PAPER – 2
ADVANCED FINANCIAL MANAGEMENT

QUESTIONS

Advanced Capital Budgeting Decisions

1. ABC Ltd. plans to invest ₹ 16,00,000 in a new unit. The project is expected to have a useful life of 4 years, with no salvage value at the end of its life. The annual depreciation charge for the project is ₹ 400,000.

   Projected revenues and costs for the project, ignoring inflation, are provided as follows:

Year	Revenues (₹)	Costs (₹)
1	12,00,000	6,00,000
2	14,00,000	8,00,000
3	16,00,000	8,00,000
4	16,00,000	8,00,000

   ABC Ltd. is subject to a corporate tax rate of 60%, and the cost of capital for the project, including inflation premium, is 10%.

   Depreciation provides a tax benefit, and inflation rates for revenues and costs over the project's lifespan are as follows:

Year	Revenue Inflation	Cost Inflation
1	10%	12%
2	9%	10%
3	8%	9%
4	7%	8%

Based on above information, answer the following questions:

I. The depreciation tax benefit for the project per year shall be.....

(a) ₹ 300,000

(b) ₹ 240,000

(c) ₹ 360,000

(d) ₹ 400,000

II. The inflation-adjusted revenue in Year 2 shall be.....

(a) ₹ 16,78,600

(b) ₹ 14,00,000

(c) ₹ 10,03,520

(d) ₹ 9,85,600

III. The total cash inflow in Year 1 after adjusting for inflation and tax benefit on depreciation shall be.....

(a) ₹ 672,000

(b) ₹ 660,000

(c) ₹ 985,600

(d) ₹ 499,200

IV. The inflation-adjusted cost in Year 2 shall be.....

(a) ₹ 16,78,600

(b) ₹ 14,00,000

(c) ₹ 10,03,520

(d) ₹ 9,85,600

V. The present value of cash inflow for the year 3 shall be approximately.....

(a) ₹ 4,52,598

(b) ₹ 4,27,208

(c) ₹ 4,79,898

(d) ₹ 4,53,772

Financial Policy and Corporate strategy

2. In a recent Board Meeting of N Ltd. following financials of N Ltd. for the year ending 31st March 2025 were presented:

Balance Sheet as on 31.03.2025

₹ '000

Liabilities		**Assets**	
Equity Capital	4,80,000	Fixed Assets	2,42,000
10% Bonds	92,000	Cash	88,000
Sundry Creditors	66,000	Sundry Debtors	1,10,000
Bills Payable	88,000	Closing Stock	3,3,0000
Other Current Liabilities	44,000		
Total Liabilities	**7,70,000**	**Total Assets**	**7,70,000**

Income Statement for the Year ending 31.03.2025

Particular	**(₹ '000)**	**(₹ '000)**
Sales		11,77,000
Less: Cost of Goods Sold		
Material	4,18,000	
Wages	2,64,000	
Factory Overheads	1,29,800	8,11,800
Gross Profit		3,65,200
Less: Selling & Distribution Cost	1,10,000	
Administrative Cost	1,22,800	2,32,800
Earnings Before Interest and Taxes (EBIT)		1,32,400
Less: Interest Charges		9,200
Earning Before Tax		1,23,200
Less: Taxes @ 50%		61,600
Net Profit (PAT)		**61,600**

During the Board Meeting:

(i) Director A said that the company can maintain a certain growth even though the net profit margin remains constant, and assets increases proportionately to sales and it distributes its 30% of its net profit. To maintain this growth rate, it will not require any external funds.

(ii) Director B proposed that just by maintaining a target capital structure and without issuing additional equity and maintaining target dividend pay-out ratio as proposed by Director A, more growth rate can be achieved.

(iii) Director C though agreed with views of Director A and Director B, but is of the view that in the coming year it is expected that sales is likely to rise by 15%, hence if required we can go for issue of equity shares, bonds or debentures to achieve the same growth in sales.

From the information given above, choose the correct answer to the following questions:

I. The Director A is talking about.....

(a) Internal Growth Rate

(b) Sustainable Growth Rate

(c) External Funding Requirements

(d) External Growth Rate

II. The Director B is talking about.....

(a) Internal Growth Rate

(b) Sustainable Growth Rate

(c) External Funding Requirements

(d) External Growth Rate

III. The Director C is talking about.....

(a) Internal Growth Rate

(b) Sustainable Growth Rate

(c) External Funding Requirements

(d) External Growth Rate

IV. If we go by the proposal of Director C, then approximately.....funds shall be raised from in form of equity or debt, assuming that dividend as proposed by Director A is paid out and assets and current liabilities are increased in the same proportion as increase in sales.

(a) ₹ 1,15,500 thousand

(b) ₹ 85,800 thousand

(c) ₹ 79,332 thousand

(d) ₹ 36,212 thousand

Security Valuation

3. XYZ company has current earnings of ₹ 3 per share with 5,00,000 shares outstanding. The company plans to issue 40,000, 7% convertible preference shares of ₹ 50 each at par. The preference shares are convertible into 2 shares for each preference shares held. The equity share has a current market price of ₹ 21 per share.

(i) What is preference share's conversion value?

(ii) What is conversion premium?

(iii) Assuming that total earnings remain the same, calculate the effect of the issue on the basic earning per share (a) before conversion (b) after conversion.

(iv) If profits after tax increases by ₹ 1 million what will be the basic EPS

(a) before conversion and

(b) on a fully diluted basis?

4. The following data are available for three bonds A, B and C. These bonds are used by a bond portfolio manager to fund an outflow scheduled in 6 year Current yield is 9%. All bonds have face value of ₹100 each and will be redeemed at par. Interest is payable annually.

Bond	Maturity (Years)	Coupon rate
A	10	10%
B	8	11%
C	5	9%

(i) Calculate the duration of each bond.

(ii) The bond portfolio manager has been asked to keep 45% of the portfolio money in Bond A. Calculate the percentage amount to be invested in bonds B and C that need to be purchased to immunise the portfolio.

(iii) After the portfolio has been formulated, an interest rate change occurs, increasing the yield to 11%. The new duration of these bonds are: Bond A = 7.15 Years, Bond B = 6.03 Years and Bond C = 4.27 years.

Is the portfolio still immunized? Why or why not?

(iv) Determine the new percentage of B and C bonds that are needed to immunize the portfolio. Bond A remaining at 45% of the portfolio.

Present values be used as follows :

Present Values	t_1	t_2	t_3	t_4	t_5
$PVIF_{0.09,t}$	0.917	0.842	0.772	0.708	0.650

Present Values	t_6	t_7	t_8	T_9	t_{10}
$PVIF_{0.09,t}$	0.596	0.547	0.502	0.460	0.422

Business Valuation

5. Equity of KGF Ltd. (KGFL) is ₹ 410 Crores, its debt, is worth ₹ 170 Crores. Printer Division segments value is attributable to 74%, which has an Asset Beta (β_p) of 1.45, balance value is applied on Spares and Consumables Division, which has an Asset Beta (β_{sc}) of 1.20 KGFL Debt beta (β_D) is 0.24.

You are required to calculate:

(i) Equity Beta (β_E) of KGFL.

(ii) Ascertain Equity Beta (β_E) of KGF Ltd., if it decides to change its Debt Equity position by raising further debt and buying back of equity to have its Debt Equity Ratio at 1.90. Assume that the present Debt Beta (β_{D1}) is 0.35 and any further funds raised by way of Debt will have a Beta (β_{D2}) of 0.40.

(iii) Evaluate whether the new Equity Beta (β_E) justifies increase in the value of equity on account of leverage?

Derivatives Analysis & Valuation

6. (i) A Rice Trader has planned to sell 22000 kg of Rice after 3 months from now. The spot price of the Rice is ₹ 60 per kg and 3 months Futures on the same is trading at ₹ 59 per kg. Size of the contract is 1000 kg.

Required:

(a) What the trader can do to mitigate its risk of reduced profit if the price is expected to fall as low as ₹ 56 per kg, 3 months hence.

(b) Suppose if trader decides to make use of Futures, what would be the effective realized price from its sale when after 3 months, spot price is ₹ 57 per kg and Futures contract price for 3 months is ₹ 58 per kg?

(ii) A company is long on 10 MT of copper @ ₹ 534 per kg (spot) and intends to remain so for the ensuing quarter. The variance of change in its spot and Futures prices are 16% and 36% respectively, having correlation coefficient of 0.75. The contract size of one contract is 1,000 kgs.

Required:

(a) Calculate the Optimal Hedge Ratio for perfect hedging in Futures Market.

(b) Advice the position to be taken in Futures Market for perfect hedging.

(c) Determine the number and the amount of the copper Futures to achieve a perfect hedge.

Interest Rate Risk Management

7. Electra space is consumer electronics wholesaler. The business of the firm is highly seasonal in nature. In 6 months of a year, firm has a huge cash deposits and especially near Christmas time and other 6 months firm cash crunch, leading to borrowing of money to cover up its exposures for running the business.

It is expected that firm shall borrow a sum of €50 million for the entire period of slack season in about 3 months.

A Bank has given the following quotations:

Spot	5.50% - 5.75%
3 × 6 FRA	5.59% - 5.82%
3 × 9 FRA	5.64% - 5.94%

3-month €50,000 Futures contract maturing in a period of 3 months is quoted at 94.15 (5.85%).

You are required to determine:

(a) How an FRA, shall be useful if the actual interest rate after 3 months turnout to be:

(i) 4.50% (ii) 6.50%

(b) How 3 months Futures contract shall be useful for company if actual interest rate turns out as mentioned in part (a) above.

Portfolio Management

8. Mr. A, a HNI invested on 1.4.2014 in certain equity shares as below:

Name of Co.	No. of shares	Cost (₹)
X Ltd.	1,00,000 (₹ 100 each)	2,00,00,000
Y Ltd.	50,000 (₹ 10 each)	1,50,00,000

In September 2014, 10% dividend was paid out by X Ltd. and in October 2014, 30% dividend paid out by Y Ltd. On 31.3.2015 market quotations showed a value of ₹ 220 and ₹ 290 per share for X Ltd. and Y Ltd. respectively.

On 1.4.2015, a technical analyst indicated as follows:

(1) that the probabilities of dividends from X Ltd. and Y Ltd. for the year ending 31.3.2016 are as below:

Probability factor	Dividend from X Ltd. (%)	Dividend from Y Ltd. (%)
0.2	10	15
0.3	15	20
0.5	20	35

(2) that the probabilities of market quotations on 31.3.2016 are as below:

Probability factor	Price/share of X Ltd.	Price/share of Y Ltd.
0.2	220	290
0.5	250	310
0.3	280	330

You are required to:

(i) Analyze the average return from the portfolio for the year ended 31.3.2015;

(ii) Analyze the expected average return from the portfolio for the year 2015-16; and

(iii) Advise Mr. A, of the comparative risk in the two investments.

Foreign Exchange Exposure and Risk Management

9. On 1st February 2025, XYZ Ltd. a laptop manufacturer imported a particular type of Memory Chips from SKH Semiconductor of South Korea. The payment is due in one month from the date of Invoice, amounting to 1190 Million South Korean Won (SKW). Following Spot Exchange Rates (1st February) are quoted in two different markets:

USD/ INR	85.00/ 85.50	in Mumbai
USD/ SKW	1390.00/ 1390.90	in New York

Since hedging of Foreign Exchange Risk was part of company's strategic policy and no contract for hedging in SKW was available at any in-shore market, it approached an off-shore Non-Deliverable Forward (NDF) Market for hedging the same risk.

In NDF Market a dealer quoted one-month USD/ SKW at 1390.00/1390.60 to be settled at reference rate declared by Bank of Korea.

After 1 month (1st March 2020) the dealer agreed for SKW 1385/ USD as rate for settlement and on the same day the Spot Rates in the above markets were as follows:

USD/ INR	85.50/ 85.75	in Mumbai
USD/ SKW	1388.00/ 1388.60	in New York

Analyze the position of company under each of the following cases, comparing with Spot Position of 1st February:

(i) Do Nothing.

(ii) Opting for NDF Contract.

Note: Both ₹/ SKW Rate and final payment (to be computed in ₹ Lakh) to be rounded off upto 4 decimal points.

10. Shanti exported 400 pieces of a designer jewellery to USA at $ 400 each. To manufacture and design this jewellery she imported raw material from Japan of the cost of JP¥ 12000 for each piece.

The labour cost and variable overhead incurred in producing each piece of jewellery are ₹ 2,600 and ₹ 1300 respectively.

Suppose Spot Rates are:

₹/ US$ ₹ 80.00 – ₹ 81.00

JP¥/ US$ JP¥ 135 – JP¥ 140

Shanti is expecting that by the time the export remittance is received and payment of import is made the expected Spot Rates are likely to be as follows:

₹/ US$ ₹ 83.90 – ₹ 84.25

JP¥/ US$ JP¥ 125 – JP¥ 131

You are required to calculate the resultant transaction exposure.

Mergers, Acquisitions and Corporate Restructuring

11. C Ltd. and P Ltd. both companies operating in the same industry decided to merge and form a new entity S Ltd. The relevant financial details of the two companies prior to merger announcement are as follows:

	C Ltd.	P Ltd.
Annual Earnings after Tax (₹ lakh)	10000	5800
No. Shares Outstanding (lakh)	4000	1000
PE Ratio (No. of Times)	8	10

The merger will be affected by means of stock swap (exchange) of 3 shares of C Ltd. for 1 share of P Ltd.

After the merger it is expected that due to synergy effects, Annual Earnings (Post Tax) are expected to be 8% higher than sum of the earnings of the two companies individually. Further, it is expected that P/E Ratio of S Ltd. shall be average of P/E Ratios of two companies before the merger.

You are required to determine the extent to which shareholders of P Ltd. will be benefitted per share from the proposed merger.

Mutual Funds

12. A mutual fund raised ₹ 150 lakhs on April 1, 2018 by issue of 15 lakh units at ₹ 10 per unit. The fund invested in several capital market instruments to build a portfolio of ₹ 140 lakhs, Initial expenses amounted to ₹ 8 lakhs. During the month of April, the fund sold certain instruments costing ₹ 44.75 lakhs for ₹ 47 lakhs and used the proceeds to purchase certain other securities for ₹ 41.60 lakhs. The fund

management expenses for the month amounted to ₹ 6 lakhs of which ₹ 50,000 was in arrears. The fund earned dividends amounting to ₹ 1.5 lakhs and it distributed 80% of the realized earnings. The market value of the portfolio on 30th April, 2018 was ₹ 147.85 lakhs.

An investor subscribed to 1000 units on April 1, 2018 and disposed it off at closing NAV on 30th April, 2018. Determine his annual rate of earnings.

International Financial Management

13. The Treasury desk of a global bank incorporated in UK wants to invest GBP 200 million on 1st January, 2019 for a period of 6 months and has the following options:

(1) The Equity Trading desk in Japan wants to invest the entire GBP 200 million in high dividend yielding Japanese securities that would earn a dividend income of JPY 1,182 million. The dividends are declared and paid on 29th June. Post dividend, the securities are expected to quote at a 2% discount. The desk also plans to earn JPY 10 million on a stock borrow lending activity because of this investment. The securities are to be sold on June 29 with a T+1 settlement and the amount remitted back to the Treasury in London.

(2) The Fixed Income desk of US proposed to invest the amount in 6 month G-Secs that provides a return of 5% p.a.

The exchange rates are as follows:

Currency Pair	1 Jan 2019 (Spot)	30 Jun 2019 (Forward)
GBP - JPY	148.0002	150.0000
GBP- USD	1.28000	1.30331

As a treasurer, advise the bank on the best investment option. What would be your decision from a risk perspective? You may ignore taxation.

Note: Calculate all figures in millions and round off them upto 4 decimal points.

Theoretical Questions

14. (a) What is a Unicorn startup? Who coined the term?

(b) Secondary participants play a vital role in strengthening securitization transactions. Explain.

15. (a) Briefly explain the various market indicators used in Technical Analysis.

(b) How the Buy and Sell signals are provided by Moving Average Analysis?

OR

Discuss the parameters used to identify Currency Risk.

SUGGESTED ANSWERS/HINTS

Question No.		Answer
1.	I	(b)
	II	(a)
	III	(d)
	IV	(d)
	V	(c)
2.	I	(a)
	II	(b)
	III	(c)
	IV	(d)

3. (i) Conversion value of preference share

Conversion Ratio x Market Price

2 × ₹ 21 = ₹ 42

(ii) Conversion Premium

(₹ 50/ ₹ 42) – 1 = 19.05%

(iii) Effect of the issue on basic EPS

	₹
Before Conversion	
Total (after tax) earnings ₹ 3 × 5,00,000	15,00,000
Dividend on Preference shares	1,40,000
Earnings available to equity holders	13,60,000
No. of shares	5,00,000
EPS	2.72
On Diluted Basis	
Earnings	15,00,000
No of shares (5,00,000 + 80,000)	5,80,000
EPS	2.59

(iv) EPS with increase in Profit

	₹
Before Conversion	
Earnings	25,00,000
Dividend on Pref. shares	1,40,000
Earning for equity shareholders	23,60,000
No. of equity shares	5,00,000
EPS	4.72
On Diluted Basis	
Earnings	25,00,000
No. of shows	5,80,000
EPS	4.31

4. (i) Calculation of Bond Duration

Bond A

Year	Cash flow	P.V. @ 9%		(1) x (4)
(1)	(2)	(3)	(4)	
1	10	0.917	9.17	9.17
2	10	0.842	8.42	16.84
3	10	0.772	7.72	23.16
4	10	0.708	7.08	28.32
5	10	0.650	6.50	32.50
6	10	0.596	5.96	35.76
7	10	0.547	5.47	38.29
8	10	0.502	5.02	40.16
9	10	0.460	4.60	41.40
10	110	0.422	46.42	464.20
			106.36	729.80

Duration of the bond A is $= \frac{729.80}{106.36} = 6.862$ years or 6.86 year

Bond B

Year	Cash flow	P.V. @ 9%		(1) x (4)
(1)	(2)	(3)	(4)	
1	11	0.917	10.09	10.09
2	11	0.842	9.26	18.52
3	11	0.772	8.49	25.47
4	11	0.708	7.79	31.16
5	11	0.650	7.15	35.75
6	11	0.596	6.56	39.36
7	11	0.547	6.02	42.14
8	111	0.502	55.77	445.76
			111.13	648.25

Duration of the bond B is $= \frac{648.25}{111.13} = 5.833$ years or 5.83 years

Bond C

Year	Cash flow	P.V. @ 9%		(1) x (4)
(1)	(2)	(3)	(4)	
1	9	0.917	8.25	8.25
2	9	0.842	7.58	15.16
3	9	0.772	6.95	20.85
4	9	0.708	6.37	25.48
5	109	0.650	70.85	354.25
			100.00	423.99

Duration of the bond C is = $\frac{423.99}{100}$ = 4.24 years

(ii) Amount of Investment required in Bond B and C

Period required to be immunized	6.000 Years
Less: Period covered from Bond A (45% of 6.86)	3.087 Years
To be immunized from B and C	2.913 Years

Let proportion of investment in Bond B and C is b and c respectively then.

b + c = 0.55 (1)

5.84b + 4.24c=2.913 (2)

On solving these equations, the value of b and c comes 0.3631 and 0.1869 respectively and accordingly, the % of investment of B and C is 36.31% and 18.69% respectively.

(iii) With revised yield the Revised Duration of Bond stands

0.45 x 7.15 + 0.3631 x 6.03 + 0.1869 x 4.27 = 6.21 year

No portfolio is not immunized as the duration of the portfolio has been increased from 6 years to 6.21 years.

(iv) New percentage of B and C bonds that are needed to immunize the portfolio.

Period required to be immunized	6.000 Year
Less: Period covered from Bond A (7.15 x 45%)	3.218 Year
To be immunized from B and C	2.782 Year

Let proportion of investment in Bond B and C is b and c respectively, then

b + c = 0.55

6.03b + 4.27c = 2.782

b = 0.2466

On solving these equations, the value of b and c comes 0.2463 and 0.3037 respectively and accordingly, the % of investment of B and C is 24.63% and 30.37 % respectively.

5. (i) Equity Beta

To calculate Equity Beta first we shall calculate Weighted Average of Asset Beta as follows:

= 1.45 x 0.74 + 1.20 x 0.26

= 1.073 + 0.312 = 1.385

Now we shall compute Equity Beta using the following formula:

$$\beta_{Asset} = \beta_{Equity}\left[\frac{E}{E+ D(1 - t)}\right] + \beta_{Debt}\left[\frac{D (1 - t)}{E+ D(1 - t)}\right]$$

Accordingly,

$$1.385 = \beta_{Equity}\left[\frac{410}{410 + 170}\right] + \beta_{Debt}\left[\frac{170}{410 + 170}\right]$$

$$1.385 = \beta_{Equity}\left[\frac{410}{580}\right] + 0.24\left[\frac{170}{580}\right]$$

$$\beta_{Equity} = 1.860$$

(ii) Equity Beta on change in Capital Structure

Amount of Debt to be raised:

Particulars	Value
Total Value of Firm (Equity ₹ 410 cr + Debt ₹ 170 cr)	₹580 Cr
Desired Debt Equity Ratio	1.90 : 1.00
Desired Debt Level = $\frac{Total\ Value\ x\ Debt\ Ratio}{Debt\ Ratio + Equity\ Ratio}$	₹ 380 Cr
Less : Value of Existing Debt	(₹ 170 Cr)
Value of Debt to be Raised	₹ 210 Cr

Equity after Repurchase = Total value of Firm – Desired Debt Value

= ₹ 580 Cr – ₹ 380 Cr

= ₹ 200 Cr

Weighted Average Beta of KGFL:

Source of Finance	Investment (₹ Cr)	Weight	Beta	Weighted Beta
Equity	200	0.345	$\beta_{(E = X)}$	0.345x
Debt – 1	170	0.293	0.35	0.103
Debt – 2	210	0.362	0.40	0.145
	580	Weighted Average Beta		0.248 + (0.345x)

β_{KGFL} = 0.248 + 0.345x

1.385 = 0.248 + 0.345x

0.345x = 1.385 – 0.248

x = 1.137/0.345 = 3.296

β_{KGFL} = 3.296

(iii) Since there is no increase in the value of equity after buyback, it does not justify the increase in the equity beta.

6 (i) (a) The trader can mitigate its risk of reduced profit by hedging his position by selling Rice Futures.

So, the gain on futures contract

= (₹ 59 – ₹ 56) x 22,000 kg. = ₹ 66,000

Revenue from the sale of Rice

= 22,000 x ₹ 56 = ₹ 12,32,000

Total Cash Flow = ₹ 12,32,000 + ₹ 66,000 = ₹ 12,98,000

$$\text{Cash Flow per kg. of Rice} = \frac{12,98,000}{22000} = ₹\ 59$$

So, Rice Trader's cash flow per kg. is equal to the futures price. This way his loss from physical sale is compensated by gain from the futures contract.

(b) The effective realized price for its sale after 3 months if spot price is ₹ 57 per kg and Future Price is ₹ 58 per kg.

The gain on futures contract

= (₹ 59 – ₹ 58) x 22,000 kg. = ₹ 22,000

Revenue from the sale of Rice

= 22,000 x ₹ 57 = ₹ 12,54,000

Total Cash Flow = ₹ 12,54,000 + ₹ 22,000 = ₹ 12,76,000

$$\text{Cash Flow per kg. of Rice} = \frac{₹12,76,000}{22,000} = ₹\ 58$$

(ii) (a) The optional hedge ratio to minimize the variance of Hedger's position is given by:

$$H = \rho\frac{\sigma_S}{\sigma_F}$$

Where

σ_S= Standard deviation of ΔS (Change in Spot Prices)

σ_F=Standard deviation of ΔF (Change in Future Prices)

ρ= coefficient of correlation between ΔS and ΔF

H= Hedge Ratio

ΔS = change in Spot price.

ΔF= change in Future price.

Accordingly

Standard deviation of ΔS = $\sqrt{16\%}$ = 4% and

Standard deviation of ΔF = $\sqrt{36\%}$ = 6% and

$H = 0.75 \times \frac{0.04}{0.06} = 0.50$

(b) Since the company is long position in Spot (Cash) Market it shall take Short Position in Futures Market.

(c) Since contact size of one contract is 1,000 Kg, the

$$\text{No. of Futures contract to be short} = \frac{10,000\,\text{Kgs}}{1,000\,\text{Kgs}} \times 0.50$$

$$= 5 \text{ Contracts}$$

Amount = 5000 x ₹ 534 = ₹ 26,70,000

7. (a) By entering into an FRA, firm shall effectively lock in interest rate for a specified future in the given it is 6 months. Since, the period of 6 months is starting in 3 months, the firm shall opt for 3 × 9 FRA locking borrowing rate at 5.94%. In the given scenarios, the net outcome shall be as follows:

	If the rate turns out to be 4.50%	**If the rate turns out to be 6.50%**
FRA Rate	5.94%	5.94%
Actual Interest Rate	4.50%	6.50%
Loss/ (Gain)	1.44%	(0.56%)
FRA Payment / (Receipts)	€50 m × 1.44% × ½ =	€50m × 0.56% × ½ = (€140,000)

Interest after 9 months on €50 Million at actual rates	€360,000 = €50m × 4.50% × ½ = €1,125,000	= € 50m × 6.50% × ½ = €1,625,000
Net Out Flow	€ 1,485,000	€1,485,000

Thus, by entering into FRA, the firm has committed itself to a rate of 5.94% as follows: $\frac{€\ 1,485,000}{€\ 50,000,000} \times 100 \times \frac{12}{6} = 5.94\%$

(b) Since firm is a borrower it will like to off-set interest cost by profit on Future Contract. Accordingly, if interest rate rises it will gain hence it should sell interest rate futures.

$$\text{No. of Contracts} = \frac{\text{Amount of Borrowing}}{\text{Contract Size}} \times \frac{\text{Duration of Loan}}{\text{3 months}}$$

$$= \frac{€\ 50,000,000}{€\ 50,000} \times \frac{6}{3} = 2000 \text{ Contracts}$$

The final outcome in the given two scenarios shall be as follows:

	If the interest rate turns out to be 4.50%	**If the interest rate turns out to be 6.50%**
Future Course Action:		
Sell to open	94.15	94.15
Buy to close	95.50 (100 - 4.50)	93.50 (100 - 6.50)
Loss/ (Gain)	1.35%	(0.65%)
Cash Payment (Receipt) for Future Settlement	€50,000×2000×1.35%×3/12 = €337,500	€50,000×2000×0.65%×3/12 = (€162,500)
Interest for 6 months	€50 million × 4.50%	€50 million × 6.50%

on €50 million at actual rates	× ½ = €11,25,000	× ½ = €16,25,000
	€1,462,500	€1,462,500

Thus, the firm locked itself in interest rate of $\frac{€1,462,500}{€50,000,000} \times 100 \times \frac{12}{6} = 5.85\%$

8. (i) Average return from the portfolio for the year ended 31.3.2015

Calculation of return on portfolio for 2014-15	**(Calculation in ₹ / share)**		
	X Ltd.	**Y Ltd.**	
Dividend received during the year	10	3	
Capital gain/loss by 31.03.15			
Market value by 31.03.15	220	290	
Cost of investment	200	300	
Gain/loss	20	(-)10	
Yield	30	(-)7	
Cost	200	300	
% return	15%	(-)2.33%	
Weight in the portfolio	57.14	42.86	
Weighted average return			7.56%

(ii) Average return from the portfolio for the year ended 2015-16 shall be calculated using the concept of joint probability as follows:

X Ltd.

Path	***Income from Dividend (₹)***	***Gain from Market Price (₹)***	***Total Yield (₹)***	***Joint Prob.***	***Exp. Yield (₹)***
1	10	220 – 220 = 0	10	0.20 x 0.20 = 0.04	0.40
2	10	250 – 220 = 30	40	0.20 x 0.50 = 0.10	4.00
3	10	280 – 220 = 60	70	0.20 x 0.30 = 0.06	4.20
4	15	220 – 220 = 0	15	0.30 x 0.20 = 0.06	0.90

5	15	250 – 220 = 30	45	0.30 x 0.50 = 0.15	6.75
6	15	280 – 220 = 60	75	0.30 x 0.30 = 0.09	6.75
7	20	220 – 220 = 0	20	0.50 x 0.20 = 0.10	2.00
8	20	250 – 220 = 30	50	0.50 x 0.50 = 0.25	12.50
9	20	280 – 220 = 60	80	0.50 x 0.30 = 0.15	12.00
Expected Yield (₹)					49.50
Market Value on 01.04.2015 (₹)					220
% Return					22.50

Y Ltd.

Path	*Income from Dividend (₹)*	*Gain from Market Price (₹)*	*Total Yield (₹)*	*Joint Prob.*	*Exp. Yield (₹)*
1	1.50	290 – 290 = 0	1.50	0.20 x 0.20 = 0.04	0.06
2	1.50	310 – 290 = 20	21.50	0.20 x 0.50 = 0.10	2.15
3	1.50	330 – 290 = 40	41.50	0.20 x 0.30 = 0.06	2.49
4	2.00	290 – 290 = 0	2.00	0.30 x 0.20 = 0.06	0.12
5	2.00	310 – 290 = 20	22.00	0.30 x 0.50 = 0.15	3.30
6	2.00	330 – 290 = 40	42.00	0.30 x 0.30 = 0.09	3.78
7	3.50	290 – 290 = 0	3.50	0.50 x 0.20 = 0.10	0.35
8	3.50	310 – 290 = 20	23.50	0.50 x 0.50 = 0.25	5.88
9	3.50	330 – 290 = 40	43.50	0.50 x 0.30 = 0.15	6.52
Expected Yield (₹)					24.65
Market Value on 01.04.2015 (₹)					290
% Return					8.50

Weight in portfolio (1,00,000 x 220): (50,000 x 290) 60.27 : 39.73

Weighted average (Expected) return (0.6027 x 22.50 + 0.3973 x 8.50) 16.94%

(iii) To analyze the risk of each investment we need to calculate the Standard Deviation of each investment as follows:

X Ltd.

Path	Prob. (1)	Yield (₹)	Dev. ($P_X - \overline{P_X}$)	Square of dev. (2)	(1) X (2)
1	0.04	10	-39.50	1560.25	62.41
2	0.10	40	-9.50	90.25	9.03
3	0.06	70	20.50	420.25	25.22
4	0.06	15	-34.50	1190.25	71.42
5	0.15	45	-4.50	20.25	3.04
6	0.09	75	25.50	650.25	58.52
7	0.10	20	-29.50	870.25	87.03
8	0.25	50	0.50	0.25	0.06
9	0.15	80	30.50	930.25	139.54
					σ^2_M = 456.27

Standard Deviation (σ_X) 21.36

Y Ltd.

Path	*Prob. (1)*	*Yield (₹)*	*Dev. ($P_Y - \overline{P_Y}$)*	*Square of dev. (2)*	(1) X (2)
1	0.04	1.50	-23.15	535.92	21.44
2	0.10	21.50	-3.15	9.92	0.99
3	0.06	41.50	16.85	283.92	17.04
4	0.06	2.00	-22.65	513.02	30.78
5	0.15	22.00	-2.65	7.02	1.05
6	0.09	42.00	17.35	301.02	27.09
7	0.10	3.50	-21.15	447.32	44.73
8	0.25	23.50	-1.15	1.32	0.33
9	0.15	43.50	18.85	355.32	53.30
					σ^2_N = 196.75

Standard Deviation (σ_Y) 14.03

Although Expected Return is higher in case of X Ltd. but it also has higher risk due to High S.D.

9. (i) Do Nothing

We shall compute the cross rates on both days and shall compare the amount payable in INR on these two days.

On 1st February 2025

Rupee – Dollar selling rate = ₹ 85.50

Dollar – SKW = SKW 1390.00

Rupee – SKW cross rate = ₹ 85.50 / 1390.00= ₹ 0.0615

Amount payable to Importer as per above rate (1190 Million x ₹ 0.0615) ₹ 731.8500 Lakh

On 1st March 2025

Rupee – Dollar selling rate = ₹ 85.75

Dollar – SKW = SKW 1388.00

Rupee – SKW cross rate = ₹ 85.75 / 1388.00 = ₹ 0.0618

Amount payable to Importer as per above rate (1190 Million x ₹ 0.0618) ₹ 735.4200 Lakh

Thus, Exchange Rate Loss = (₹ 735.4200 Lakh - ₹ 731.8500 Lakh) = ₹ 3.5700 Lakh

(ii) Hedging in NDF

Since company needs SKW after one month it will take long position in SKW at quoted rate of SKW 1390/ USD and after one-month it will reverse its position at fixing rate of SKW 1385/USD. The profit/ loss position will be as follows:

Buy SKW 1190 Million and sell USD (1190 Million/ 1390)	USD 8,56,115
Sell SKW 1190 Million and buy USD at Fixing Rate (1190 Million/ 1385)	USD 8,59,206
Profit	USD 3,091

Final Position

Amount Payable in Spot Market (as computed earlier)	₹ 735.4200 Lakh
Less: Profit form NDF Market USD 3091 x 85.50	₹ 2.6428 Lakh
	₹ 732.7772 Lakh

Thus, Exchange Rate Loss = (₹ 732.7772 Lakh - ₹ 731.8500 Lakh) = ₹ 0.9272 Lakh

Decision: Since Exchange Loss is less in case of NDF same can be opted for.

10. Profit as per Spot Rates

	₹
Sales Revenue (US$ 400 X 400 X ₹ 80)	1,28,00,000
Less: Cost of Imported Raw Material (400 X $\frac{12000}{135}$ X ₹ 81)	28,80,000
Labor Cost (400 X ₹ 2,600)	10,40,000
Variable Overheads (400 X ₹ 1300)	5,20,000
Profit	83,60,000

Profit as per expected Spot Rates

	₹
Sales Revenue (US$ 400 X 400 X ₹ 83.90)	134,24,000
Less: Cost of Imported Raw Material (400 X $\frac{12000}{125}$ X ₹ 84.25)	32,35,200
Labor Cost (400 X ₹ 2,600)	10,40,000
Variable Overheads (400 X ₹ 1300)	5,20,000
Profit	86,28,800

Increase/ (Decrease) in Profit due to Transaction Exposure ₹ 2,68,800

(₹ 86,28,800 – ₹ 83,60,000)

11. Working Notes:

(i) The Earnings of S Ltd.

	₹ lakh
Earnings of C Ltd.	10000
Earnings of D Ltd.	5800
	15800
Growth	0.08
Earnings of S Ltd. (15800 X 1.08)	17064

(ii) Market Value of S Ltd.

	₹ lakh
Earnings of S Ltd.	17064
P/E Ratio (10+8)/2	9
Market Value of S Ltd.	153576

(iii) No. of shares in S Ltd.

No. of shares of C Ltd.	4000
No. of shares issued to P Ltd.	3000
No. of shares of S Ltd.	7000

Gain to Shareholders of P Ltd.

Share of Shareholders of P Ltd. in S Ltd. (3000/7000) x 153576	₹ 65818.29 lakh
Market Value of P Ltd. before merger (5800 X 10)	₹ 58000.00 lakh
Gains to Shareholders	₹ 7818.29 lakh
No. of Shares (before merger)	1000 lakh
Gain Per Share	₹ 7.82

12.

	Amount in ₹ lakhs	Amount in ₹ lakhs	Amount in ₹ lakhs
Opening Bank Balance (150 - 140 - 8)	2.00		
Add: Proceeds from sale of securities	47.00		
Add: Dividend received	1.50	50.50	
Deduct:			
Cost of securities purchased	41.60		
Fund management expenses paid	5.50		
Capital gains distributed = 80% of (47 – 44.75)	1.80		
Dividend distributed =80% of 1.50	1.20	50.10	
Closing Bank			0.40
Closing market value of portfolio			147.85
			148.25
Less: Arrears of expenses			0.50
Closing Net Assets			147.75
Number of units (Lakhs)			15
Closing NAV per unit (147.75/15)			9.85

Rate of Earning (Per Unit)

	Amount
Income received (₹1.20 lakh + ₹ 1.80 lakh)/15 lakh	₹ 0.20
Less: Loss if units are disposed (₹ 150 lakh - ₹ 147.75)/15 lakh	₹ 0.15
Net earning	₹ 0.05
Initial investment	₹ 10.00
Rate of earning (monthly)	0.50%
Rate of earning (Annual)	6.00%

13. (1) Yield from Investment in Equity Trading Index in Japan

Conversion of GBP 200 million in JPY (148.0002)	JPY 29600.04 Million
Dividend Income	JPY 1182.00 Million
Stock Lending	JPY 10.00 Million
Investment Value at End	JPY 29008.0392 Million
Amount available at End	JPY 30200.0392 Million
Forward Rate of 30.06.2019	JPY 150/ GBP
Amount to be Remitted back to London	GBP 201.3336 Million
Gain = 201.3336 – 200	GBP 1.3336 Million

(2) Fixed Income Desk of US

Conversion of GBP 200 million in USD (1.28000)	USD 256.00 Million
Add: Interest @ 5% p.a. for 6 months	USD 6.40 Million
Amount available at End	USD 262.40 Million
Forward Rate of 30.06.2019	USD 1.30331/ GBP
Amount to be Remitted back to London	GBP 201.3335 Million
Gain = 201.3335 – 200	GBP 1.3335 Million

Decision: Investment in Japanese Yen is preferred over the investment in USD G- Sec as there is a marginal gain. From a risk perspective, the company should go for Option-2 Investment in G-Secs as they are risk free.

14 (a) A start-up is referred as a Unicorn if it has following features:

(i) A privately held start-up.

(ii) Valuation of start-up reaches US$ 1 Billion.

(iii) Emphasis is on the rarity of success of such start-up.

(iv) Other common features are new ideas, disruptive innovation, consumer focus, high on technology etc.

However, it is important to note that in case the valuation of any start-up slips below US$ 1 billion it can lose its status of 'Unicorn'. Hence a start-up may be Unicorn at one point of time and may not be at another point of time.

India has now emerged as the 3rd largest ecosystem for startups globally, after US and China, with over 59,000 DPIIT-recognized startups.

The next milestone for a Unicorn to achieve is to become a Decacorn, i.e., a company which has attained a valuation of more than US$ 10 billion.

This term was coined by venture capitalist Aileen Lee, first time in 2013.

(b) Yes, this statement is correct to some extent because each secondary participants play a vital role in securitization process as mentioned below:

(i) **Obligors:** They are the main root of the whole securitization process. They are the parties who owe money to the firm and are assets in the Balance Sheet of Originator. The amount due from the obligor is transferred to SPV and hence they form the basis of securitization process and their credit standing is of paramount importance in the whole process.

(ii) **Rating Agency**: Since the securitization is based on the pools of assets rather than the originators, the assets have to be assessed in terms of its credit quality and credit support available. Rating agency assesses the following:

- Strength of the Cash Flow.
- Mechanism to ensure timely payment of interest and principle repayment.
- Credit quality of obligors.
- Liquidity support.
- Strength of legal framework.

(c) **Receiving and Paying agent (RPA):** Also, called Servicer or Administrator, it collects the payment due from obligor(s) and passes it to SPV. It also follows up with defaulting obligor and if required initiate appropriate legal action against them. Generally, an originator or its affiliates acts as servicer.

(d) **Agent or Trustee:** Trustees are appointed to oversee that all parties to the deal perform in the true spirit of terms of agreement. Normally, it takes care of interest of investors who acquire the securities.

(e) **Credit Enhancer:** Since investors in securitized instruments are directly exposed to performance of the underlying securities and sometime may have limited or no recourse to the originator, they seek additional comfort in the form of credit enhancement. In other words, they require credit rating of issued securities which also empowers marketability of the securities.

(f) **Structurer:** It brings together the originator, investors, credit enhancers and other parties to the deal of securitization. Normally, these are investment bankers also called arranger of the deal. It ensures that deal meets all legal, regulatory, accounting and tax laws requirements.

15 **(a)** Various market indicators used in Technical Analysis are as follows:

(i) *Breadth Index:* It is an index that covers all securities traded. It is computed by dividing the net advances or declines in the market by the number of issues traded.

(ii) *Volume of Transactions:* The volume of shares traded in the market provides useful clues on how the market would behave in the near future. A rising index/price with increasing volume would signal buy behaviour because the situation reflects an unsatisfied demand in the market.

(iii) *Confidence Index:* It is the ratio of high-grade bond yields to low-grade bond yields. It is used by market analysts as a method of trading or timing the purchase and sale of stock,

and also, as a forecasting device to determine the turning points of the market.

(iv) *Relative Strength Analysis:* The relative strength concept suggests that the prices of some securities rise relatively faster in a bull market or decline more slowly in a bear market than other securities i.e. some securities exhibit relative strength.

(v) *Odd - Lot Theory:* The odd-lot theory is used primarily to predict tops in bull markets, but also to predict reversals in individual securities.

(b) The buy and sell signals provided by moving average analysis are as follows:

Buy Signal	Sell Signal
(a) Stock price line rise through the moving average line when graph of the moving average line is flattering out.	(a) Stock price line falls through moving average line when graph of the moving average line is flattering out.
(b) Stock price line falls below moving average line which is rising.	(b) Stock price line rises above moving average line which is falling.
(c) Stock price line which is above moving average line falls but begins to rise again before reaching the moving average line	(c) Stock price line which is slow moving average line rises but begins to fall again before reaching the moving average line.

OR

Some of the parameters to identity the currency risk are as follows:

(1) **Government Action:** The Government action of any country has visual impact in its currency. For example, the UK Govt. decision to divorce from European Union i.e. Brexit brought the pound to its lowest since 1980's.

(2) **Nominal Interest Rate:** As per interest rate parity (IRP) the currency exchange rate depends on the nominal interest of that country.

(3) **Inflation Rate:** Purchasing power parity theory discussed in later chapters impact the value of currency.

(4) **Natural Calamities:** Any natural calamity can have negative impact.

(5) **War, Coup, Rebellion etc.:** All these actions can have far reaching impact on currency's exchange rates.

(6) **Change of Government:** The change of government and its attitude towards foreign investment also helps to identify the currency risk.