage Value of Project in US$ (₹ 20,00,000/ / ₹ 75.40) = US$ 26,525.20

NPV of the proposed project

Particulars	Period	Cash Flows ($)	PVF @ 8%	PV ($)
Initial Outlay	0	(1,25,000.00)	1.000	(1,25,000.00)
Annual Cash Flow	1	51,933.40	0.926	48,090.33
---do----	2	51,458.96	0.857	44,100.33
---do----	3	50,986.22	0.794	40,483.06
---do----	4	50,513.33	0.735	37,127.30
---do----	5	50,053.05	0.681	34,086.13
Release of Working Capital	5	13,262.60	0.681	9,031.83
Salvage Value of the Project	5	26,525.20	0.681	18,063.66
				1,05,982.64

Since the NPV of the project is positive, it is feasible.

(b) Spot rate of ₹ 1 against yen = JPY 216 lakhs/ ₹ 50 lakhs = JPY 4.32

3 months forward rate of Re. 1 against JPY = JPY 4.12

Anticipated decline in Exchange rate = 8%.

Expected spot rate after 3 months = JPY 4.32 – 8% of 4.32

= JPY 4.32 – JPY 0.35

= JPY 3.97 per rupee

	₹ (in Lakhs)
Present cost of JPY 216 Lakhs	50.00
Cost after 3 months: JPY 216 Lakhs / JPY 3.97	54.41
Expected exchange loss	4.41

If the expected exchange rate risk is hedged by a Forward contract:

	₹ (in Lakhs)
Present cost of JPY 216 Lakhs	50.00
Cost after 3 months if forward contract is taken JPY 216 lakhs / JPY 4.12	52.43
Expected exchange loss	2.43

Suggestion: If the exchange rate risk is not covered with forward contract, the expected exchange loss is ₹ 4.41 Lakhs. This could be reduced to ₹ 2.43 Lakhs if it is covered with Forward contract. Hence, taking forward contract is suggested.

(c) Pricing of securitized instruments is an important aspect of securitization. While pricing the instruments, it is important that it should be acceptable to both originators as well as to the investor. On the same basis pricing of securities can be divided into following two categories:

(i) **From Originator's Angle:** From originator's point of view, the instruments can be priced at a rate at which originator has to incur an outflow and if that outflow can be amortized over a period of time by investing the amount raised through securitization.

(ii) **From Investor's Angle:** From an investor's angle security price can be determined by discounting best estimate of expected future cash flows using rate of yield to maturity of a security of comparable security with respect to credit quality and average life of the securities. This yield can also be estimated by referring the yield curve available for marketable securities, though some adjustments is needed on account of spread points, because of credit quality of the securitized instruments.

Question 5

(a) TN Ltd. has ₹ 600 lakh 10% bonds outstanding with 5 years remaining to maturity. Since interest rate is falling, TN Ltd. is planning of refunding these bonds with a ₹ 600 Lakh issue of 5 years bonds carrying a coupon rate of 7%. Issue cost of new bond will be ₹ 12 Lakh and call premium is 3%. ₹ 18 lakh being the unamortised portion of issue cost of old bonds can be written off. Tax Rate applicable to TN Ltd. is 30%.

You are required to analyse Bond Refunding Decision.

PVF @ 7% and 4.9% for five years are as under:

Rate	1 Year	2 Year	3 Year	4 Year	5 Year	Total
7%	0.935	0.873	0.816	0.763	0.713	4.100
4.90%	0.953	0.909	0.866	0.826	0.787	4.341

(8 Marks)

(b) TT Ltd. is planning to hedge its foreign exchange risk. It has made a purchase on 1st April 2021 for which it has to make a payment of US $ 1 Lakh on 30/09/2021. The present exchange rate is 1US $ - ₹ 73. It can purchase forward 1US $ at ₹ 74. TT Ltd. will have to make an upfront premium @ 1% of the forward amount purchased. The cost of the funds to the company is 10% p.a. In the following situations, compute the Gain/(Loss) of the TT Ltd. will make if they hedge with exchange rate on 30/09/2021 as:

(i) ₹ 76/US $

(ii) ₹ 70/US $

(iii) ₹ 79/US $

Note: Calculation to be done on monthly basis. ***(8 Marks)***

(c) Write the characteristics of venture capital Financing. ***(4 Marks)***

Answer

(a) 1. Calculation of initial outlay:-

a. Cost of Calling Old Bond

	₹ (in Lakhs)
Face value	600
Add: Call premium	18
Cost of calling old bonds	618

b. Net Proceed from New Issue

	₹ (in Lakhs)
Gross proceed of new issue	600
Less: Issue costs	12
Net Proceed from New Issue	588

c. Tax savings on call premium and unamortized cost = 0.30 (18 + 18) = 10.80

Initial outlay = ₹ 618 Lakh – ₹ 588 Lakh – ₹ 10.80 Lakh

= ₹ 19.20 Lakh

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

	₹ (in Lakhs)
Saving in annual interest expenses [600 x (0.10 – 0.07)]	18.00
Less: Tax saving on interest and amortization (0.30 x [18 + (18-12)/5])	5.76
Annual net cash saving	12.24
PVIFA (4.96%, 5 years)	4.341
Present value of net annual cash saving	53.13
Less: Initial outlay	19.20
Net present value of refunding the bond	33.93

Decision: The bonds should be refunded

(b)

	(₹)
Present Exchange Rate ₹ 73 = 1 US$	
If company purchases US$ 100,000 forward premium is	
100,000 × 74 × 1%	74,000
Interest on ₹ 74,000 for 6 months at 10%	3,700
Total hedging cost	77,700
If exchange rate is ₹ 76	
Then gain (₹ 76 – ₹ 74) for US$ 100,000	2,00,000
Less: Hedging cost	77,700
Net gain	1,22,300
If US$ = ₹ 70	
Then loss (₹ 70 – ₹ 74) for US$ 100,000	4,00,000
Add: Hedging Cost	77,700
Total Loss	4,77,700
If US$ = ₹ 79	
Then Gain (₹ 79 – ₹ 74) for US$ 100,000	5,00,000
Less: Hedging Cost	77,700
Total Gain	4,22,300

(c) Characteristics of Venture Capital Financing

(i) **Long time horizon:** The fund would invest with a long-time horizon in mind. Minimum period of investment would be 3 years and maximum period can be 10 years.

(ii) **Lack of liquidity:** When VC invests, it takes into account the liquidity factor. It assumes that there would be less liquidity on the equity it gets and accordingly it would be investing in that format. They adjust this liquidity premium against the price and required return.

(iii) **High Risk:** VC would not hesitate to take risk. It works on principle of high risk and high return. So, high risk would not eliminate the investment choice for a venture capital.

(iv) **Equity Participation:** Most of the time, VC would be investing in the form of equity of a company. This would help the VC participate in the management and help the company grow. Besides, a lot of board decisions can be supervised by the VC if they participate in the equity of a company.

Question 6

(a) *Following are the details of X Ltd. and Y Ltd.:*

Particulars	*X Ltd.*	*Y Ltd.*
Dividend per Share	*₹ 4*	*₹ 4*
Growth Rate	*10%*	*10%*
Beta	*0.9*	*1.2*
Current Market Price per Share	*₹ 150*	*₹ 70*

Other Information:

Risk Free Rate of Return	*7%*
Market Rate of Return	*14%*

(i) *Calculate the price of shares of both the companies.*

(ii) *Write the comment on the valuation on the basis of price calculated and current market price.*

(iii) *As an investor what course of action should be followed?* ***(8 Marks)***

(b) *DD Ltd. a company based in India manufactures good quality of leather bags and sells to retail outlets in India and USA. The cost of quality leather in India is very high, the company is reviewing the proposal of importing of leather in bulk from USA supplier. The estimate of net US $ and Indian ₹ Currency Cash Flows in nominal terms for this proposal is given below:*

	Net Cash Flow (in Lakh)			
Year	*0*	*1*	*2*	*3*
In US $	*(25)*	*5*	*7*	*8*
In ₹	*0*	*60*	*80*	*90*
If not imported cost of leather to be purchased in India (in ₹)	*400*	*450*	*500*	*600*

Other information:

(i) *DD Ltd. evaluates all investments by using discount rate of 9% p.a.*

(ii) *All US customers are invoiced in US $. US $ Cash flows converted into ₹ at the forward rate and discounted at Indian Rate.*

(iii) *Inflation in USA and India are expected to be 9% and 8% respectively.*

(iv) *The current exchange rate 1 US $ = ₹ 74*

You are required to Calculate Net Present Value and recommend the decision. Present value factor @ 9% are as under:

1 Year	*2 Year*	*3 Year*
0.917	*0.842*	*0.772*

Note: Calculation to be made up to 2 decimal points. ***(8 Marks)***

(c) Buy and hold is one of the policies of portfolio rebalancing. Briefly explain other policies of portfolio rebalancing.

OR

What are the main features of Forward Rate Agreements (FRA)? ***(4 Marks)***

Answer

(a) (i) Calculation of Prices of shares of both companies

	X Ltd.	Y Ltd.
Beta	0.9	1.20
Cost of Equity using CAPM	7% + 0.9 [14% - 7%] = 13.30%	7% + 1.20 [14% - 7%] = 15.40%
Growth Rate	10%	10%
Price of Share	$\frac{4\times1.10}{0.133-0.10}=\frac{4.40}{0.033}$ = ₹ 133.33	$\frac{4\times1.10}{0.154-0.10}=\frac{4.40}{0.054}$ = ₹ 81.48

(ii) and (iii)

Name of Company	Current Market Price	Value of the Share	Valuation	Action of the Investor
X Ltd.	₹ 150.00	₹ 133.33	Overvalued/ overpriced	Not to Invest/ to be sold
Y Ltd.	₹ 70.00	₹ 81.48	Undervalued/ under-priced	Invest/ to be purchased

Alternatively, if the given figure of Dividend is considered as Dividend Expected (D_1) then solution will be as follows:

	X Ltd.	Y Ltd.
Beta	0.9	1.20
Cost of Equity using CAPM	7% + 0.9[14% - 7%] = 13.30%	7% + 1.20[14% - 7%] = 15.40%

Growth Rate	10%	10%
Price of Share	$\frac{4.00}{0.133-0.10}=\frac{4.00}{0.033}$ = ₹ 121.21	$\frac{4.00}{0.154-0.10}=\frac{4.00}{0.054}$ = ₹ 74.07

(ii) and (iii)

Name of Company	Current Market Price	Value of the Share	Valuation	Action of the Investor
X Ltd.	₹ 150.00	₹ 121.21	Overvalued / overpriced	Not to Invest/to be sold
Y Ltd.	₹ 70.00	₹ 74.07	Undervalued / under-priced	Invest/to be purchased

(b) Expected Forward Exchange Rates

Year		₹ /USD
1	₹ 74.00 x $\frac{(1+0.08)}{(1+0.09)}$	73.32
2	₹ 73.32 x $\frac{(1+0.08)}{(1+0.09)}$	72.65
3	₹ 72.65 x $\frac{(1+0.08)}{(1+0.09)}$	71.98

NPV of the proposal if leather is imported from US

	0	1	2	3
Cash Flow is US$ (Lakh)	(25)	5	7	8
Expected Forward Rates ₹/ US$	74.00	73.32	72.65	71.98
Cash Flows in ₹ Lakh	(1,850.00)	366.60	508.55	575.84
Cost of leather if not imported	(400.00)	(450.00)	(500.00)	(600.00)
Cash Flows in ₹ Lakh	----	60.00	80.00	90.00
Total Cash Flow ₹ Lakh	(2,250.00)	(23.40)	88.55	65.84
PVF @ 9%	1.000	0.917	0.842	0.772
PV in ₹ Lakh	(2,250.00)	(21.46)	74.56	50.83
NPV				(2,146.07)

Decision: Proposal should not be accepted as NPV is negative.

(c) While one policy of rebalancing portfolio is Buy and Hold the two policies are as follows:

(i) Constant Mix Policy: Contrary to above policy this policy is a 'Do Something Policy'. Under this policy investor maintains an exposure to stock at a constant percentage of total portfolio. This strategy involves periodic rebalancing to required (desired) proportion by purchasing and selling stocks as and when their prices goes down and up respectively. In other words this plan specifies that value of aggressive portfolio to the value of conservative portfolio will be held constant at a pre-determined ratio. However, it is important to this action is taken only there is change in the prices of share at a predetermined percentage.

(ii) Constant Proportion Insurance Policy: Under this strategy investor sets a floor below which he does not wish his asset to fall called floor, which is invested in some non-fluctuating assets such as Treasury Bills, Bonds etc. The value of portfolio under this strategy shall not fall below this specified floor under normal market conditions. This strategy performs well especially in bull market as the value of shares purchased as cushion increases. In contrast in bearish market losses are avoided by sale of shares. It should however be noted that this strategy performs very poorly in the market hurt by sharp reversals. The following equation is used to determine equity allocation:

Target Investment in Shares = Multiplier (Portfolio Value – Floor Value)

Multiplier is a fixed constant whose value shall be more than 1.

OR

A Forward Rate Agreement (FRA) is an agreement between two parties through which a borrower/ lender protects itself from the unfavourable changes to the interest rate. Unlike futures FRAs are not traded on an exchange thus are called OTC product. Following are main features of FRA.

- Normally it is used by banks to fix interest costs on anticipated future deposits or interest revenues on variable-rate loans indexed to Benchmark Interest Rate e.g. LIBOR, MIBOR etc.
- It is an off-Balance Sheet instrument.
- It does not involve any transfer of principal. The principal amount of the agreement is termed "notional" because, while it determines the amount of the payment, actual exchange of the principal never takes place.
- It is settled at maturity in cash representing the profit or loss. A bank that sells an FRA agrees to pay the buyer the increased interest cost on some "notional" principal amount if Reference Rate of some specified maturity is above a stipulated "Forward Interest Rate" on the contract maturity or settlement date. Conversely, the buyer agrees to pay the seller any decrease in interest cost if Reference Rate fall below the forward rate.

- Final settlement of the amounts owed by the parties to an FRA is determined by the formula

  $$Payment = \frac{(N)(RR - FR)(dtm/DY)}{[1 + RR(dtm/DY)]} \times 100$$

  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; typically LIBOR or MIBOR

  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.

  If Reference Rate > FR the seller owes the payment to the buyer, and if Reference Rate < FR the buyer owes the seller the absolute value of the payment amount determined by the above formula.

- The differential amount is discounted at post change (actual) interest rate as it is settled in the beginning of the period not at the end.