



PAPER – 2

ADVANCED FINANCIAL MANAGEMENT



QUESTIONS

Portfolio Management

1. Two friend Mr. A and Mr. N were discussing about the risks of market. While Mr. A is sort of risk averse, Mr. N is an aggressive investor and believes in taking risk.

Mr. N said we cannot diversify the market risk at all, and he quoted the Modern Portfolio Approach. Both friends analyze the market data for the few months and came out with expected returns on two stocks for a particular market.

Market Return	Aggressive	Defensive
7%	4%	9%
25%	40%	18%

Based on above scenario, answer the following questions:

- I. The Beta of Defensive stock is.....
 - (a) 2
 - (b) 0.5
 - (c) 4
 - (d) 1
- II. If the market return is equally likely to be 7% or 25% then expected return of Aggressive stock shall be.....
 - (a) 18%

- (b) 13.50%
 - (c) 22%
 - (d) 11%
- III. The Alpha of the Defensive stocks is.....
- (a) -10%
 - (b) 22%
 - (c) 5.50%
 - (d) 12%
- IV. The Modern Portfolio Theory was propounded by
- (a) William Sharpe
 - (b) Black Scholes
 - (c) Stephen Ross
 - (d) Harry Markowitz
- V. As per Capital Market Line (CML) Theory the Portfolios lying on the CML over the market portfolio are called
- (a) Lending Portfolios
 - (b) Borrowing Portfolios
 - (c) Diversified Portfolios
 - (d) Risk- Free Portfolios

Mutual Funds

2. Mr. X on 1.7.2021, during the initial offer of some Mutual Fund invested in 10,000 units having face value of ₹ 10 for each unit. On 31.3.2022, the dividend paid by the M.F. was 10% and Mr. X found that his annualized yield was 153.33%. On 31.12.2023, 20% dividend was given. On 31.3.2024, Mr. X redeemed all his balance of 11,296.11 units when his annualized yield was 73.52%.

Based on the above information answer the following questions:

- I. NAV per unit of the Fund as on 31.03.2022 shall be approximately.....
 - (a) ₹ 19.50
 - (b) ₹ 20.50
 - (c) ₹ 21.50
 - (d) ₹ 22.50

- II. Total number of units as on 31.03.2022 shall be approximately.....
 - (a) 10487.80 units
 - (b) 12585.65 units
 - (c) 9465.35 units
 - (d) 11575.40 units

- III. Total Dividend received by Mr. X as on 31.03.2023 shall be
 - (a) ₹ 20,625.50
 - (b) ₹ 20,870.45
 - (c) ₹ 20,975.60
 - (d) ₹ 21,565.75

- IV. NAV per unit as on 31.03.2023 shall be approximately.....
 - (a) ₹ 24.65
 - (b) ₹ 24.85
 - (c) ₹ 25.95
 - (d) ₹ 26.45

- V. NAV as on 31.03.2024 shall be approximately.....
 - (a) ₹ 20.50

- (b) ₹ 25.95
- (c) ₹ 26.75
- (d) ₹ 27.20

Derivatives Analysis and Valuation

3. Mr. H is holding 100 equity shares of V Ltd. which is being quoted at ₹ 2,100 per share. He is interested in hedging downside risk of his holding as he is going to sell them after 2 months. A 2-month Call option is available at a premium of ₹ 60 per share and a 2-month put option is available at a premium of ₹ 50 per share. The strike price in both cases is ₹ 2,200. You are required to:
- (i) Suggest the position Mr. H should take in the option market to hedge his holding in the V Ltd.
 - (ii) Calculate his final position if after 2 months i.e., on the day of exercise the actual market price of per share of V Ltd. happens to be ₹ 2000, ₹ 2100, ₹ 2200, ₹ 2300 and ₹ 2400.
4. Mr. S has a portfolio of ₹ 50 lacs which he wants to invest in share market with rebalancing target after every 15 days to start with for a period of one month from now. The present NIFTY is 17025. The minimum NIFTY within a month can at most be 15322.50. He wants to know as to how he should rebalance his portfolio under the following situations, according to the theory of Constant Proportion Portfolio Insurance Policy, using "2" as the multiplier:
- (a) Immediately to start with.
 - (b) 15 days later-being the 1st day of rebalancing if NIFTY falls to 16321.89.
 - (c) 15 days further from the above date if the NIFTY touches 17512.14.
- Note:** 1. Assume that the value of his equity component will change in tandem with that of the NIFTY.
2. Round off calculations upto whole numbers.

Business Valuation

5. Compute EVA of X Ltd. with the help of following information:

Profit and Loss Statement	₹ lac	Balance Sheet	₹ lac
Revenue	1500	PPE	1500
Direct Costs	-585	Current Assets	450
Selling, General & Admin. Exp. (SGA)	-300		1950
EBIT	615	Equity	1050
Interest	-15	Reserves	150
EBT	600	Non-Current Borrowings	150
Tax Expense @30%	-180	Current Liabilities & Provisions	600
EAT	420		1950

Assume that Bad Debts provision of ₹ 30 Lac is included in the SGA, and same amount is reduced from the trade receivables in current assets.

Also assume that the pre-tax Cost of Debt is 12% and Equity shareholder's expected return is 10%.

Note: Make calculation in ₹ lac and round off up to 2 decimal points.

Foreign Exchange Exposure and Risk Management

6. PKR Ltd. has made purchases worth USD 8,00,000 on 1st May 2020 for which it has to make a payment on 1st November 2020. The present exchange rate is INR/USD 75. The company can purchase forward dollars at INR/USD 74. The company will have to make an upfront premium @ 1 per cent of the forward amount purchased.

The company can hedge its position with the following expected rate of USD in foreign exchange market on 1st May 2020:

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at INR/USD 74. The company will have to make an upfront premium @ 1 per cent of the forward amount purchased.

The company can hedge its position with the following expected rate of USD in foreign exchange market on 1st May 2020:

Exchange Rate	Probability
(i) INR/USD 77	0.15
(ii) INR/USD 71	0.25
(iii) INR/USD 79	0.20
(iv) INR/USD 74	0.40

You are required to advise the company for a suitable cover for risk assuming that the cost of funds to PKR Ltd. is 10 per cent per annum.

7. You as a dealer in foreign exchange have the following position in GBP on 31st October, 2019:

	GBP
Balance in the Nostro A/c Credit	2,00,000
Opening Position Overbought	1,00,000
Purchased a bill on London	1,60,000
Sold forward TT	1,20,000
Forward purchase contract cancelled	60,000
Remitted by TT	1,50,000
Draft on London cancelled	60,000

Decide the steps would you take, if you are required to maintain a credit Balance of GBP 65,000 in the Nostro A/c and keep as oversold position on GBP 20,000?

Advanced Capital Budgeting Decisions

8. JB Consultancy Group has determined relative utilities of cash flows of two forthcoming projects of its client company as follows:

Cash Flow in ₹	-150000	-100000	-40000	150000	100000	50000	10000
Utilities	-100	-60	-3	40	30	20	10

The distribution of cash flows of project X and Project Y are as follows:

Project X

Cash Flow (₹)	-150000	- 100000	150000	100000	50000
Probability	0.10	0.20	0.40	0.20	0.10

Project Y

Cash Flow (₹)	- 100000	-40000	150000	50000	100000
Probability	0.10	0.15	0.40	0.25	0.10

Which project should be selected and why?

Interest Rate Risk Management

9. B Bank Ltd. has entered into a plain vanilla swap through on Overnight Index Swap (OIS) on a principal of ₹ 10 crore and agreed to receive MIBOR overnight floating rate for a fixed payment on the principal. The swap was entered into on Monday, 10th July 2017 and was to commence on and from 11th July 2017 and run for a period of 7 days.

Respective MIBOR rates for Tuesday to Monday were:

8.75%, 9.15%, 9.12%, 8.95%, 8.98% and 9.15%.

If B Bank Ltd. received ₹ 4,170 net on settlement, calculate fixed rate and interest under both legs.

Notes:

- (i) Sunday is a holiday
- (ii) Work in rounded rupees and avoid decimal working
- (iii) Consider 365 days in a year.

Security Valuation

10. The Bank PK enters into a Repo for 9 days with Bank JJ in 6% Government Bonds 2022 for an amount of ₹ 20 crore. The other relevant details are as follows:

First Leg Payment (Start Proceed)	₹ 20,00,67,500
Second Leg Payment (Repayment Proceed)	₹ 20,03,17,590
Initial Margin	1.25%
Days of accrued interest	240

Assume 360 days in a year.

Calculate:

- (a) Repo Rate
- (b) Dirty Price and
- (c) Clean Price

11. Mr. A is holding 10000 shares of face value of ₹ 100 each of M/s. XYZ Ltd. He wants to hold these shares for long term and have no intention to sell.

On 1st January 2020, M/s. ABC Ltd. has made short sales of M/s. XYZ Ltd.'s shares and approached Mr. A to lend his shares under Stock Lending Scheme with following terms:

- (1) Shares to be borrowed for 3 months from 01-01-2020 to 31-03-2020,
- (2) Lending Charges/Fees of 1% to be paid every month on the closing price of the stock quoted in Stock Exchange and
- (3) Bank Guarantee will be provided as collateral for the value as on 01-01-2020.

Other Information:

- (a) Cost of Bank Guarantee is 8% per annum,
- (b) On 29-02-2020 M/s XYZ Ltd., declared dividend of 25%,
- (c) Closing price of M/s. XYZ Ltd.'s share quoted in Stock Exchange on various dates are as follows:

Date	Share Price in Scenario -1 Bullish	Share Price in Scenario -2 Bullish
01-01-2020	1000	1000
31-01-2020	1020	980
29-02-2020	1040	960
31-03-2020	1050	940

You are required to find out:

- (i) Earning of Mr. A through Stock Lending Scheme in both the scenarios,
- (ii) Total Earnings of Mr. A during 01-01-2020 to 31-03-2020 in both the scenarios,
- (iii) What is the Profit or loss to M/s. ABC by shorting the shares using through Stock Lending Scheme in both the scenarios?

Mergers and Acquisitions

12. L Ltd., is planning to acquire T Ltd., with the following data available for both the companies:

	L Ltd.	T Ltd.
Expected EPS	₹ 12	₹ 5
Expected DPS	₹ 10	₹ 3
No. of Shares	30,00,000	18,00,000
Current Market Price of Share	₹ 180	₹ 50

As per an estimate T Ltd., is expected to have steady growth of earnings and dividends to the tune of 6% per annum. However, under the new management the growth rate is likely to be enhanced to 8% per annum without additional investment.

You are required to:

- (i) Calculate the net cost of acquisition by L Ltd., if ₹ 60 is paid for each share of T Ltd.
- (ii) If the agreed exchange ratio is one share of L Ltd., for every three shares of T Ltd., in lieu of the cash acquisition as per (i) above, what will be the net cost of acquisition?
- (iii) Calculate Gain from acquisition.

International Financial management

13. The Management of a multinational company TL Ltd. is engaged in construction of Infrastructure Project. A proposal to construct a Toll Road in Nepal is under consideration of the Management.

The following information is available:

- ❖ The initial investment will be in purchase of equipment costing USD 250 lakhs. The economic life of the equipment is 10 years. The depreciation on the equipment will be charged on straight line method.
- ❖ EBIDTA to be collected from the Toll Road is projected to be USD 33 lakhs per annum for a period of 20 years.
- ❖ To encourage investment Nepalese government is offering a 15-year term loan of USD 150 lakhs at an interest rate of 6 per cent per annum. The interest is to be paid annually. The loan will be repaid at the end of 15 year in one tranche.
- ❖ The required rate of return for the project under all equity financing is 12 per cent per annum.
- ❖ Post tax cost of debt is 5.6 per cent per annum.
- ❖ Corporate Tax Rate is 30 per cent.
- ❖ All cash Flows will be in USD.

You are required to advise the management of TL Ltd. on the viability of the proposal by using Adjusted Net Present Value method. Ignore inflation.

Given

PVIFA (12%, 10) = 5.650, PVIFA (12%, 20) = 7.469, PVIFA (8%,15) = 8.559,
PVIF (8%, 15) = 0.315.

Note: Make calculations in USD Lakhs and round off them upto 3 decimal points.

Theoretical Questions

14. Explain the types of tests that can be employed to empirically verify the weak form of Efficient Market Theory.
15. Explain the concept of 'Unicorn'. Also mention the name of the startup became the India's first Unicorn.



SUGGESTED ANSWERS/HINTS

1.

I	(b)
II	(c)
III	(c)
IV	(d)
V	(c)

2.

I	(b)
II	(a)
III	(c)
IV	(c)
V	(c)

3. (i) Since Mr. H holds 100 equity shares, he should buy equal no. of Put option i.e. 100 put options in the same stock to hedge his position.

Total Premium amount to be paid = 50 x 100 Put = ₹ 5,000

(ii) Net Position after 2-months

	(₹)				
Share price on exercise day	2,000	2,100	2,200	2,300	2,400
Option exercise	Yes	Yes	No	No	No
Inflow (strike price)	2,200	2,200	Nil	Nil	Nil
Inflow (in open market)	-	-	2,200	2,300	2,400
Less outflow (premium)	50	50	50	50	50

Position (per share)	2,150	2,150	2,150	2,250	2,350
Total Position	2,15,000	2,15,000	2,15,000	2,25,000	2,35,000

Thus, from above table it can be observed in any case the value of holding of Mr. H in V Ltd. shall not go below ₹ 2,150 per share.

4. Maximum decline in one month = $\frac{17025-15322.50}{17025} \times 100 = 10\%$

(a) Immediately to start with

$$\begin{aligned} \text{Investment in equity} &= \text{Multiplier} \times (\text{Portfolio value} - \text{Floor value}) \\ &= 2 (\text{₹ } 50,00,000 - \text{₹ } 45,00,000) = \text{₹ } 10,00,000 \end{aligned}$$

Mr. S may invest ₹ 10,00,000 in equity and balance in risk free securities.

(b) After 15 days

$$\text{Value of equity} = 10,00,000 \times 16321.89 / 17025 = \text{₹ } 9,58,701$$

$$\text{Value of risk free investment} = \text{₹ } 40,00,000$$

$$\text{Total value of portfolio} = \text{₹ } 49,58,701$$

$$\begin{aligned} \text{Investment in equity} &= \text{Multiplier} \times (\text{Portfolio value} - \text{Floor value}) \\ &= 2 (\text{₹ } 49,58,701 - \text{₹ } 45,00,000) = \text{₹ } 9,17,402 \end{aligned}$$

Revised Portfolio:

$$\text{Equity} = \text{₹ } 9,17,402$$

$$\text{Risk free Securities} = \text{₹ } 49,58,701 - \text{₹ } 9,17,402 = \text{₹ } 40,41,299$$

(3) After another 15 days

$$\text{Value of equity} = 9,17,402 \times 17512.14 / 16321.89 = \text{₹ } 9,84,302$$

$$\text{Value of risk free investment} = \text{₹ } 40,41,299$$

$$\text{Total value of portfolio} = \text{₹ } 50,25,601$$

$$\begin{aligned} \text{Investment in equity} &= \text{Multiplier} \times (\text{Portfolio value} - \text{Floor value}) \\ &= 2 (\text{₹ } 50,25,601 - \text{₹ } 45,00,000) = \text{₹ } 10,51,202 \end{aligned}$$

Revised Portfolio:

Equity = ₹ 10,51,202

Risk Free Securities = ₹ 50,25,601 – ₹ 10,51,202 = ₹ 39,74,399

Thus, Mr. S should off-load ₹ 66,900 of risk free securities and divert to Equity.

5. Working Notes:

(a) Computation of NOPAT

	₹ Lac
EBIT	615.00
Less: Taxes	-184.50
Add: Non-Cash Expenses	30.00
NOPAT	460.50

(b) Computation of Invested Capital:

	₹ Lac
Total Assets	1950
Less: Non Interest bearing liabilities	-600
	1350
Add: Non Cash adjustment	30
Invested Capital	1380

Note: It is assumed that the current liabilities also include the 180 of tax liability.

(c) Computation the WACC

$$\begin{aligned} \text{WACC} &= \text{Cost of equity} + \text{Cost of debt} \\ &= (1200/1350 \times 10\%) + [150/1350 \times 12\% (1 - 0.30)] \\ &= 8.89\% + 0.933\% = 9.82\% \end{aligned}$$

(d) Capital Charge = Invested Capital * WACC

$$= ₹ 1380 \text{ lac} \times 9.82\% = ₹ 135.52 \text{ lac}$$

The formula for computing Economic Value Added:

$$\text{EVA} = \text{Adjusted NOPAT} - \text{Capital Charge.}$$

Accordingly, EVA of X Ltd. is

$$= ₹ 460.50 \text{ lac} - ₹ 135.52 \text{ lac} = ₹ 324.98 \text{ lac}$$

6. (i) If PKR Ltd. does not take forward cover (Unhedged Position):

$$\text{Expected Rate} = ₹ 77 \times 0.15 + ₹ 71 \times 0.25 + ₹ 79 \times 0.20 + ₹ 74 \times 0.40$$

$$= ₹ 11.55 + ₹ 17.75 + ₹ 15.80 + ₹ 29.60 = ₹ 74.70$$

$$\text{Expected Amount Payable} = \text{USD } 8,00,000 \times ₹ 74.70 = ₹ 5,97,60,000$$

- (ii) If the PKR Ltd. hedge its position in the forward market:

Particulars	Amount (₹)
If company purchases US\$ 8,00,000 forward premium is (800000 × 74 × 1%)	5,92,000
Interest on ₹ 5,92,000 for 6 months at 10%	29,600
Total hedging cost (a)	6,21,600
Amount to be paid for US\$ 8,00,000 @ ₹ 74.00 (b)	5,92,00,000
Total Cost (a) + (b)	5,98,21,600

Advice: Since cash outflow is lesser in case of unhedged position company should opt for the same.

7. (i) Exchange Position:

Particulars	Purchases (GBP)	Sales (GBP)
Opening Balance Overbought	1,00,000	
Bill on London	1,60,000	
Forward Sales – TT		1,20,000
Cancellation of Forward Contract		60,000
TT Sales		1,50,000

Draft on London cancelled	60,000	—
	3,20,000	3,30,000
Closing Balance Oversold	10,000	—
	3,30,000	3,30,000

(ii) Cash Position (Nostro A/c)

	Credit	Debit
Opening balance credit	2,00,000	—
TT sales	—	1,50,000
	2,00,000	1,50,000
Closing balance (credit)	—	50,000
	2,00,000	2,00,000

The Bank has to buy spot TT GBP 15,000 to increase the balance in Nostro account to GBP 65,000.

This would bring the overbought position on GBP to 5,000.

Since the bank requires an oversold position of GBP 20,000, it has to sell forward GBP 25,000.

8. Evaluation of project utilizes of Project X and Project Y

Cash flow (in ₹)	Project X		
	Probability	Utility	Utility value
-1,50,000	0.10	-100	-10
-1,00,000	0.20	-60	-12
1,50,000	0.40	40	16
1,00,000	0.20	30	6
50,000	0.10	20	<u>2</u>
			<u>2</u>

Cash flow (in ₹)	Project Y		
	Probability	Utility	Utility value
-1,00,000	0.10	-60	-6
-40,000	0.15	-3	-0.45
1,50,000	0.40	40	16
50,000	0.25	20	5
1,00,000	0.10	30	3
			<u>17.55</u>

Project X should be selected as its expected utility is more.

9.

Day	Principal (₹)	MIBOR (%)	Interest (₹)
Tuesday	10,00,00,000	8.75	23,973
Wednesday	10,00,23,973	9.15	25,075
Thursday	10,00,49,048	9.12	24,999
Friday	10,00,74,047	8.95	24,539
Saturday & Sunday (*)	10,00,98,586	8.98	49,254
Monday	10,01,47,840	9.15	<u>25,106</u>
Total Interest @ Floating			1,72,946
Less: Net Received			<u>4,170</u>
Expected Interest @ fixed			<u>1,68,776</u>
Thus, Fixed Rate of Interest			0.0880046
Approx.			8.80%**

(*) i.e. interest for two days.

(**) ₹ 10 crore x 'X'/100 x 7/365 = ₹ 1,68,776

$$\text{Hence, } X = \frac{1,68,776 \times 365 \times 100}{1 \text{ cr.} \times 7}$$

$$= 8.80\%$$

10. (1) Second Leg = Start Proceed $\times \left(1 + \text{Repo Rate} \times \frac{\text{No. of days}}{360}\right)$

$$₹ 20,03,17,590 = ₹ 20,00,67,500 \times \left(1 + \text{Repo Rate} \times \frac{9}{360}\right)$$

$$1.00125 = \left(1 + \text{Repo Rate} \times \frac{9}{360}\right)$$

Repo Rate = 0.05 = 5%

(2) First Leg (Start Proceed) = Nominal Value $\times \frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100}$

$$₹ 20,00,67,500 = ₹ 20,00,00,000 \times \frac{\text{Dirty Price}}{100} \times \frac{100 - 1.25}{100}$$

$$10003.375 = 98.75 \times \text{Dirty Price}$$

Dirty Price = ₹ 101.30

(3) Dirty Price = Clean Price + Interest Accrued

$$₹ 101.30 = \text{Clean Price} + 100 \times \frac{240}{360} \times 6\%$$

Clean Price = ₹ 97.30

11. Earnings of Mr. A through stock lending scheme

		Scenario 1	Scenario 2
(i)	Lending fee		
	31-01-20 1020 x 1% and 980 x 1%	10.20	9.80
	29-02-20 1040 x 1% and 960 x 1%	10.40	9.60
	31-03-20 1050 x 1% and 940 x 1%	10.50	9.40
	Earnings from lending per Share (A)	31.10	28.80
	Total No. of Shares	10000	10000
	Total Earning from Lending	3,11,000	2,88,000
(ii)	Dividend income per Share (B)	25.00	25.00
	Total earnings per share (A) + (B)	56.10	53.80
	Total No. of Shares	10000	10000

	Total Earning	5,61,000	5,38,000
(iii)	Gain on shortening the shares (1,050 - 1,000) and (1,000 - 940)	(50.00)	60.00
	Lending fees paid per share	(31.10)	(28.80)
	Bank guarantee charges @ 8% p.a.	(20.00)	(20.00)
	Gain Per Share	(101.10)	11.20
	Total No. of Shares	10000	10000
	Total Gain on shortening the shares	(10,11,000)	1,12,000

12. (i) **Net cost of acquisition shall be computed as follows:**

Cash Paid for the shares of T Ltd. (₹ 60 × 18,00,000)	₹ 10,80,00,000
Less: Value of T Ltd., as a separate entity (18,00,000 × ₹ 50)	₹ 9,00,00,000
Net Cost of acquisition of Tall Ltd.	₹ 1,80,00,000

(ii) **Net Cost of acquisition in case of exchange of shares:**

Exchange ratio = 1 share of L Ltd for every 3 shares of T Ltd.

Number of shares to be issued in L Ltd. (18,00,000/3)	= 6,00,000 shares = 36,00,000
Total no. of shares in L Ltd. after merger (30,00,000 + 6,00,000)	
Calculation of cost of Equity of T Ltd.	= $D_1/P_0 + g$
Growth rate under new management after acquisition	= ₹ 3/50 + 0.06 = 12%
Value of Merged company assuming perpetual growth	= 8%
Value of merged company (₹ 180 × 30,00,000) + [₹ 3/ (0.12 - 0.08)] × 18,00,000	= ₹ 67,50,00,000
= ₹ 54,00,00,000 + [₹ 75 × 18,00,000]	

Value per share of merged company (₹ 67,50,00,000/36,00,000)	= ₹ 187.50 per share
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Net cost of acquisition

Gross cost of acquisition (6,00,000 x ₹ 187.50)	₹ 11,25,00,000
Less: CMP (18,00,000 x ₹ 50)	<u>₹ 9,00,00,000</u>
Net Cost of acquisition	<u>₹ 2,25,00,000</u>

Alternatively, Net Cost of Acquisition can also be computed as follows:

No. of shares issued to shareholders of T Ltd. in the ratio of 1:3	6,00,000
Existing price of one share of L Ltd.	₹ 180
Value of consideration paid for acquisition of T Ltd.	₹ 10,80,00,000
Less: Existing Value of T Ltd., as a separate entity	₹ 9,00,00,000
Net Cost of acquisition of T Ltd.	<u>₹ 1,80,00,000</u>

(iii) Calculation of gain from acquisition:

Total Earnings of L Ltd. (₹ 12 x 30,00,000)	₹ 3,60,00,000
Total Earnings of T Ltd. (₹ 5 x 18,00,000)	₹ 90,00,000
Combined Earnings	₹ 4,50,00,000
PE Ratio of L Ltd. (180/12)	15
Value of L Ltd. after acquisition	₹ 67,50,00,000
Less: Value of two companies separately	
L Ltd. (₹ 180 x 30,00,000)	₹ 54,00,00,000
T Ltd. (₹ 50 x 18,00,000)	<u>₹ 9,00,00,000</u>
	₹ 63,00,00,000
Gain from Acquisition	<u>₹ 4,50,00,000</u>

13. (i) Net Present Value (All Equity Financed) – Base NPV

Particulars	Period	USD Lakhs	PVF @ 12%	PV (USD Lakhs)
Initial Investment	0	(250.00)	1.000	(250.000)
EBIDTA	1 to 20	33.00	7.469	246.477
Tax	1 to 20	(9.90)	7.469	(73.943)
Depreciation	1 to 10	(25.00)		
Tax Saving on Dep	1 to 10	7.50	5.650	42.375
NPV				(35.091)

(ii) Present Value of Impact of Financing by Debt

Particulars	Period	USD Lakhs	PVF @ 8%	PV (USD Lakhs)
Tax Saving on Interest	1 to 15	2.70	8.559	23.109

Adjusted Present Value of the Project

Base NPV + PV of Tax Shield on Interest

= - US\$ 35.091 + US \$ 23.109 lakh

= - US\$ 11.982 lakh

Advise: Since APV is negative, TL Ltd. should not accept the project.

14. Following three types of tests can be employed to empirically verify the weak form of Efficient Market Theory:

- (a) **Serial Correlation Test:** To test for randomness in stock price changes, one has to look at serial correlation. For this purpose, price change in one period has to be correlated with price change in some other period. Price changes are considered to be serially independent. Serial correlation studies employing different stocks, different time lags and different time period have been conducted to detect serial correlation but no significant serial correlation could be discovered. These studies were carried on short term trends viz. daily, weekly, fortnightly and monthly and not in long

term trends in stock prices as in such cases. Stock prices tend to move upwards.

- (b) **Run Test:** Given a series of stock price changes each price change is designated + if it represents an increase and – if it represents a decrease. The resulting series may be -, +, -, -, -, +, +.

A run occurs when there is no difference between the sign of two changes. When the sign of change differs, the run ends and new run begins.

To test a series of price change for independence, the number of runs in that series is compared with a number of runs in a purely random series of the size and in the process determines whether it is statistically different. By and large, the result of these studies strongly supports the Random Walk Model.

- (c) **Filter Rules Test:** If the price of stock increases by at least N% buy and hold it until its price decreases by at least N% from a subsequent high. When the price decreases at least N% or more, sell it. If the behaviour of stock price changes is random, filter rules should not apply in such a buy and hold strategy. By and large, studies suggest that filter rules do not out perform a single buy and hold strategy particular after considering commission on transaction.

15. A Unicorn is a privately held start-up company which has achieved a valuation US\$ 1 billion. This term was coined by venture capitalist Aileen Lee, first time in 2013. Unicorn, a mythical animal represents the statistical rarity of successful ventures.

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.

In September 2011, InMobi, an ad-tech startup, became the first Unicorn of India. SoftBank invested US\$ 200 million in InMobi valuing the mobile advertising company at over US\$ 1 billion, making it India's first unicorn.