PAPER – 2 : STRATEGIC FINANCIAL MANAGEMENT

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

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

Working notes should form part of the respective answer.

Question 1

(a) Alfa Ltd. wants to acquire Beta Ltd. and has offered a swap ratio of 1 : 2 (0.5 shares for every one share of Beta Ltd.). Following information is provided:

	Alfa Ltd.	***Beta Ltd.***
Profit after tax (₹)	*18,00,000*	*3,60,000*
Equity shares outstanding (Nos.)	*6,00,000*	*1,80,000*
EPS (₹)	*3*	*2*
PE Ratio	*10 times*	*7 times*
Market price per share (₹)	*30*	*14*

(i) You are required to determine:

(a) the number of equity shares to be issued by Alfa Ltd. for acquisition of Beta Ltd.

(b) the EPS of Alfa Ltd. after the acquisition.

(c) the equivalent earnings per share of Beta Ltd.

(d) the expected market price per share of Alfa Ltd. after the acquisition, if PE increases to 12 times.*

(e) the market value of the merged firm.

(ii) If you are the shareholder of Beta Ltd and holding 100 shares, will you be interested to sell your stake ? Why? ***(8 Marks)***

** Mistakenly got typed as A Ltd.*

(b) Mantra Ltd. is planning to buy Alay Ltd. Following information is given in respect of Alay Ltd. which is expected to grow at a rate of 18% p.a. for the next three years, after which the growth rate will stabilize at 8% p.a. normal level, in perpetuity:

Particulars	***For the year ended March 31, 2022***
Revenues	*₹ 6,800 Crores*
Cost Of Goods Sold (COGS)	*₹ 2,800 Crores*
Operating Expenses	*₹ 2,100 Crores*
Capital Expenditure	*₹ 750 Crores*
Depreciation (included in Operating Exp.)	*₹ 600 Crores*

During high growth period, Revenues & Earnings Before Interest & Tax (EBIT) will grow at 18% p.a. and capital expenditure net of depreciation will grow at 12% p.a. From 4th year onwards, i.e. normal growth period revenues and EBIT will grow at 8% p.a. and incremental capital expenditure will be offset by the depreciation. During both high growth & normal growth period, net working capital requirement will be 25% of revenues.

Corporate Income Tax rate is 30%.

The Weighted Average Cost of Capital (WACC) for both the companies is 15%.

You are required to estimate the value of Alay Ltd. using Free Cash Flows to Firm (FCFF) & WACC methodology.

The PVIF for the three years are as below:

Year	***t1***	***t2***	***t3***
PVIF @ 15%	*0.870*	*0.756*	*0.658*

(8 Marks)

(c) Briefly explain Asset and Liability Management (ALM). ***(4 Marks)***

Answer

(a) (i) (a) The number of shares to be issued by Alfa Ltd.:

The Exchange ratio is 0.5

So, new Shares = 1,80,000 x 0.5 = 90,000 shares.

(b) EPS of Alfa Ltd. after acquisition:

Total Earnings	(₹ 18,00,000 + ₹ 3,60,000)	₹ 21,60,000
No. of Shares	(6,00,000 + 90,000)	6,90,000
EPS	(₹ 21,60,000)/6,90,000)	₹ 3.13

(c) Equivalent EPS of Beta Ltd.:

No. of new Shares	0.5
EPS	₹ 3.13
Equivalent EPS (₹ 3.13 x 0.5)	₹ 1.57 or ₹ 1.56

(d) New Market Price of Alfa Ltd. (P/E = 12):

Revised P/E Ratio of Alfa Ltd.	12 times
Expected EPS after merger	₹ 3.13
Expected Market Price (₹ 3.13 x 12)	₹ 37.56

(e) Market Value of merged firm:

Total number of Shares	6,90,000

	Expected Market Price	₹ 37.56
	Total value (6,90,000 x 37.56)	₹ 2,59,16,400
(ii)	Present market Value of share of Beta Ltd. (100 x ₹ 14)	₹ 1,400
	Revised market price of each share of Alfa Ltd. after Merger	₹ 37.56
	Equivalent No. of Alfa Ltd. share in exchange of Beta Ltd. (0.50 x 100)	50
	Equivalent Value of Alfa Ltd. share in exchange of Beta Ltd. (100x 0.50 x ₹ 37.56)	₹ 1,878
	Increase in Market Value (₹ 1,878 - ₹ 1,400)	₹ 478

No, I am not agreed to sell the stake as there is increase in market value.

(b) Determination of forecasted Free Cash Flow of the Firm (FCFF) (₹ in crores)

	Yr. 1	Yr. 2	Yr. 3	Terminal Year
Revenue	8,024.00	9,468.32	11,172.62	12,066.43
COGS	3,304.00	3,898.72	4,600.49	4,968.53
Operating Expenses* (*Excluding Depreciation)	1,770.00	2,088.60	2,464.55	2,661.71
Depreciation	708.00	835.44	985.82	1,064.68
EBIT	2,242.00	2,645.56	3,121.76	3,371.51
Tax @30%	672.60	793.67	936.53	1,011.45
EAT	1,569.40	1,851.89	2,185.23	2,360.06
Capital Exp. – Dep.	168.00	188.16	210.74	-----
∆ Working Capital	306.00	361.08	426.07	223.45
Free Cash Flow (FCF)	1,095.40	1,302.65	1,548.42	2,136.61

Terminal value is:

$$\frac{2136.61}{0.15-0.08} = ₹\ 30,523 \text{ Crore}$$

Present Value (PV) of FCFF:

FCFF (₹ in crores)	PVF @ 15%	PV (₹ in crores)
1,095.40	0.870	953.00
1,302.65	0.756	984.80
1,548.42	0.658	1,018.86
30,523	0.658	20,084.13
		23,040.79

The value of the firm is ₹ 23,040.79 Crores

Note: The answer may vary due to rounding off difference.

(c) Asset-Liability Management (ALM) is one of the important tools of risk management in commercial banks of India. Indian banking industry is exposed to a number of risks prevailing in the market such as market risk, financial risk, interest rate risk etc. The net income of the banks is very sensitive to these factors or risks.

ALM is a comprehensive and dynamic framework for measuring, monitoring and managing the market risk of a bank. It is the management of structure of Balance Sheet (liabilities and assets) in such a way that the net earnings from interest are maximized within the overall risk preference (present and future) of the institutions. The ALM functions extend to liquidly risk management, management of market risk, trading risk management, funding and capital planning and profit planning and growth projection.

Banks and other financial institutions provide services which expose them to various kinds of risks like credit risk, interest risk, and liquidity risk. Asset liability management is an approach that provides institutions with protection that makes such risk acceptable. Asset-liability management models enable institutions to measure and monitor risk, and provide suitable strategies for their management.

It is therefore appropriate for institutions (banks, finance companies, leasing companies, insurance companies, and others) to focus on asset-liability management when they face financial risks of different types. Asset-liability management includes not only a formalization of this understanding, but also a way to quantify and manage these risks.

In a sense, the various aspects of balance sheet management deal with planning as well as direction and control of the levels, changes and mixes of assets, liabilities, and capital.

Question 2

(a) MNO Ltd., a company based in India, manufactures very high quality modern furniture and sells them to a small number of retail outlets in India and Nepal. It is facing tough competition. Recent studies on marketability of product have clearly indicated that the customers are 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 wood in bulk from Nepalese supplier.

The estimate of net India (₹) and Nepalese Currency (NC) cash flow in nominal terms for this proposal is shown below:

Years	Net cash flow (in Millions)	
	NC	India (₹)
0	—38	0
1	1.8	1.9
2	3.2	3.5
3	4.1	4.4

4	*5.4*	*5.8*
5	*6.5*	*6.9*

The following information is relevant :

(1) MNO Ltd. evaluates all investment by using a discount rate of 11% 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.

(2) Inflation rate in Nepal and India are expected to be 11% and 10% p.a. respectively.

(3) The current exchange rate is ₹ 1 = NC 1.65

You are required to calculate Net Present value of the proposal. ***(8 Marks)***

(b) The following 2-way quotes appear in the foreign exchange market:

	Spot	*2-months spread*
₹/US $	*74.00/74.25*	*1.00/1.25*

(i) You are required to calculate:

(a) 2 months forward rates.

(b) How many US dollars should the firm sell to get ₹ 10 lakhs in the spot market and after 2 months?

(c) How many Rupees is the firm required to pay to obtain US $ 80,000 in the spot market and after 2 months?

(ii) Assume the firm has US $ 27,600 in current account earning no interest. ROI on Rupee investment is 10% p.a. Should the firm encash the US $ now or after 2 months? ***(8 Marks)***

(c) Explain various methods of hedging of interest rate risk. ***(4 Marks)***

Answer

(a) Working Notes:

(i) Computation of Forward Rates

End of Year	NC	NC/₹
1	NC 1.65 x $\left(\frac{(1+0.11)}{(1+0.10)}\right)$	1.665
2	NC 1.665 x $\left(\frac{(1+0.11)}{(1+0.10)}\right)$	1.680
3	NC 1.680 x $\left(\frac{(1+0.11)}{(1+0.10)}\right)$	1.695

4	NC 1.695 x $\left(\frac{(1+0.11)}{(1+0.10)}\right)$	1.710
5	NC 1.710 x $\left(\frac{(1+0.11)}{(1+0.10)}\right)$	1.726

(ii) NC Cash Flows converted in Indian Rupees

Year	NC (Million)	Conversion Rate	₹ (Million)
0	-38.00	1.650	-23.03
1	1.80	1.665	1.081
2	3.20	1.680	1.905
3	4.10	1.695	2.419
4	5.40	1.710	3.158
5	6.50	1.726	3.766

Net Present Value

Year	Cash Flow in India	Cash Flow in Nepal	Total Cash Flow	PVF @ 11%	PV
0	---	-23.030	-23.030	1.000	-23.030
1	1.900	1.081	2.981	0.901	2.686
2	3.500	1.905	5.405	0.812	4.389
3	4.400	2.419	6.819	0.731	4.985
4	5.800	3.158	8.958	0.659	5.903
5	6.900	3.766	10.666	0.593	6.325
					1.258

(b) (i) (a) Two Month Forward Rates:

Buying Rate ₹ 74.00 + ₹ 1.00 = ₹ 75.00

Selling Rate ₹ 74.25 + ₹ 1.25 = ₹ 75.50

(b) (1) To get ₹ 10 lakh at Spot Market the firm should sell

= ₹ 10,00,000/ ₹ 74.00 = US $ 13,513.51

(2) To get ₹ 10 lakh after 2 month the firm should sell

= ₹ 10,00,000/ ₹ 75.00 = US $ 13,333.33

(c) (1) Rupees required to obtain US $ 80,000 in Spot Market:

US $ 80,000 × ₹ 74.25 = ₹ 59,40,000

(2) Rupees required to obtain US $ 80,000 after 2 months:

US $ 80,000 × ₹ 75.50 = ₹ 60,40,000

(ii) If US$ are converted in ₹ now and get invested in India, then fund position after 2 months will be as follows:

US$ 27,600 × ₹ 74.00	₹ 20,42,400
ROI @ 10% p.a. for 2 month	₹ 34,040
Amount after 2 months	₹ 20,76,440

If US$ are converted after 2 month, then fund position will be:

$ 27,600 × ₹ 75.00 = ₹ 20,70,000

Thus, it is better to get converted US$ into ₹ now and get them invested in India.

Alternatively, this sub part can also be answered as follows:

Computation of Annual Premium on US $ = (1.00/74.00) × (12/2) × 100 = 8.108% or 8.11%

Since, the premium on US $ in lesser than ROI on Indian ₹, it is better to convert US $ in Indian ₹ now and get them invested in India.

(c) Methods of Hedging of Interest Rate Risk can be broadly divided into following two categories:

(A) Traditional Methods: These methods can further be classified in following categories:

(i) **Asset and Liability Management (ALM):** ALM is a comprehensive and dynamic framework for measuring, monitoring and managing the market risk of a bank. It is the management of structure of Balance Sheet (liabilities and assets) in such a way that the net earnings from interest are maximized within the overall risk preference (present and future) of the institutions.

(ii) **Forward Rate Agreement (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. 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.

(B) Modern Methods: These methods can further be classified in following categories:

(i) **Interest Rate Futures (IRF):** An interest rate future is a contract between the

buyer and seller agreeing to the future delivery of any interest-bearing asset. The interest rate future allows the buyer and seller to lock in the price of the interest-bearing asset for a future date.

(ii) **Interest Rate Options (IRO):** Also known as Interest Rate Guarantee (IRG) as option is a right not an obligation and acts as insurance by allowing businesses to protect themselves against adverse interest rate movements while allowing them to benefit from favourable movements.

It should be noted that the IRO is basically a series of FRAs which are exercisable at predetermined bench marked interest rates on each period say 3 months, 6 months etc.

(iii) **Interest Rate Swaps:** In an interest rate swap, the parties to the agreement, termed the swap counterparties, agree to exchange payments indexed to two different interest rates. Total payments are determined by the specified notional principal amount of the swap, which is never actually exchanged.

(iv) **Swaptions:** An interest rate swaption is simply an option on an interest rate swap. It gives the holder the right but not the obligation to enter into an interest rate swap at a specific date in the future, at a particular fixed rate and for a specified term.

Question 3

(a) Details about long term portfolio of shares of an investor is as below:

Shares	*No. of shares (Lakh)*	*Market Price per share*	*Beta*
K Ltd.	*6*	*250*	*1.4*
L Ltd.	*8*	*375*	*1.2*
M Ltd.	*4*	*125*	*1.6*

The investor thinks that the risk of portfolio is very high and wants to reduce the portfolio beta to 0.91.

He is considering below mentioned alternative strategies:

(i) Dispose a part of his existing portfolio to acquire risk free securities, or

(ii) Take appropriate position on Nifty Futures which are currently traded at 16250 and each Nifty points is worth ₹100.

You are required to determine:

(i) portfolio beta,

(ii) the value of risk-free securities to be acquired,

(iii) the number of shares of each company to be disposed off,

(iv) the number of Nifty contracts to be bought/sold,

(v) the value of portfolio beta for 1% rise in Nifty. ***(8 Marks)***

(b) Ms. Sreenidhi is learning the portfolio management techniques and wants to test one of the techniques she has developed on KIFS Equity Fund and compare the gains and losses from the technique with those from a passive buy and hold strategy.

The KIFS Equity Fund consists of equities only and the ending NAVs of the fund she constructed for the last 10 months are given below:

Month Ending	***NAV (₹/unit)***
Jan-22	*100*
Feb-22	*78*
Mar-22	*92*
Apr-22	*86*
May-22	*102*
Jun-22	*98*
Jul-22	*100*
Aug-22	*102*
Sep-22	*118*
Oct-22	*120*

Assume

(i) Sreenidhi had invested a notional amount of ₹ 5 lakhs equally in the equity fund and a conservative portfolio (of bonds) in the beginning of January 2022 and the total portfolio was being rebalanced each time the NAV of the fund increased or decreased by 15% compared to the NAV of previous month.

(ii) There is no income earned from the conservative portfolio during the period.

(iii) There is no taxation and entry/exit loads.

You are required to determine:

(i) Value of the portfolio for each level of NAV following the Constant Ratio Plan.

(ii) Whether there are any errors in the technique developed by Sreenidhi? If so briefly explain. ***(8 Marks)***

(c) Write a short note on Money Market Hedging. ***(4 Marks)***

Answer

(a)

Shares	No. of shares (lakhs) (1)	Market Price of Per Share (2)	(1)× (2) (₹ lakhs)	% to total (w)	ß (x)	w*x
K Ltd.	6.00	250.00	1,500.00	0.30	1.40	0.42
L Ltd.	8.00	375.00	3,000.00	0.60	1.20	0.72
M Ltd.	4.00	125.00	500.00	0.10	1.60	0.16
			5,000.00	1.00		1.30

(i) Portfolio beta 1.30

(ii) Required Beta 0.91

Let the proportion of risk free securities for target beta 0.91 = p

0.91 = 0 × p + 1.30 (1 – p)

p = 0.30 i.e. 30%

Shares to be disposed off to reduce beta (5000 × 30%) ₹ 1,500 lakh and Risk Free securities to be acquired.

(iii) Number of shares of each company to be disposed off

Shares	% to total (w)	Proportionate Amount (₹ lakhs) (a)	Market Price Per Share (b)	No. of Shares to be disposed off (Lakh) (a/b)
K Ltd.	0.30	450.00	250.00	1.80
L Ltd.	0.60	900.00	375.00	2.40
M Ltd.	0.10	150.00	125.00	1.20

(iv) Number of Nifty Contract to be sold

$$\frac{(1.30 - 0.91) \times 5000 \text{ lakh}}{16,250 \times 100} = 120 \text{ contracts}$$

(v) 1% rises in Nifty is accompanied by 1% x 1.30 i.e. 1.30% rise for portfolio of shares

	₹ Lakh
Current Value of Portfolio of Shares	5,000
Value of Portfolio after rise	5,065
Mark-to-Market Margin paid (16250 × 0.01 × ₹ 100 × 120)	19.50
Value of the portfolio after rise of Nifty	5,045.50

% change in value of portfolio (5,045.50 – 5,000)/ 5,000	0.91%
% rise in the value of Nifty	1%
Beta	0.91

(b) (i) Constant Ratio Plan:

Stock Portfolio NAV (₹)	Value of Conservative Portfolio (₹)	Value of aggressive Portfolio (₹)	Total value of Constant Ratio Plan (₹)	Revaluation Action	Total No. of units in aggressive portfolio
100	2,50,000.00	2,50,000.00	5,00,000.00	-	2500
78	2,50,000.00	1,95,000.00	4,45,000.00	-	2500
	2,22,500.00	2,22,500.00	4,45,000.00	Buy 352.56 units	2852.56
92	2,22,500.00	2,62,435.52	4,84,935.52	-	2852.56
	2,42,467.76	2,42,467.76	4,84,935.52	Sell 217.04 units	2635.52
86	2,42,467.76	2,26,654.72	4,69,122.48	-	2635.52
102	2,42,467.76	2,68,823.04	5,11,290.80	-	2635.52
	2,55,645.40	2,55,646.40	5,11,290.80	Sell 129.19 units	2506.33
98	2,55,645.40	2,45,620.34	5,01,265.74	-	2506.33
100	2,55,645.40	2,50,633.00	5,06,278.40	-	2506.33
102	2,55,645.40	2,55,645.66	5,11,291.06	-	2506.33
118	2,55,645.40	2,95,746.94	5,51,392.34	-	2506.33
	2,75,696.17	2,75,696.17	5,51,392.34	Sell 169.92 units	2336.41
120	2,75,696.17	2,80,369.20	5,56,065.37	-	2336.41

Hence, the ending value of the mechanical strategy is **₹ 5,56,065.37** and buy & hold strategy is (₹2,50,000+ 2,500 X ₹120 = ₹5,50,000)

(ii) Though the value of portfolio as per technique is lesser than Buy & Hold Strategy but there is no error as if market has been bearish then the value of much lesser under Buy & Hold Strategy.

(c) At its simplest, a money market hedge is an agreement to exchange a certain amount of one currency for a fixed amount of another currency, at a particular date. For example, suppose a business owner in India expects to receive 1 Million USD in six months. This Owner could create an agreement now (today) to exchange 1Million USD for INR at roughly the current exchange rate. Thus, if the USD dropped in value by the time the

business owner got the payment, he would still be able to exchange the payment for the original quantity of U.S. dollars specified.

Advantages of Money Market Hedging

(i) Fixes the future rate, thus eliminating downside risk exposure.

(ii) Flexibility with regard to the amount to be covered.

(iii) Money market hedges may be feasible as a way of hedging for currencies where forward contracts are not available.

Disadvantages of Money Market Hedging

(i) More complicated to organize than a forward contract.

(ii) Fixes the future rate - no opportunity to benefit from favorable movements in exchange rates.

Question 4

(a) Following is the information related to three mutual funds:

Year	*MF-A*	*MF-B*	*MF-C*
2020	*10%*	*5%*	*14%*
2021	*8%*	*10%*	*10%*
2022	*12%*	*8%*	*18%*

Correlation between market and mutual fund:

	MF-A	*MF-B*	*MF-C*
Correlation with market	*0.45*	*0.25*	*0.65*

Variance of the market is 9% and rate of return of government bond is 7%.

You are required to Rank the Mutual fund using Sharpe's ratio and Treynor's ratio.

(8 Marks)

(b) M/s. Siri Ltd. Has a surplus amount of ₹ 3 crores to invest and has shortlisted the following equity shares:

Company	*Beta*
S Ltd.	*1.6*
K Ltd.	*1*
P Ltd.	*-0.3*
D Ltd.	*2*
C Ltd.	*0.6*

Required:

(i) If M/s. Siri Ltd. invests an equal amount in all securities, what is the beta of the portfolio?

(ii) If M/s. Siri Ltd. invests 15% of its investment in S Ltd., 15% in P Ltd., 10% in C Ltd. and the balance in equal amount in the other two securities, what is the beta of the portfolio?

(iii) If the expected return of market portfolio is 12% at a beta factor of 1.0, what will be the portfolios expected return in both the situations given above?

(iv) If the Company changes its policy to invest in any 3 securities with a minimum of 20% in each of these 3 securities to diversify risk, you are requested to advise the company to have a right mix of securities to maximize the return in the following two scenarios and also calculate the expected return:

(1) Bull Phase: Expected Market returns 10%

(2) Bear Phase: Expected Market returns — 5% ***(8 Marks)***

(c) What are the features of Securitization? ***(4 Marks)***

Answer

(a) (i) Calculation of Standard Deviation of Funds

Year	MF-A (%)	Dev.	Dev.^{2}	MF-B (%)	Dev.	Dev.^{2}	MF-C (%)	Dev.	Dev.^{2}
2020	10	-	-	5	-2.67	7.13	14	-	-
2021	8	-2	4	10	2.33	5.43	10	-4	16
2022	12	2	4	8	0.33	0.11	18	4	16
	30		8	23		12.67	42		32
	Avg. = 30/3 = 10		Var. = 8/3 = 2.67 σ_A = 1.63	Avg. = 23/3 = 7.67		Var. 12.67/3 = 4.22 σ_B = 2.05	Avg. = 42/3 = 14		Var. 32/3 = 10.67 σ_C = 3.27

(ii) Calculation of Beta of MFs

	r	σ_M	σi	Var. of Market	β_i
MF-A	0.45	3	1.63	9	0.244
MF-B	0.25	3	2.05	9	0.171
MF-C	0.65	3	3.27	9	0.709

Reward to Variability (Sharpe Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	σ_p	Reward to Variability	Ranking
MF-A	10.00	7.00	3.00	1.63	1.84	2
MF-B	7.67	7.00	0.67	2.05	0.33	3
MF-C	14.00	7.00	7.00	3.27	2.14	1

Reward to Volatility (Treynor Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	β_p	Reward to Volatility	Ranking
MF-A	10.00	7.00	3.00	0.244	12.30	1
MF-B	7.67	7.00	0.67	0.171	3.92	3
MF-C	14.00	7.00	7.00	0.709	9.87	2

(b) (i) Beta of the Portfolio

Investment	Beta (β)	Investment (₹ Lakhs)	Weighted Investment
S Ltd.	1.6	60	96
K Ltd.	1.0	60	60
P Ltd.	-0.3	60	-18
D Ltd.	2.0	60	120
C Ltd.	0.6	60	36
		300	294

$$\beta_P = \frac{294 \text{ lakh}}{300 \text{lakh}} = 0.98$$

Alternatively, it can also be computed as follows:

$$1.6 \times \frac{1}{5} + 1.0 \times \frac{1}{5} + (-0.30) \times \frac{1}{5} + 2 \times \frac{1}{5} + 0.6 \times \frac{1}{5} = 0.98$$

(ii) With varied percentages of investments portfolio beta is calculated as follows:

Investment	Beta (β)	Investment (₹ Lakhs)	Weighted Investment
S Ltd.	1.6	45	72
K Ltd.	1.0	90	90
P Ltd.	-0.3	45	-13.50
D Ltd.	2.0	90	180

C Ltd.	0.6	30	18
		300	346.50

Beta = $\frac{346.50}{300}$ = 1.155

(iii) Expected return of the portfolio with pattern of investment as in case (i) = 12% × 0.98 i.e. 11.76%

Expected Return with pattern of investment as in case (ii) = 12% × 1.155 i.e., 13.86%.

(iv) (1) Securities to be selected during Bull Phase Expected Market returns 10%

As it is bull Market Higher Beta stocks should be selected.

Shares	% to be invested	Beta (β)	Investment	Weighted Investment
S Ltd.	20	1.6	60,00,000	96,00,000
K Ltd.	20	1	60,00,000	60,00,000
P Ltd.	0	-0.3	-	-
D Ltd.	60	2	1,80,00,000	3,60,00,000
C Ltd.	0	0.6	-	-
	100		3,00,00,000	5,16,00,000

Portfolio or Weighted Beta (β) (5,16,00,000/ 3,00,00,000)	1.72
Portfolio Beta (β)	1.72
Market Return	10%
Expected Return	17.20%

(2) Securities to be selected During Bear Phase Expected Market returns – 5%

As it is bear market Lower Beta stocks should be selected

Shares	% to be invested	Beta (β)	Investment	Weighted Investment
S Ltd.	0	1.6	-	-
K Ltd.	20	1	60,00,000	60,00,000
P Ltd.	60	-0.3	1,80,00,000	-54,00,000
D Ltd.	0	2	-	-
C Ltd.	20	0.6	60,00,000	36,00,000
	100		3,00,00,000	42,00,000

Portfolio or Weighted Beta (β) (42,00,000/ 3,00,00,000)	0.14
Portfolio Beta (β)	0.14
Market Return	-5%
Expected Return	-0.70%

(c) The securitization has the following features:

(i) **Creation of Financial Instruments** – The process of securities can be viewed as process of creation of additional financial product of securities in market backed by collaterals.

(ii) **Bundling and Unbundling** – When all the assets are combined in one pool it is bundling and when these are broken into instruments of fixed denomination it is unbundling.

(iii) **Tool of Risk Management** – In case of assets are securitized on non-recourse basis, then securitization process acts as risk management as the risk of default is shifted.

(iv) **Structured Finance –** In the process of securitization, financial instruments are tailor structured to meet the risk return trade of profile of investor, and hence, these securitized instruments are considered as best examples of structured finance.

(v) **Trenching** – Portfolio of different receivable or loan or asset are split into several parts based on risk and return they carry called 'Tranche'. Each Trench carries a different level of risk and return.

(vi) **Homogeneity** – Under each tranche the securities issued are of homogenous nature and even meant for small investors who can afford to invest in small amounts.

Question 5

(a) Following is the information related to return on shares of three different companies :

Years	*A Ltd.*	*B Ltd.*	*C Ltd.*
2018	*2%*	*3%*	*5%*
2019	*6%*	*8%*	*7%*
2020	*13%*	*14%*	*15%*
2021	*7%*	*9%*	*11%*

Required:

(i) Construct maximum number of portfolio and its return, if each portfolio consists of any two Company's shares in proportion of 65% and 35% and suggest which portfolio provides highest return.

(ii) *Calculate portfolio return and beta (β), if Mr. X invests ₹ 65,000 in A Ltd. having beta (β) of 0.45; ₹ 20,000 in B Ltd. having beta (β) of 1.15 and ₹ 15,000 in C Ltd. having beta (β) of 1.8.* ***(8 Marks)***

(b) *The following information was extracted from the books of M/s Murugan Ltd.:*

Face Value of Bond	*₹ 1000*
Coupon Interest Rate	*8.5%*
Time Period of Maturity Remaining	*4 Years*
Interest Payment	*Annual, at the end of the year*
Principal Repayment	*At the end of the Bond maturity*
Conversion Ratio (Number of shares per Bond)	*30*
Current Market Price per Share	*₹ 55*
Market Price of Convertible Bond	*₹ 1725*

It can issue plain bonds without conversion option at an Interest rate of 10.5%.

Year	t_1	t_2	t_3	t_4
PVIF@10.5%	*0.905*	*0.819*	*0.741*	*0.671*

Based on the above data, you are requested to calculate:

(i) *Straight value of bonds*

(ii) *Conversion Value of Bond*

(iii) *Conversion Premium*

(iv) *Percentage of Down Turn Risk*

(v) *Conversion Parity Price* ***(8 Marks)***

(c) *What do you mean by Bootstrapping? Explain the method of Trade Credit used by the startup firms in bootstrapping.* ***(4 Marks)***

Answer

(a) Calculation of Average Return

Year	A Ltd.	B Ltd.	C Ltd.
2018	2%	3%	5%
2019	6%	8%	7%
2020	13%	14%	15%
2021	7%	9%	11%
Sum	28%	34%	38%
Average	7%	8.50%	9.50%

(i) (1) Combination 1 - 65% in A Ltd. & 35% B Ltd.

Return = 7% × 0.65 + 8.50% × 0.35 = 4.55% + 2.975% = 7.525% or 7.53%

(2) Combination 2 – 65% in B Ltd. & 35% in C Ltd.

Return = 8.50% × 0.65 + 9.50% × 0.35 = 5.525% + 3.325% = 8.85%

(3) Combination 3 – 65% in C Ltd. & 35% in A Ltd.

Return = 0.65 × 9.50% + 0.35 × 7.00% = 6.175% + 2.45% = 8.625% or 8.63%

(4) Combination 4 – 65% in A Ltd. & 35% in C Ltd.

Return = 0.65 × 7% + 0.35 × 9.50% = 4.55% + 3.325% = 7.875% or 7.88%

(5) Combination 5 – 35% in A Ltd. & 65% in B Ltd.

Return = 0.35 × 7% + 0.65 × 8.50% = 2.45% + 5.525% = 7.975% or 7.98%

(6) Combination 6 – 35% in B Ltd. & 65% in C Ltd.

Return = 0.35 × 8.50% + 0.65 × 9.50% = 2.975% + 6.175% = 9.15%

Since maximum return is under Combination - 6 i.e. 65% investment in C Ltd. and 35% in B Ltd. hence it should be opted for.

(ii) Calculation of Return and Beta of Portfolio

$$\text{Return of Portfolio} = 7\% \times \frac{65,000}{1,00,000} + 8.50\% \times \frac{20,000}{1,00,000} + 9.50\% \times \frac{15,000}{1,00,000}$$

= 7.675%

$$\text{Beta of Portfolio} = 0.45 \times \frac{65,000}{1,00,000} + 1.15 \times \frac{20,000}{1,00,000} + 1.80 \times \frac{15,000}{1,00,000} =$$

0.7925 or 0.79

(b) (i) Straight Value of Bond

= ₹ 85 x 0.905 + ₹ 85 x 0.819 + ₹ 85 x 0.741 + ₹ 1085 x 0.671

= ₹ 76.93 + ₹ 69.62 + ₹ 62.99 + ₹ 728.04 = ₹ 937.56

(ii) Conversion rate is 30 shares per bond. Market price of share ₹ 55

Conversion Value 30 x ₹ 55 = ₹ 1,650

(iii) Conversion Premium

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

$$\frac{₹1725 - ₹\,1650}{₹\,1650} \times 100 = 4.55\%$$

Alternatively, it can also be computed on Per Share/ Bond basis as follows:

$$\frac{₹\ 1725 - ₹\ 1650}{₹\ 30} = ₹\ 2.50 \text{ Per Share or } ₹\ 1725 - ₹\ 55 \times 30 = ₹\ 75$$

(iv) $$\frac{₹\ 1725 - ₹\ 937.50}{₹\ 937.50} \times 100 = 0.84 \text{ or } 84\%$$

or $$\frac{₹\ 1725 - ₹\ 937.50}{₹\ 1725} \times 100 = 0.4565 \text{ or } 45.65\%$$

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

(v) Conversion Parity Price

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

$$\frac{₹\ 1725}{30} = ₹\ 57.50$$

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

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.

Communication skills are important here. The financial plan has to be shown. The owner or the financial officer has to be explained about the business and the need to get the first order on credit in order to launch the venture. The owner or financial officer may give half the order on credit and balance on delivery. The trick here is to get the goods shipped and sell them before paying to them. One can also borrow to pay for the good sold but there is interest cost also. So trade credit is one of the most important way to reduce the amount of working capital one needs. This is especially true in retail operations.

Question 6

(a) Mr. X wants to invest ₹ 1,00,000 in the 7 years 8% bonds in the market (Face Value ₹ 100) which were issued 2 years ago.

(i) You are requested to advise him what is the maximum price for bonds to be paid in the following scenarios:

(1) *If Mr. X is expecting minimum 9% return on the bonds*

(2) *If Mr. X is expecting minimum 7% return on the bonds*

(3) *If the present rate of similar bonds issued is 8.25%*

(4) *If the present rate of similar bonds issued is 7.75%*

(ii) *If the bonds are available at par and 1% is the transaction cost, what is the effective yield?*

(iii) *Find the number of days required to breakeven transaction cost if the bonds are available at par and 2% is the transaction cost.* ***(8 Marks)***

(b) (i) *What is sustainable growth rate?.*

(ii) *What makes an Organization Sustainable?*

(iii) *Mr. X has submitted the following data:*

Particulars	***(₹) in Lakhs***
Total Assets	*250*
Total Liabilities	*220*
Net Income	*12*
Dividend Paid	*4.5*
Sales	*100*

Mr. X wants to know to what extent sales can be increased without going for additional borrowings by using Sustainable Growth Rate (SGR) concept? ***(8 Marks)***

(c) *Write a short note on Venture Capital Fund.*

OR

What are the applications of Value At Risk (VAR) ? ***(4 Marks)***

Answer

(a) (i) The maximum price to be paid for Bond

(1) To have a return of 9% return on Bond.

$$= ₹\ 100 \times \frac{8}{9} = ₹\ 88.89$$

Alternative Answer

$$= \frac{8}{(1.09)^1} + \frac{8}{(1.09)^2} + \frac{8}{(1.09)^3} + \frac{8}{(1.09)^4} + \frac{108}{(1.09)^5}$$

= ₹ 7.34 + ₹ 6.73 + ₹ 6.18 + ₹ 5.67 + ₹70.19 = ₹ 96.11

(2) To have a return of 7% return on Bond.

$= ₹\ 100 \times \frac{8}{7} = ₹\ 114.29$

Alternative Answer

$= \frac{8}{(1.07)^1} + \frac{8}{(1.07)^2} + \frac{8}{(1.07)^3} + \frac{8}{(1.07)^4} + \frac{108}{(1.07)^5}$

= ₹ 7.48 + ₹ 6.99 + ₹ 6.53 + ₹ 6.10 + ₹ 77.00 = ₹ 104.10

(3) If present rate of similar bond issued is 8.25%

$= \frac{8}{(1.0825)^1} + \frac{8}{(1.0825)^2} + \frac{8}{(1.0825)^3} + \frac{8}{(1.0825)^4} + \frac{108}{(1.0825)^5}$

= ₹ 7.39 + ₹ 6.83 + ₹ 6.31 + ₹ 5.83 + ₹ 72.66 = ₹ 99.02

Alternative Answer

$= ₹\ 100 \times \frac{8}{8.25} = ₹\ 96.97$

(4) If present rate of similar bond issued is 7.75%

$= \frac{8}{(1.0775)^1} + \frac{8}{(1.0775)^2} + \frac{8}{(1.0775)^3} + \frac{8}{(1.0775)^4} + \frac{108}{(1.0775)^5}$

= ₹ 7.42 + ₹ 6.89 + ₹ 6.39 + ₹ 5.94 + ₹ 74.36

= ₹ 101.00

Alternative Answer

$= ₹\ 100 \times \frac{8}{7.75} = ₹\ 103.23$

(ii) Effective yield if transaction cost is 1% = $\frac{8}{101} \times 100 = 7.92$

(iii) No. of Days required for break even

$= \frac{2\% \times 1,00,000}{1,00,000 \times \frac{8\%}{360}} = \frac{2,000}{22.22} = 90$ days

Alternatively, if 365 days used in Calculation then answer will be as follows:

$$= \frac{2\% \times 1,00,000}{1,00,000 \times \frac{8\%}{365}} = \frac{2,000}{21.92} = 91.24 \text{ days say } 91 \text{ days}$$

(b) (i) The sustainable growth rate is a measure of how much a firm can grow without borrowing more money. After the firm has passed this rate, it must borrow funds from another source to facilitate growth.

(ii) In order to be sustainable, an organisation must:

- have a clear strategic direction;
- be able to scan its environment or context to identify opportunities for its work;
- be able to attract, manage and retain competent staff;
- have an adequate administrative and financial infrastructure;
- be able to demonstrate its effectiveness and impact in order to leverage further resources; and
- get community support for, and involvement in its work.

(iii)

Sl. No	Particulars	Amount in ₹ Lakhs
(a)	Total Assets	250.00
(b)	Total Liabilities	220.00
(c)	Net Income	12.00
(d)	Dividend Paid	4.50
(e)	Sales	100.00
(f)	Equity (a) – (b)	30.00
(g)	Return on Equity (ROE) (c) /(f)	40.00%
(h)	Dividend pay-out Ratio (d) /(c)	37.50%
(i)	SGR [g x (1-h)]	25.00%*
(j)	Additional Sales can be achieved without further borrowings (e) × (i)	25.00
(k)	Maximum sales can be achieved without further borrowings (e) + (j)	125.00

* Alternatively, it can also be computed as follows:

SGR = $\frac{g(1-h)}{1-[g(1-h)]}$ = 33.33% and then Additional Sales shall be ₹ 33.33 Lakhs and Maximum Sales can be achieved without further borrowings shall be ₹ 133.33 Lakhs

(c) Venture Capital Fund means investment vehicle that manage funds of investors seeking to invest in startup firms and small businesses with exceptional growth potential. Venture capital is money provided by professionals who alongside management invest in young, rapidly growing companies that have the potential to develop into significant economic contributors.

Venture Capitalists generally

- Finance new and rapidly growing companies
- Purchase equity securities
- Assist in the development of new products or services
- Add value to the company through active participation.

OR

VAR can be applied

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

b. as a benchmark for performance measurement of any operation or trading.

c. to fix limits for individuals dealing in front office of a treasury department.

d. to enable the management to decide the trading strategies.

e. as a tool for Asset and Liability Management especially in banks.