MODEL TEST PAPER - 7

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

ANSWER TO PART – I CASE SCENARIO BASED MCQS

1. **Option (b)**
2. **Option (c)**
3 **Option (c)**
4. **Option (c)**
5. **Option (d)**
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	₹ 150	0.10	₹ 15
₹ 950	₹ 200	0.15	₹ 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 $= \left(\frac{\text{Dividend}}{\text{Cost of Capital(\%) - Growth Rate(\%)}}\right)$

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

(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 x $(1 + \text{Repo rate} \times \frac{\text{No. of days}}{360})$

$= ₹\ 8,30,16,480 \times (1 + 0.0565 \times \frac{14}{360}) = ₹\ 8,31,98,885.65$ (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) × 20% + w × 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

$\therefore$ 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

∴ 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

$$IRR = LR + \frac{NPV \text{ at } LR}{NPV \text{ at } LR - NPV \text{ at } HR}(HR - LR) =$$

$$8\% + \frac{25418.52}{25418.52 - (-20221.61)}(13\% - 8\%)$$

= 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

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

(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.