Mock Test Paper - Series II: April, 2024

Date of Paper: 3 April, 2024

Time of Paper: 2 P.M. to 5 P.M.

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

Time Allowed – 3 Hours **Maximum Marks – 100**

1. *The question paper comprises two parts, Part I and Part II.*
2. *Part I comprises Case Scenario based Multiple Choice Questions (MCQs)*
3. *Part II comprises questions which require descriptive type answers.*

PART I – Case Scenario based MCQs (30 Marks)

Part I is compulsory.

Case Scenario I

During one business meeting at XYZ Ltd., one of the member pointed out that while evaluating the performance of any company one should not only see its Operating Income but should also analyse its Capital structure as well. Weighted Average Cost of Capital changes on the basis of capital structure keeping all other factors unchanged.

He presented data relating to 3 companies Alpha Ltd., Beta Ltd. and Gama Ltd. whose operating Income are equal, but their capital structure is different.

The following information relating to these 3 companies is as follows:

(in ₹ 000)

	Alpha Ltd.	Beta Ltd.	Gama Ltd.
Total invested capital	20,00,000	20,00,000	20,00,000
Debt/Assets ratio	0.8	0.5	0.2
Shares outstanding	61,000	83,000	1,00,000
Pre tax Cost of Debt	16%	13%	15%
Cost of Equity	26%	22%	20%
Operating Income (EBIT)	5,00,000	5,00,000	5,00,000

The Tax rate is uniform 35% in all cases. The industry PE ratio is 11X.

Based on above case scenario, choose the most appropriate answer of the following:

1. The weighted average cost of capital of Alpha Ltd. shall approximately be ……..

   (a) 13.520%

   (b) 15.225%

   (c) 17.950%

   (d) 18.000%

2. The Economic Valued Added (EVA) for Beta Ltd. is…….

   (a) ₹ 54600 Thousand

   (b) ₹ 20500 Thousand

   (c) (-) ₹ 34000 Thousand

   (d) ₹ 21500 Thousand

3. The price per share of Gama Ltd. shall be ……..

   (a) ₹ 28.60

   (b) ₹ 31.90

   (c) ₹ 31.46

   (d) ₹ 29.45

4. The estimated market capitalisation for Alpha Ltd. is…….

   (a) ₹ 26,47,700 Thousand

   (b) ₹ 31,46,000 Thousand

   (c) ₹ 17,44,600 Thousand

   (d) ₹ 23,73,800 Thousand

5. Earning per share of Beta Ltd. is……..

   (a) ₹ 2.60

   (b) ₹ 2.90

   (c) ₹ 2.86

   (d) ₹ 2.15 **(5 x 2 = 10 Marks)**

Case Scenario II

On 1 October 2023 Mr. X an exporter enters into a forward contract with a BNP Bank to sell US$ 1,00,000 on 31 December 2023 at ₹ 85.40/$. However, due to the request of the importer, Mr. X received the amount on 28 November 2023. Mr. X requested the bank the take delivery of the remittance on 30 November 2023 i.e., before due date. The inter-banking rates on 28 November 2023 was as follows:

Spot	₹ 85.22/85.27
One Month Premium	10/15

Note: (1) Consider 365 days in a year.

(2) Prevailing Prime Lending Rate is 12%

Based on above case scenario, choose the most appropriate answer of the following:

6. The bank may accept the request of customer of delivery before due date of forward contract provided the customer is ready to bear the loss if any consisting of……

   (a) Swap Difference

   (b) Interest on Outlay of Fund

(c) Swap Difference Plus Interest on Outlay of Fund

(d) Fixed Charges Plus Swap Difference and Interest on Outlay of Fund

7. In case of early delivery bank shall charge interest on outlay of fund at a rate not less than……..

(a) 8%

(b) 10%

(c) 12%

(d) 18%

8. Swap Difference for US$ 1,00,000 is……..

(a) ₹ 5,000

(b) ₹ 20,000

(c) ₹ 18,000

(d) ₹ 8,000

9. Interest on outlay of funds shall be approximately…….

(a) ₹ 92 payable by X

(b) ₹ 183 payable by X

(c) ₹ 183 payable by Bank

(d) ₹ 122 payable by Bank

10. Net inflow to Mr. X is approximately……..

(a) ₹ 85,42,183

(b) ₹ 85,20,000

(c) ₹ 85,19,817

(d) ₹ 85,40,000 **(5 x 2 = 10 Marks)**

Case Scenario III

A US parent company has subsidiaries in France, Germany, UK and Italy. The amounts due to and from the affiliates is converted into a common currency viz. US dollar and entered in the following matrix.

Inter Subsidiary Payments Matrix **(US $ Thousands)**

		Paying affiliate				
		France	Germany	UK	Italy	**Total**
Receiving affiliate	France	---	80	120	200	400
	Germany	120	---	80	160	360
	UK	160	120	---	140	420
	Italy	200	60	120	---	380
	Total	480	260	320	500	**1560**

The treasurer of US Parent company is suggesting that by applying Multilateral Netting system the company can save a lot of transfer/ exchange costs. The company's Board agreed with Treasurer's proposal.

From the above case scenario, choose the most appropriate answer of following MCQs.

11. Before applying Multilateral Netting it is necessary to apply…….
    (a) Unilateral Netting
    (b) Bilateral Netting
    (c) Multilateral Netting
    (d) Interest Rate Swapping
12. Through Multinational Netting these transfers will be reduced to …….
    (a) $ 50,000
    (b) $ 100,000
    (c) $ 150,000
    (d) $ 200,000
13. The Net Payment/ Net Receipts for France after netting off shall be…….
    (a) Net Receipt $ 40,000
    (b) Net Payment $ 80,000
    (c) Net Payment $ 40,000
    (d) Net Receipt $ 80,000
14. The Net Payment/ Net Receipts for Italy after netting off shall be…….
    (a) Net Receipt $ 60,000
    (b) Net Payment $ 120,000
    (c) Net Payment $ 60,000
    (d) Net Receipt $ 120,000
15. Suppose if the transfer charges are 0.01% of the amount transferred then by applying multilateral netting techniques there will be reduction in overall cost of transfer by …….
    (a) US $ 136
    (b) US $ 156
    (c) US $ 1,360
    (d) US $ 1,560 **(5 x 2 = 10 Marks)**

PART – II DESCRIPTIVE QUESTIONS

Question No.1 is compulsory. Candidates are required to answer any four questions from the remaining five questions.

Working notes should form part of the answers.

Maximum Marks – 70 Marks

1. (a) You as an investor had purchased a 4-month call option on the equity shares of ABC Ltd. of ₹ 10, of which the current market price is ₹ 660 per share and the exercise price ₹ 750. You expect the price to range between ₹ 600 to ₹ 950. The expected share price of ABC Ltd. and related probability is given below:

Expected Price (₹)	600	700	800	900	950
Probability	0.05	0.20	0.50	0.10	0.15

Evaluate the following:

(i) Expected Share price at the end of 4 months.

(ii) Value of Call Option at the end of 4 months if the exercise price prevails.

(iii) In case the option is held to its maturity, estimate expected value of the call option? **(6 Marks)**

(b) Share of Beta Ltd. is being quoted at a Price-Earning ratio of 10 times. In the coming year the company is expected to retain ₹ 10 per share which is 45% of its Earning Per Share.

You are required to evaluate:

(i) The cost of equity to the company if the market expects a growth rate of 10% p.a.

(ii) If the anticipated growth rate is 12% per annum, calculate the indicative market price with the same cost of capital. **(4 Marks)**

(c) Why is there a need for succession planning in business? Explain.

(4 Marks)

2. (a) On January 28, 2023, an importer customer requested a Bank to remit Singapore Dollar (SGD) 2,500,000 under an irrevocable Letter of Credit (LC). However, due to unavoidable factors, the Bank could affect the remittances only on February 4, 2023. The inter-bank market rates were as follows:

		January 28, 2023	**February 4, 2023**
US$ 1=		₹ 80.91/80.97	₹ 80.85/80.90
GBP £ 1	=	US$ 1.7765/1.7775	US$ 1.7840/1.7850
GBP £ 1	=	SGD 2. 1380/2.1390	SGD 2.1575/2.1590

The Bank wishes to retain an exchange margin of 0.125% on ₹/ SGD.

Required:

Estimate how much does the customer stand to gain or lose due to the delay?

(Note: Calculate the rate in multiples of 0.0001) **(6 Marks)**

(b) Bank A enter into a Repo for 14 days with Bank B in 10% Government of India Bonds 2028 @ 5.65% for ₹ 8 crore. Assuming that clean price (the price that does not have accrued interest) be ₹ 99.42 and initial Margin be 3% and days of accrued interest be 272 days.

You are required to calculate:

(i) Dirty Price

(ii) Approximate Repayment amount at maturity.

Note: (1) Consider 360 days in a year.

(2) Round off calculations upto 2 decimals points. **(4 Marks)**

(c) What are the parameters to identify currency risk? List out the ways to minimize such risk. **(4 Marks)**

3. (a) Suppose that economy A is growing rapidly, and you are managing a global equity fund and so far you have invested only in developed-country stocks only. Now you have decided to add stocks of economy A to your portfolio. The table below shows the expected rates of return, standard deviations, and correlation coefficients (all estimates are for aggregate stock market of developed countries and stock market of Economy A).

	Developed Country Stocks	**Stocks of Economy A**
Expected rate of return (annualized percentage)	20	30
Risk [Annualized Standard Deviation (%)]	16	30
Correlation Coefficient (ρ) between stock of two economies	0.30	

Assuming the risk-free interest rate to be 6%, you are required to determine:

(i) What percentage of your portfolio should you allocate to stocks of Economy A if you want to increase the expected rate of return on your portfolio by 1%?

(ii) What will be the standard deviation of your portfolio assuming that stocks of Economy A are included in the portfolio as calculated above?

(iii) Also show how well the Fund will be compensated for the risk undertaken due to inclusion of stocks of Economy A in the portfolio?

(**6 Marks)**

(b) An investor has two portfolios known to be on minimum variance set for a population of three securities X, Y and Z having below mentioned weights:

	WX	WY	WZ
Portfolio A	0.30	0.40	0.30
Portfolio B	0.20	0.50	0.30

Calculate the weight for each stock for a portfolio constructed by investing ₹ 10,00,000 in portfolio A and ₹ 6,00,000 in portfolio B.

(4 Marks)

(c) Either

Briefly explain Blockchain transaction. List the risks associated with Blockchain. **(4 Marks)**

(c) **Or**

Explain briefly the financial measures that help in evaluation of performance of any Mutual Fund. (**4 Marks)**

4. (a) Your client is holding the following securities:

Particulars of Securities	Cost	Dividends/ Interest	Market price at the end of holding period	Beta
	₹	₹	₹	
Equity Shares:				
G Ltd.	20,000	1,450	19,600	0.6
S Ltd.	30,000	1,000	30,400	0.8
B Ltd.	28,000	1,400	32,000	0.6
GOI Bonds	72,000	5,060	71,980	0.01

Evaluate:

(i) Risk free rate of return.

(ii) Expected rate of return of each security (except GOI Bond), using the Capital Asset Pricing Model (CAPM).

Note: (1) Use weighted average Beta in calculations.

(2) Round off calculations upto 3 decimal points. **(6 Marks)**

(b) XYZ Plan, a hedge fund currently has assets of ₹ 40 crore. Mr. A, the manager of fund charges fee of 0.10% of portfolio asset. In addition to it he charges an incentive fee of 2%. The incentive will be linked to gross return each year in excess of the portfolio maximum value since the

inception of fund. The maximum value the fund achieved so far since inception of fund about one and half year ago was ₹ 42 crores.

Evaluate:

(i) Benchmark Return to make Mr. A eligible for incentive fee.

(ii) The fee payable to Mr. A if return on the fund this year turns out to be :

(1) 29% (2) 4.5% **(4 Marks)**

(c) What do you mean by Corporate Level Strategy. Also explain three basic questions Corporate Level Strategy should be able to answer.

(4 Marks)

5. (a) T plc wants to acquire L plc. The balance sheet of L plc as on 31st March 2022 is as follows:

Liabilities	£	Assets	£
Equity Capital (35,00,000 shares)	35,00,000	Cash	2,50,000
Retained earnings	15,00,000	Debtors	3,50,000
12% Debentures	15,00,000	Inventories	10,00,000
Creditors and other liabilities	16,00,000	Plants & Eqpt.	65,00,000
	81,00,000		81,00,000

Additional Information:

(i) Shareholders of L plc will get one share in T plc for every two shares. External liabilities are expected to be settled at £ 2.50 Million. Shares of T plc would be issued at its current price of £ 1.50 per share. Debenture holders will get 13% convertible debentures in the purchasing company for the same amount. Debtors and inventories are expected to realize £ 1 Million.

(ii) T plc has decided to operate the business of L plc as a separate division. The division is likely to give cash flows (after tax) to the extent of £ 2.50 Million per year for 6 years. T plc has planned that, after 6 years, this division would be demerged and disposed of for £ 1 Million.

(iii) The company's cost of capital is 16%.

Advise the Board of the company about the financial feasibility of this acquisition.

Net present values for 16% for £ 1 are as follows:

Years	1	2	3	4	5	6
PV	0.862	0.743	0.641	0.552	0.476	0.410

(6 Marks)

(b) A mutual fund company introduces two schemes i.e. Dividend plan (Plan-D) and Bonus plan (Plan-B). The face value of the unit is ₹ 10. On 1-4-2018 Mr. K invested ₹ 2,00,000 each in Plan-D and Plan-B when the NAV was ₹ 38.20 and ₹ 35.60 respectively. Both the plans matured on 31-3-2023.

Particulars of dividend and bonus declared over the period are as follows:

Date	Dividend %	Bonus Ratio	Net Asset Value (₹)	
			Plan D	Plan B
30-09-2018	10	---	39.10	35.60
30-06-2019	---	1:5	41.15	36.25
31-03-2020	15	---	44.20	33.10
15-09-2021	13	---	45.05	37.25
30-10-2021	---	1:8	42.70	38.30
27-03-2022	16	---	44.80	39.10
11-04-2022	---	1:10	40.25	38.90
31-03-2023	---	---	40.40	39.70

Evaluate the Effective Yield Per Annum in respect of the above two plans.

Note:

1. Use following PV Factors:

   PVIF (2%,5) = 0.9057, PVIF (4%,5) = 0.8219, PVIF (8%,5) = 0.6806, PVIF (13%,5) = 0.5428

2. Round off calculations upto 2 decimal points. **(8 Marks)**

6. (a) R Ltd. is considering a project with the following Cash flows:

in ₹

Years	Cost of Plant	Recurring Cost	Savings
0	20,000		
1		8,000	24,000
2		10,000	28,000

The cost of capital is 9%.

Evaluate the sensitivity of the project in respect of all factors except time such that:

(i) NPV become zero and

(ii) adversely varying factors value by 10%.

The P.V. factor at 9% are as under:

Year	Factor
0	1
1	0.917
2	0.842

Note: Round off calculation upto 2 decimal points. **(8 Marks)**

(b) Bank entered a plain vanilla swap through on OIS (Overnight Index Swap) on a principal of ₹ 20 crores and agreed to receive MIBOR overnight floating rate for a fixed payment on the principal. The swap was entered into on Monday, 2nd August 2020 and was to commence on 3rd August 2020 and run for a period of 7 days.

Respective MIBOR rates for Tuesday to Monday were:

7.75%, 8.15%, 8.12%, 7.95%, 7.98% and 8.15%.

If Bank received ₹ 634 net on settlement, calculate the applicable Fixed rate for the same swap period.

Notes:

(i) Sunday is Holiday.

(ii) Work in rounded rupees and avoid decimal working.

(iii) Consider 365 days a year. **(6 Marks)**

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FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

ANSWER TO PART – I CASE SCENARIO BASED MCQS

1. **Option (a)**
2. **Option (b)**
3. **Option (c)**
4. **Option (c)**
5. **Option (b)**
6. **Option (d)**
7. **Option (c)**
8. **Option (b)**
9. **Option (b)**
10. **Option (c)**
11. **Option (b)**
12. **Option (d)**
13. **Option (b)**
14. **Option (b)**
15. **Option (a)**

ANSWERS OF PART – II DESCRIPTIVE QUESTIONS

1. (a) (i) Expected Share Price

= ₹ 600 X 0.05 + ₹ 700 X 0.20 + ₹ 800 X 0.50 + ₹ 900 X 0.10 + ₹ 950 X 0.15

= ₹ 30 + ₹ 140 + ₹ 400 + ₹ 90 + ₹ 142.50 = ₹ 802.50

(ii) Value of Call Option

= ₹ 750 - ₹ 750 = Nil

(iii) If the option is held till maturity the expected Value of Call Option

Expected price (X)	Value of call (C)	Probability (P)	CP
₹ 600	0	0.05	0
₹ 700	0	0.20	0
₹ 800	₹ 50	0.50	₹ 25

₹ 900 ₹ 950	₹ 150 ₹ 200	0.10 0.15	₹ 15 ₹ 30
Total			₹ 70

* If the stock price goes below ₹ 750, option is not exercised at all.

(b) (i) Cost of Capital

Retained earnings (45%)	₹ 10 per share
Dividend (55%)	₹ 12.22 per share
EPS (100%)	₹ 22.22 per share
P/E Ratio	10 times
Market price	₹ 22.22 × 10 = ₹ 222.20

Cost of equity capital

$$= \left(\frac{\text{Div}}{\text{Price}} \times 100\right) + \text{Growth \%} = \frac{12.22}{222.20} \times 100 + 10\% = 15.50\%$$

(ii) Market Price $= \left(\frac{\text{Dividend}}{\text{Cost of Capital(\%)} - \text{Growth Rate(\%)}}\right)$

$$= \frac{₹ 12.22}{(15.50 - 12.00)\%} = ₹ 349.14 \text{ per share}$$

(c) Need for succession planning in business is explained below: -

- **Risk mitigation** – If existing leader quits, then searches can take six-nine months for suitable candidate to close. Keeping an organization without leader can invite disruption, uncertainty, conflict and endangers future competitiveness.
- **Cause removal** – If the existing leader is culpable of gross negligence, fraud, willful misconduct, or material breach while discharging duties and has been barred from undertaking further activities by court, arbitral tribunal, management, stakeholders or any other agency.
- **Talent pipeline** – Succession planning keep employees motivated and determined as it can help them obtaining more visibility around career paths expected, which would help in retaining the knowledge bank created by company over a period of time and leverage upon the same.
- **Conflict Resolution Mechanism** – This planning is very helpful in promoting open and transparent communication and settlement of conflicts.
- **Aligning** – In family owned business succession planning helps to align with the culture, vision, direction and values of the business.

2. **(a)** On January 28, 2023, the importer customer requested to remit SGD 25 lakhs.

To consider sell rate for the bank:

US $=		₹ 80.97
Pound 1	=	US$ 1.7775
Pound 1	=	SGD 3.1380
Therefore, SGD 1	=	$\frac{\text{Rs. } 80.97 * 1.7775}{\text{SGD } 2.1380}$
SGD 1	=	₹ 67.3172
Add: Exchange margin (0.125%)		₹ 0.0841
		₹ 67.4013

On February 4, 2023 the rates are

US $=		₹ 80.90
Pound 1	=	US$ 1.7850
Pound 1	=	SGD 2.1575
Therefore, SGD 1	=	$\frac{\text{Rs. } 80.90 * 1.7850}{\text{SGD } 2.1575}$
SGD 1	=	₹ 66.9323
Add: Exchange margin (0.125%)		₹ 0.0837
		₹ 67.0160

Hence, Gain to the importer

= SGD 25,00,000 (₹ 67.4013 – ₹ 67.0160) = ₹ 9,63,250

(b) **(i)** Dirty Price

= Clean Price + Interest Accrued

$= 99.42 + 100 \times \frac{10}{100} \times \frac{272}{360} = 106.98$

(ii) First Leg (Start Proceed)

$= \text{Nominal Value} \times \frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100}$

$= ₹8,00,00,000 \times \frac{106.98}{100} \times \frac{100-3}{100} = ₹\ 8,30,16,480$

Second Leg (Repayment at Maturity) = Start Proceed $\times (1 + \text{Repo rate} \times \frac{\text{No. of days}}{360})$

$= ₹\ 8,30,16,480 \times (1 + 0.0565 \times \frac{14}{360}) = ₹\ 8,31,98,885.65$ (Approx.)

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

(i) **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.

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

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

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

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

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

Ways to minimize such risk are:-

(1) Money Market Hedging.

(2) Currency Options.

(3) Forward Contract.

(4) Make Invoice in Home Currency.

3. **(a)** **(i)** Let the weight of stocks of Economy A be expressed as w, then

$(1- w) \times 20\% + w \times 30\% = 21\%$

i.e. $w = 0.1$ or 10%.

(ii) Variance of portfolio shall be:

$(0.9)^2 (0.16)^2 + (0.1)^2 (0.30)^2 + 2(0.9)(0.1)(0.16)(0.30)(0.30) = 0.02423$

Standard deviation is $(0.02423)^{½} = 0.15565$ or 15.56%.

(iii) The Sharpe ratio will improve by approximately 0.09, as shown below:

$$\text{Sharpe Ratio} = \frac{\text{Expected Return - Risk Free Rate of Return}}{\text{Standard Deviation}}$$

Investment in stock of developed countries only: $\frac{20-6}{16} = 0.875$

Investment with inclusion of stocks of Economy A: $\frac{21-6}{15.56} = 0.964$

(b) Investment committed to each security would be:-

	X (₹)	Y (₹)	Z (₹)	Total (₹)
Portfolio A	3,00,000	4,00,000	3,00,000	10,00,000
Portfolio B	1,20,000	3,00,000	1,80,000	6,00,000
Combined Portfolio	4,20,000	7,00,000	4,80,000	16,00,000
∴ Stock weights	0.2625 Or 0.26	0.4375 Or 0.44	0.3000 Or 0.30	

(c) Blockchain, sometimes referred to as Distributed Ledger Technology (DLT) is a shared, peer-to-peer, and decentralized open ledger of transactions system with no trusted third parties in between. This ledger database has every entry as permanent as it is an append-only database which cannot be changed or altered. All transactions are fully irreversible with any change in the transaction being recorded as a new transaction.

Some of the risk associated with the use blockchain technology are as follows:

(i) With the use of blockchain, organizations need to consider risks with a wider perspective as different members of a particular blockchain may have different risk appetite/risk tolerances that may further lead to conflict when monitoring controls are designed for a blockchain. There may be questions about who is responsible for managing risks if no one party is in-charge, and how proper accountability is to be achieved in a blockchain.

(ii) The reliability of financial transactions is dependent on the underlying technology and if this underlying consensus mechanism has been tampered with, it could render the financial information stored in the ledger to be inaccurate and unreliable.

(iii) In the absence of any central authority to administer and enforce protocol amendments, there could be a challenge in the development and maintenance of process control activities and in such case, users of public blockchains find difficult to obtain an understanding of the general IT controls implemented and the effectiveness of these controls.

(iv) As blockchain involves humongous data getting updated frequently, risk related to information overload could potentially challenge the level of monitoring required. Furthermore, to find competent people to design and perform effective monitoring controls may again prove to be difficult.

OR

Financial Measures: - There are some financial measures that help in evaluation of performance of any Mutual Fund which are as follows:

(a) Expense Ratio: - Discussed in earlier section, it ultimately impacts the return of a Mutual Fund Scheme.

(b) Sharpe Ratio: - As discussed in the chapter on Portfolio Management, this ratio measures the Mutual Fund's performance measured against the total risk (both systematic and unsystematic) taken.

(c) Treynor Ratio: - As discussed in the chapter on Portfolio Management, beta measures the volatility of return of a security vis-à-vis to the market, in mutual funds the Beta of a mutual fund measures volatility of a fund's return to return from its Benchmark. Treynor Ratio measures performance of a mutual fund against the systematic risk it has taken.

(d) Sortino Ratio: - A variation of Sharpe Ratio that considers and uses downside deviation instead of total standard deviation in denominator.

4. (a)

Particulars of Securities	Cost ₹	Market Price	Capital gain	Dividend/ Interest
G Ltd.	20,000	19,600	–400	1,450
S Ltd.	30,000	30,400	400	1,000
B Ltd.	28,000	32,000	4,000	1,400
GOI Bonds	72,000	71,980	–20	5,060
Total	1,50,000	1,53,980	3,980	8,910

(i) Risk free return [Return on Govt. Security (GOI Bond)]

$$\frac{5,060 + (72,000 - 71,980)}{72,000} = 7\%$$

(ii) Weighted Average of Beta

0.6 x 19,600/1,53,980 + 0.8 x 30,400/1,53,980 + 0.60 x 32,000/1,53,980 + 0.01 x 71,980/1,53,980

= 0.076 + 0.158 + 0.125 + 0.005 = 0.364

Average Return on Portfolio

(8,910+3,980) / 1,50,000 x 100% = 8.593%

Market Return

8.593% = 7% + (R_m – 7%) x 0.364

R_m = 11.376%

Expected Rate of Return for each security is

Rate of Return = Rf + β (Rm – Rf)

G Ltd. = 7.000% + 0.6 (11.376% – 7.000%) = 9.626%

S Ltd. = 7.000% + 0.8 (11.376% – 7.000%) = 10.501%

B Ltd. = 7.000% + 0.6 (11.376% – 7.000%) = 9.626%

(b) **(i)** Benchmark Return = (42 crore - 40 crore) / 40 crore x 100% = 5%

(ii) **(1)** **If return is 29%**

	₹
Fixed fee (A) 0.10% of ₹ 40 crore	4,00,000
New Fund Value (1.29 x ₹ 40 crore)	51.60 crore
Excess Value of best achieved (51.60 crore – 42.00 crore)	9.60 crore
Incentive Fee (2% of 9.60 crores) (B)	19,20,000
Total Fee (A)+(B)	23,20,000

(2) **If return is 4.5%**

	₹
Fixed (A) 0.10% of ₹ 40 crore	4,00,000
New Fund Value (1.045 x ₹ 40 crore)	41.80 crore
Excess Value of best achieved (41.80 crore – 42.00 crore)	(₹ 0.20 crore)
Incentive Fee (as does not exceed best achieved) (B)	Nil
Total Fee (A)+(B)	4,00,000

(c) Corporate level strategy fundamentally is concerned with selection of businesses in which a company should compete and with the development and coordination of that portfolio of businesses.

Corporate level strategy should be able to answer three basic questions:

Suitability	Whether the strategy would work for the accomplishment of common objective of the company.
Feasibility	Determines the kind and number of resources required to formulate and implement the strategy.
Acceptability	It is concerned with the stakeholders' satisfaction and can be financial and non-financial.

5. **(a)** Calculation of Purchase Consideration

	£
Issue of Share 17,50,000 x £1.50	26,25,000
External Liabilities settled	25,00,000
13% Debentures	15,00,000
	66,25,000

Less: Realization of Debtors and Inventories	10,00,000
Cash	2,50,000
	53,75,000

Net Present Value = PV of Cash Inflow + PV of Demerger of L plc – Cash Outflow

= £ 25,00,000 PVAF(16%,*6*) + £ 10,00,000 PVF(16%, 6) – £ 53,75,000

= £ 25,00,000 x 3.684 + £ 10,00,000 x 0.410 – £ 53,75,000

= £ 92,10,000 + £ 4,10,000 – £ 53,75,000

= £ 42,45,000

Since NPV of the decision is positive it is advantageous to acquire L plc.

(b) Plan – D

Unit acquired = $\frac{2,00,000}{38.20}$ = 5235.60

Date	***Units held***	***Dividend***		***Re-investment Rate***	***New Units***	***Total Units***
		%	***Amount***			
01.04.2018						5235.60
30.09.2018	5235.60	10	5235.60	39.10	133.90	5369.50
31.03.2020	5369.50	15	8054.25	44.20	182.22	5551.72
15.09.2021	5551.72	13	7217.24	45.05	160.20	5711.92
27.03.2022	5711.92	16	9139.07	44.80	204.00	5915.92
31.03.2023	Maturity Value	(₹ 40.40 X 5915.92)				₹ 2,39,003.17
	Less: Cost of Acquisition					₹ 2,00,000.00
	Total Gain					₹ 39,003.17

∴ Approximate Effective Yield = $\frac{₹39,003.17}{₹2,00,000} \times \frac{1}{5} \times 100$ = 3.90%

Now more accurate effective yield can be computed by using the IRR method as follows:

NPV at 4% = - ₹ 2,00,000 + ₹ 1,96,436.71 = - ₹ 3,563.29

NPV at 2% = - ₹ 2,00,000 + ₹ 2,16,465.17 = ₹ 16,465.17

IRR= $LR + \frac{NPV\,at\,LR}{NPV\,at\,LR - NPV\,at\,HR}(HR - LR)$ = $2\% + \frac{16465.17}{16465.17 - 3563.29}(4\% - 2\%)$

= 3.64%

Plan – B

Date	Particulars	Calculation Working	No. of Units	NAV (₹)
01.04.2018	Investment	₹ 2,00,000/35.60 =	5617.98	35.60
30.06.2019	Bonus	5617.98/5 =	1123.60	36.25
			6741.58	
30.10.2021	"	6741.58/8 =	842.70	38.30
			7584.28	
11.04.2022	"	7584.28/10 =	758.43	38.90
			8342.71	
31.03.2023	Maturity Value	8342.71 x ₹ 39.70 =		3,31,205.59
	Less: Investment			2,00,000.00
	Gain			1,31,205.59

$\therefore$ Approximate Effective Yield $= \frac{1,31,205.59}{2,00,000} \times \frac{1}{5} \times 100 = 13.12\%$

Now more accurate effective yield can be computed by using the IRR method as follows:

NPV at 13% = - ₹ 2,00,000 + ₹ 1,79,778.39 = - ₹ 20,221.61

NPV at 8% = - ₹ 2,00,000 + ₹ 2,25,418.52 = ₹ 25,418.52

$$IRR = LR + \frac{NPV\ at\ LR}{NPV\ at\ LR - NPV\ at\ HR}(HR - LR) = 8\% + \frac{25418.52}{25418.52 - (-20221.61)}(13\% - 8\%)$$

= 10.78%

6. (a) Working Note :

Year 1	Running Cost	₹ 8,000 x 0.917	= (₹ 7,336)
	Savings	₹ 24,000 x 0.917	= ₹ 22,008
Year 2	Running Cost	₹ 10,000 x 0.842	= (₹ 8,420)
	Savings	₹ 28,000 x 0.842	= ₹ 23,576
			₹ 29,828
Year 0	*Less:* P.V. of Cash Outflow	₹ 20,000 x 1	₹ 20,000
		NPV	₹ 9,828

(i) Sensitivity Analysis (by making NPV Zero)

(1) Increase of Plant Value by ₹ 9,828

$\therefore \frac{9,828}{20,000} \times 100 = 49.14\%$

(2) Increase of Running Cost by ₹ 9,828

$$\frac{9828}{7336+8420} = \frac{9828}{15756} \times 100 = 62.38\%$$

(3) Fall in Saving by ₹ 9,828

$$\frac{9,828}{22,008+23,576} = \frac{9,828}{45,584} \times 100 = 21.56\%$$

Hence, savings factor is the most sensitive to affect the acceptability of the project as in comparison of other two factors a slight % change in this fact shall more affect the NPV than others.

(ii) Sensitivity Analysis if there is a variation of 10% in the factors.

(1) If the initial project cost is varied adversely by say 10%.

NPV (Revised) (₹ 9,828 – ₹ 2,000) = ₹ 7,828

$$\text{Change in NPV} = \frac{₹\,9,828 - ₹\,7,828}{₹\,9,828} = 20.35\%$$

(2) If Annual Running Cost is varied by say 10%.

NPV (Revised) (₹ 9828 – ₹ 800 X 0.917 – ₹ 1000 X 0.842)

= ₹ 9,828 – ₹ 733.60 – ₹ 842 = ₹ 8,252.40

$$\text{Change in NPV} = \frac{₹\,9,828 - ₹\,8252.40}{₹\,9,828} = 16.03\%$$

(3) If Saving is varied by say 10%.

NPV (Revised) (₹ 9,828 – ₹ 2400 X 0.917 – ₹ 2800 X 0.842)

= ₹ 9,828 – ₹ 2,200.80 – ₹ 2,357.60 = ₹ 5,269.60

$$\text{Change in NPV} \frac{₹\,9828 - ₹\,5269.60}{₹\,9828} \times 100\% = 46.38\%$$

Hence, savings factor is the most sensitive to affect the acceptability of the project.

(b)

Day	Principal (₹)	MIBOR (%)	Interest (₹)
Tuesday	20,00,00,000	7.75	42,466
Wednesday	20,00,42,466	8.15	44,667
Thursday	20,00,87,133	8.12	44,513
Friday	20,01,31,646	7.95	43,590
Saturday & Sunday (*)	20,01,75,236	7.98	87,529
Monday	20,02,62,765	8.15	44,716
Total Interest @ Floating			3,07,481

Less: Net Received			634
Expected Interest @ fixed			3,06,847
Thus, Fixed Rate of Interest			0.08
Shall be approx.			8%

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