P-14: STRATEGIC FINANCIAL MANAGEMENT

SUGGESTED ANSWERS

SECTION-A

1.

(i) (A)
(ii) (B)
(iii) (C)
(iv) (B)
(v) (B)
(vi) (D)
(vii) (A)
(viii) (C)
(ix) (D)
(x) (B)
(xi) (D)
(xii) (B)
(xiii) (B)
(xiv) (A)
(xv) (B)

SECTION – B

2. (a)

(i) Analysis of Cash Saving and NPV of Cash inflow

(Amount in ₹)

	Old Machine	**New Machine**	**Difference**
Price	400000	750000	
Shipping and Installation	0	60000	
Original life	10	5	
Current Life	5	5	
Original Salvage value	0	150000	
Current Salvage Value (Cash)	220000	Not Applicable	
Book Value	200000	810000	
Increase in raw materials	0	30000	
Depreciation	40000	132000	(-)92000
Salaries	290000	0	290000
Maintenance	100000	70000	30000
Marginal tax rate	34 %		
Required return	15 %		

CASH FLOWS Replacement	**₹**
Annual Cash-flow After tax Saving	211200
Depreciation tax Benefit	31280
Total Cash Flows after tax	242480

Calculation of Net Present Value:

	₹
Operating Cash Inflow from 1 to 5 years	812841
Add: PV of Terminal Cash Flow	89496
PV of Total Cash Inflow	902337
Less: Initial Outlay	626800
Net Present Value (NPV)	2,75,538

(ii) Advice :

Since Net Present Value (NPV) of Cash inflows is positive (+ ₹ 275538), the Company should consider to replace the existing machine by a New Machine.

2. (b)

(i) Option: Purchase of Computer

Particulars	Year 1	Year 2	Year 3
	₹	₹	₹
Instalment Payment			
Principal	500000	850000	850000
Interest	352000	272000	136000
Total	852000	1122000	986000
Tax Shield @50 %			
Interest Payment	176000	136000	68000
Depreciation	200000	200000	200000
Total (B)	376000	336000	268000
Net Cash outflow	476000	786000	718000
PV factor at 8 %	0.926	0.857	0.794
PV of Cash Outflows	440776	673602	570092
Total PV of Cash outflows :			1684470
Less : PV of Salvage value			794000
Net PV of Cash outflows			890470

Option – Lease of the Computer

Particulars	Year 1	Year 2	Year 3
	₹	₹	₹
Least Rent	500000	500000	500000
10 % of gross revenue	225000	250000	275000
Lump sum payment			600000
Total Payment	725000	750000	1375000
Less : Tax shield @ 50 %	362500	375000	687500
Net Cash Outflows	362500	375000	687500
PV of Cash Outflows @ 8%	335675	321375	545875
Total PV of Cash Outflows			1202925

(ii) Advice :

Since the present value (PV) of net cash outflow of option (1) (Purchase of Computer) is lower than that of option (II) lease of Computer the company should go for purchasing of computer.

3. (a)

Calculation of Cumulative Probability and Random Number Intervals / ranges:

Original Cost			Useful life			Annual Net Cash inflows		
Value ₹ in Lakh	Cumulative Prob.	Random Range	Period Yrs.	Cumulative Prob.	Random Range	Value ₹ in Lakh	Cumulative Prob.	Random Range
60	0.30	00 – 29	5	0.40	00 – 39	10	0.10	00 – 09
70	0.90	30 – 89	6	0.80	40 – 79	15	0.40	10 – 39
90	1.00	90 – 99	7	1.00	80 – 99	25	0.80	40 – 79
						30	1.00	80 – 99

(i) **Simulation Trials :** **Value in ₹ Lakh, Period in years**

Run	Original Cost		Useful life		Annual Net Cash Inflows	
	Random No.	Value (1)	Random No.	Period (2)	Random No.	Value (3)
1	52	70	94	7	90	30
2	37	70	52	6	62	25
3	82	70	69	6	27	15
4	69	70	33	5	50	25
5	98	90	32	5	36	15

Run	PVIFA (12%, n yrs.)	Present value of ANCIF = (3) x (4)	Net Present Value (5) – (1)
	(4)	(5)	(6)
1	4.5638	136.914	66.914
2	4.1114	102.785	32.785
3	4.1114	61.671	-8.329
4	3.6048	90.120	20.120
5	3.6048	54.072	-35.928
	Total Expected NPV	445.562	75.562

(ii) Average NPV of Cash Flows :

$\frac{75.562}{5}$ = ₹ 15.1124 Lakh

(iii) **Advice :**

As the (NPV) Net present value of the Project, is Positive the Company may be advised to accept the investment proposal of the same.

3. (b) :

Particulars	Next 5 Years	After 5 Years
Pay-out ratio	40 %	55 %
Net profit margin	8 %	5.70%
Asset turnover ratio	2.50	3.50
N W / T A	50 %	50 %
ROE	40 %	39.9 % = 40%
Growth rate	24 %	17.955% or18 %

Calculation of price per share :

Year	Growth Rate%	DPR %	EPS	DPS %
0	24	40	50	
1	24	40	62	24.8
2	24	40	76.88	30.752
3	24	40	95.33	38.132
4	24	40	118.21	47.284
5	24	40	146.58	58.632
6	18	55	172.97	95.134

Current EPS of the Company = $\frac{100}{2}$ = ₹ 50

Cost of equity (Ke) = 7 + 1.2 (15.5) = 25.6%

Terminal value at the end of 5th year = 95.134 / (0.256 – 0.18) = 1251.76

Alternatively: = 69.19/ (0.256 – 0.18) = 910.34

Assessment of Price per Share at time 'O':

= [19.7408+19.4967+19.2566+19.0081+419.325 or 310.07] =₹ 496.83 Or = ₹ 387.57

4. (a)

(i) Interest payment = 100000 x 6% / 2 = ₹ 3000 semi annually
Present value of interest = 3000 x 4.917 = ₹ 14751
Present value of redemption value = 110000 x 0.705= ₹ 77550
Value of Bond = 14751 + 77550 = ₹ 92301

(ii) Expected Share Price at Maturity:
Price at the end of 3 year = 2000 x $(1 + 0.08)^3$ = 2000 x 1.26 = ₹ 2520

Value of Shares at conversion:
= 50 x 2520 = ₹ 126000

(iii) Value of conversion option:
Present value of dividend incomes = 50 x 50 x 2.402 = ₹ 6005
Present value of shares at conversion = 126000 x 0.712 = ₹ 89712
Value of conversion option = 6005 + 89712= ₹ 95717

Advise:
The bondholder should choose to convert the bond into shares, as the value of conversion option (₹ 95717) is higher than that of the current bond value (₹ 92301)

4. (b)

Decomposition of funds in equity and cash components:

Particulars	Mutual Fund AB	Mutual Fund YZ
NAV on 31/03/2024 (₹)	81.63	68.42
(%) of Equity	98 %	95 %
Equity element in NAV	80.00	65.00
Cash element in NAV	1.63	3.42

(i) Calculation of Beta :

Mutual Fund AB:

Sharpe Ratio = $(E(R) - R_f)/\sigma_x$

$3.5 = (E(R) - R_f)/12$

$(E(R) - R_f)/12 \times 3.5 = 42$

Treynor ratio = $(E(R) - R_f)/\beta_x$

$21 = (E(R) - R_f)/\beta_A$

$21\beta_A = 42$

$\beta_A = 2$

Mutual Fund YZ:

Sharpe Ratio = $(E(R) - R_f)/\sigma_x$

$5 = (E(R) - R_f)/7$

$(E(R) - R_f) = 7 \times 5 = 35$

Treynor ratio = $(E(R) - R_f)/\beta_y$

$25(E(R) - R_f)/\beta_y$

$25\beta_y = 35$

$\beta_y = 1.4$

(ii) Decrease in the value of Equity :

Particulars	Mutual Fund AB	Mutual Fund YZ
Market goes down by	10 %	10 %
Beta	2	1.4
Equity component goes down	20 %	14 %

Balance of cash after 1 month

Particulars	Mutual Fund AB	Mutual Fund YZ
Cash in hand on 31-03-2024 (₹)	1.63	3.42
Less : expenses per month (₹)	0.20	0.20
Balance after 1 month (₹)	1.43	3.22

NAV after 1 month:

Particulars	Mutual Fund AB	Mutual Fund YZ
Value of equity after 1 month (₹)	64.00	55.90
Cash Balance (₹)	1.43	3.22
Balance after 1 month (₹)	65.43	59.12

5. (a)

(i) Expected return on stock of SN Ltd.

$E(R_S) = 0.32 \times 46 + 0.26 \times 38 + 0.24 \times 25 + 0.18 \times 15 = 33.3\ \%$

Expected return on Stock of GB Ltd.

$E(R_G) = 0.32 \times 33 + 0.26 \times 27 + 0.24 \times 14 + 0.18 \times 9 = 22.56\ \%$

Expected return on Market.

$E(R_M) = 0.32 \times 25 + 0.26 \times 18 + 0.24 \times 11 + 0.18 \times 7 = 16.58\ \%$

(ii) Beta of S_N Ltd. = $\beta_{SN} = 78.64 / 47.20 = 1.67$

Beta of G_B Ltd.= $\beta_{GB} = 64.61 / 47.20 = 1.37$

(iii) Expected return under CAPM

Return on Stock of S_N Ltd = $6.50 + 1.67 \times (16.58 - 6.50)$

$= 6.50 + 16.83 = 23.33\ \%$

Return on Stock of G_B Ltd = $6.50 + 1.37 \times (16.58 - 6.50)$

$= 6.50 + 13.81 = 20.31\ \%$

(iv) ALPHA of SN Ltd's Stock :

(Excess return of S_N Ltd's Stock)

$= 33.30 - 23.33 = 9.97\ \%$

ALPHA of GB Ltd's Stock :

$= 22.56 - 20.31 = 2.25\ \%$

Justification: Since Alpha (Excess Return) of both the Companies' Stocks is positive, the stock of SN Ltd as well as GB Ltd. is underpriced.

5. (b)

(i)

(a) The Co-efficient of Correlation between return on Excel Ltd's. Stock and return on Sensex.

$$\text{P excel, M} = \frac{0.0225}{0.35 \times 0.20} = 0.32$$

(b) The Co-efficient of Correlation between return on Delux Ltd's. Stock and return on Sensex.

$$\text{P Delux, M} = \frac{0.0520}{0.40 \times 0.20} = 0.65$$

(ii) The Variance of Port Folio formed using stock of Excel Ltd. (3/4th) and Delux Ltd's. Stock (1/4th)

$= (0.75)^2 \text{ x } (0.35)^2 + (0.25)^2 \text{ x } (0.40)^2 + 2 \text{ x } 0.75 \text{ x } 0.25 \text{ x } 0.02912$

$= 0.0689+0.01+0.01092$

$= 0.08982$

(iii) Unsystematic Risk of the Excel Ltd.

$= \left(1 - 0.32^2\right) 0.1225 = 0.109956$

Unsystematic Risk of the Delux Ltd.

$= \left(1 - 0.65^2\right) 0.1600 = 0.0924$

Unsystematic Risk of the Portfolio

$= \left(1 - 0.50^2\right) 0.089826 = 0.067370$

Therefore, we find that unsystematic risk of the Portfolio is less than that of individual Stocks. From the results it can be implied that because of constitution of Portfolio unsystematic risk reduces.

6. (a)

(i) Calculation of Portfolio Beta :

Security	Price of Stock	No. of Shares	Value	Weightage wi	Beta Bi	Weighted Beta
A	260.00	450	117000	0.083	0.90	0.075
B	520.00	850	442000	0.313	1.30	0.407
C	840.00	200	168000	0.119	0.95	0.113
D	430.00	500	215000	0.153	0.70	0.107
E	780.00	600	468000	0.332	1.50	0.498
			1410000	1.00		1.20

Portfolio Beta = 1.20

(ii) Calculation of Theoretical Value of Future Contracts :

Cost of Capital = 20 % p.a.

(1) For November Contract, t = 3/12 = 0.25

Further $F = Se^{rt}$

$F = ₹ 18200\ e^{(0.20)(0.25)}$

$F = ₹ 18200\ e^{0.05}$

$F = ₹ 18200 \text{ x } 1.05127 = ₹ 19133.11$

(2) For December contract, t = 4/12 = 0.3333

Further $F = Se^{rt}$

$F = ₹ 18200 e^{(0.20)(0.3333)}$

$F = ₹ 18200\ e^{0.67}$

Accordingly, the price of the December

18200 x 1.06930 = 19461.26

(iii) When total portfolio is to be hedged :

$= \frac{1410000}{18700 \text{ x } 25} \text{ x } 1.20 = 3.62 \text{ contracts, say } 4 \text{ contract}$

(iv) When total portfolio beta is to be reduced to 0.50 :

November Contracts

$= \frac{1410000}{18500 \text{ x } 25} \text{ x } (1.20 - 0.50) = 2.13, \text{ Contracts, say } 2 \text{ contracts}$

Alternatively

December Contracts

$= \frac{1410000}{18700 \text{ x } 25} \text{ x } (1.20 - 0.50) = 2.11 \text{ Contracts, say } 2 \text{ contracts}$

6. (b)

Total premium paid on purchasing a call and put option

= (₹ 10 x 100) + (₹ 6 x 100).

= ₹ 1000 + ₹ 600 = ₹ 1600

(i) In this case, investor exercises neither the call option nor the put option as both will result in a loss for him.

Ending value= – ₹ 1600 + zero gain = –₹ 1600

i.e. Net loss =₹ 1600

(ii) Since the price of the stock is below the exercise price of the call, the call will not be exercised. Only put is valuable and is exercised.

Total premium paid = ₹ 1600

Ending value = – ₹ 1600 + ₹ [140 – 110) x 100] = – ₹ 1600 + ₹ 3000= ₹ 1400

i.e. Net gain = ₹ 1400

(iii) In this situation, the put is worthless, since the price of the stock exceeds the put's exercise price. Only call option is valuable and is exercised.

Total premium paid = ₹ 1600

Ending value = – 1600+ [(153 – 150) x 100] = – 1600+ 300 = – ₹ 1300

i.e. Net Loss =₹ 1300

7. (a)

(i) Forward Contracts

Transaction Exposure	Amount (₹)
Receivable	2425 million
Payable	970 million
Net Outcome	1455 million

(ii) Money Market Hedge

For Receivable:

Particulars	Amount (EUR)	Amount (₹)
Future Value of Receivable	25 Million	--
Borrow EUR Today	24.57 million	--
Convert to INR at Current Spot Rate	--	2334.15 million
Invest INR for 6 Months at 7% p.a.	--	2415.85 million

For Payable:

Particulars	Amount (EUR)	Amount (₹)
Future EUR payable	10 Million	--
Invest EUR Today	9.828 million	--
Borrowed INR today at Current Spot Rate	-	933.66 million
Repayment INR after 6 Months	-	975.67 million

Net Outcome Using Money Market Hedge:

Item	Amount (₹)
Receivable	2415.85 million
Payable	975.67 million
Net Outcome	1440.18 Million

(iii) Currency Option Hedge

Receivable:

Particulars	Amount (₹)
INR Receivable	25 million
Option Premium	(50 million)
Net Pay off	(25 million)
Net INR Receivable	2450 million

Payable:

Particulars	Amount (₹)
INR Payable	Nil
Option Premium	15 million
Expected Spot Rate in 6 Months	990 million
Net INR Payable	1005 million

Net Outcome Using Currency Option Hedge:

Item	Amount (₹)
Receivable	2450 million
Payable	1005 million
Net Outcome	1445 Million

(iv) Comparison of All Three Strategies

Strategy	₹ Receivable (After 6 Months)	₹ Payable (After 6 Months)	Net ₹ Outcome (After 6 Months)
Forward Contracts	2425 million	970 million	1455 million
Money Market Hedge	2415.85 million	975.67 million	1440.18 million
Currency Option Hedge	2450 million	1005 million	1445 million

Recommendation: The Forward contract hedge provides the best Net outcome of ₹ 1455 million due to its flexibility and the potential to benefit from favourable exchange rates.

7. (b)

(i) Ask rate :

Computation of annualized appreciation / depreciation:

$$\frac{83.50 - 82.50}{82.50} \times 100 \times 4 = 4.85\%$$

Result is positive, so appreciation in $.

(ii) Bid rate :

Computation of annualized appreciation / depreciation:

Spot = 82.25 ₹/ $=0.01216 $ / ₹

3 Months forward =83 ₹/ $=0.01205 $ / ₹

Difference (0.00011)

Hence, (0.00011 / 0.01216) x 100 x 4 = (3.62 %)

Result is negative, so depreciation in ₹

(iii) Action = Sell US $ in forward market :

Relevant rate = Forward bid rate = ₹ 83

US $ required = 5000000 / ₹ 83 = US $ 60240.96

(iv) Action = Buy US $ in spot Market :

Relevant rate = Spot ask rate = ₹ 82.50

Rupees required to obtain US $ 250000 = US $ 250000 x 82.50 = ₹ 20625000

(v) Evaluation of Investment in Rupee :

Particulars	Encash Now	Encash after 3 months
Relevant rate	Spot bid rate = ₹ 82.25	Forward bid rate = ₹ 83
₹ available for US $ 100000	₹ 8225000	₹ 8300000
Add : Interest for 3 Months	₹ 205625	Not Applicable
Amount available after 3 months	₹ 8430625	₹ 8300000

Decision: Encashing now yields higher return than that of encash after 3 months. So it is better to encash now.

8. (a)

A Neo-bank (also known as an online bank, internet-only bank, virtual bank or digital bank) is a type of direct bank that operates exclusively online without traditional physical branch networks. They leverage technologies such as artificial intelligence and machine learning to offer personalised and customized financial services to end-users and minimize the overall operating cost.

Benefits of Neo- Banks:

(i) Highly convenient and user-friendly banking services

(ii) Built for a niche audience

(iii) Cost-effective alternative to challenger and traditional banks

(iv) Offers digital banking services, such as, savings accounts, prepaid cards, bill payments, and money transfers

(v) Provide financial management services

(vi) 24x7 customer support

(vii) High-security features

(viii) Simple and user-friendly mobile app interface

(ix) Transparent structure with real-time notification feature.

8. (b)

Various Iending schemes of the IMF are as follows:

(i) Stand-By Arrangements (SBA):In an economic crisis, countries often need financing to help them overcome their balance of payments problems, Since its creation in June 1952, the IMF‘s Stand-By Arrangement [SBA) has been the workhorse I ending instrument for emerging and advanced market countries. Under this scheme, countries can borrow at the first indication of its possible need.

(ii) Standby Credit Facility (SCF): It serves a similar purpose like SBA but for low-Income countries.

(iii) Extended Fund Facility (EFF): When a country faces serious medium-term balance of payments problems because of structural weaknesses that require time to address, the IMF can assist through an Extended Fund Facility (EFF).

(iv) Extended Credit Facility (ECF): The Extended Credit Facility (ECF) provides financial assistance to countries with protracted balance of payments problems.

(v) Flexible Credit Line (FCL): The Flexible Credit Line (FCL) was designed to meet the demand for crisis-prevention and crisis-mitigation lending for countries with very strong policy frameworks and track records in economic performance.

(vi) Precautionary and, Liquidity Line (PLL): The Precautionary and Liquidity Line (PLL) is designed to flexibly meet the liquidity needs of member countries with sound economic fundamentals but with some remaining vulnerabilities that preclude them from using the Flexible Credit Line (FCL).

(vii) Rapid Financing instrument (RFI): The Rapid Financing Instrument (RFl) provides rapid financial assistance, which is available to all member countries facing an urgent balance of payments need.

(viii) Rapid Credit Facility (RCF): The Rapid Credit Facility (RCF) provides rapid concessional financial assistance to low-income countries (LICs) facing an urgent balance of payments (BOP) need with no ex-post conditionality where a full-fledged economic program is neither necessary nor feasible. The RCF was created under the Poverty Reduction and Growth Trust (PRGT).

8 (c)

In spite of its widely recognized benefits, securitization has a few limitations as well, as follows:

(i) Though theoretically the cost of securitizing assets is expected to be lower than the cost of mainstream funding actually. Securitization has proved to be a costly source, primarily in emerging markets due to the higher premium demanded by the investors and additional cost of rating and legal fees.

(ii) Setting up of an SPV requires high initial payment. Hence, there is a certain minimum economic size below which securitization is not cost effective.

(iii) Securitization transfers the problem of asset liability mismatch to investors. The profile of the re-payment of principal to investors in a pass–through transaction replicates the payback pattern of the assets.

(iv) Securitization requires high level of disclosure of information. In addition to the disclosures required by regulators, there are disclosures to services, trustees, rating agencies and in some circumstances, even to investors.

(v) Investors are interested only in asset backed securities which have a high quality. So, banks can securitize only better - quality receivables.

(vi) Banks often allow debt restructuring to their business clients to tide over business emergencies. Since, securitization transactions are looked after by professional trustees who do not have any discretion to allow time or skip payments, debt restructuring cannot be possible here.

(vii) As per the current accounting standards, securitization accounting leads to upfront booking of profits. These profits represent not only the profits encashed while making the sale, but even estimated profit based on future profitability of the transaction.