Mock Test Paper - Series II: October, 2024

Date of Paper: 1st October, 2024

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

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

ANSWERS OF PART – II DESCRIPTIVE QUESTIONS

1. **(a)** Valuation of Startup under different scenarios:

    (i) Best Case Scenario

	Year 1	Year 2	Year 3	
Revenue	₹ 100,00,000	₹ 120,00,000	₹ 144,00,000	
Expenses	₹ 80,00,000	₹ 92,40,000	₹ 108,00,000	
Cash Flow/ Earnings	₹ 20,00,000	₹ 27,60,000	₹ 36,00,000	
Terminal Value				₹ 3,60,00,000
PVF @ 20%	0.8333	0.6944	0.5787	0.5787
PV	₹ 16,66,600	₹ 19,16,544	₹ 20,83,320	₹ 2,08,33,200
Value of Startup				₹ 2,64,99,664

(ii) Base Case Scenario

	Year 1	Year 2	Year 3	
Revenue	₹ 100,00,000	₹ 110,00,000	₹ 121,00,000	
Expenses	₹ 90,00,000	₹ 95,70,000	₹ 102,85,000	
Cash Flow/ Earnings	₹ 10,00,000	₹ 14,30,000	₹ 18,15,000	
Terminal Value				₹ 181,50,000
PVF @ 20%	0.8333	0.6944	0.5787	0.5787
PV	₹ 8,33,300	₹ 9,92,992	₹ 10,50,341	₹ 105,03,405
Value of Startup				₹ 133,80,038

(iii) Worst Case Scenario

	Year 1	Year 2	Year 3	
Revenue	₹ 100,00,000	₹ 102,00,000	₹ 104,04,000	
Expenses	₹ 95,00,000	₹ 98,94,000	₹ 101,95,920	
Cash Flow/ Earnings	₹ 5,00,000	₹ 3,06,000	₹ 2,08,080	
Terminal Value				₹ 20,80,800
PVF @ 20%	0.8333	0.6944	0.5787	0.5787
PV	₹ 4,16,650	₹ 2,12,486	₹ 1,20,416	₹ 12,04,159
Value of Startup				₹ 19,53,711

Value of ABC Startup as per First Chicago Method

= 0.30 x ₹ 2,64,99,664 + 0.60 x ₹ 133,80,038 + 0.10 x ₹ 19,53,711

= ₹ 79,49,899 + ₹ 80,28,023 + ₹ 1,95,371

= ₹ 1,61,73,293

(b) Some points to be kept in mind while preparing a Pitch Presentation are as follows:

(i) Introduction

(ii) Team

(iii) Problem

(iv) Solution

(v) Marketing/Sales

(vi) Projections or Milestones

(vii) Competition

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(viii) Business Model

Financial projections include three basic documents that make up a business's financial statements.

- **Income statement:** This estimate how much money the business will generate by projecting income and expenses. It will show:

  - ❖ How much revenue did the business generate?

  - ❖ How much did it cost to generate and support that revenue?

  - ❖ How much did the business pay its employees?

  - ❖ How much did it pay towards rent?

  For your first year in business, you'll want to create a monthly income statement. For the second year, quarterly statements will suffice. For the following years, you'll just need an annual income statement.

- **Cash flow statement:** A projected cash flow statement will depict how much cash will be coming into the business and how much cash will be utilized. At the end of each period (e.g. monthly, quarterly, annually), one can tally it all up to show either the cash burn or the cash generated during the period and the cash balance remaining at the end of the period.

- **Balance sheet:** The balance sheet shows the business's overall finances including assets, liabilities and equity. Typically, one will create an annual balance sheet for one's financial projections. It shows:

  - ❖ How much cash is in the bank?

  - ❖ How much money does the company owe to suppliers?

  - ❖ How much money has been invested in the company?

2. (a) Profit After Tax (PAT) or Net Income = ₹ 8000 crores (1 – 0.30) = ₹ 5600 crores

Free Cash Flow to Equity (FCFE) = Net Income - Capital Expenditures + Depreciation -/+ Change in Net Working Capital + New Debt Issued - Debt Repayments + Net issue of Preference Shares – Preference Share Dividends

Free Cash Flow to Equity (FCFE) = ₹ 5600 crores - ₹ 20140 crore + ₹ 17100 crore - ₹ 1755.60 crore + ₹ 2062.108 crore = ₹ 2866.508 crore

Cost of Equity = $R_f + \beta (R_m - R_f)$ or $R_f + \beta$ Market Risk Premium

= 9.50% + 0.1 x 3.10% = 9.81%

Value of Equity = $\dfrac{FCFE(1+g)}{K_e - g}$ = $\dfrac{2866.508\, crore\,(1.07)}{0.0981 - 0.07} = \dfrac{3067.1636\, crore}{0.0281}$

= ₹ 109151.7295 crore

Value of one Equity Share = $\dfrac{109151.7295 \text{ crore}}{380 \text{ crore}}$ = ₹ 287.24

Alternatively, it can also be calculated by using per share basis as follows:

FCFE per share = $\dfrac{\text{FCFE}}{\text{No. of Equity Shares}}$ = $\dfrac{2866.508 \text{ crore}}{380 \text{ crore}}$ = ₹ 7.5434

Value of per equity share = $\dfrac{\text{FCFE}(1+g)}{K_e - g}$ = $\dfrac{7.5434(1.07)}{0.0981 - 0.07}$ = $\dfrac{8.0714}{0.0281}$ = ₹ 287.24

(b) Financial Analysis whether to set up the manufacturing units in India or not may be carried using NPV technique as follows:

    I.   Incremental Cash Outflows

	$ Million
Cost of Plant and Machinery	500.00
Working Capital	50.00
Release of existing Working Capital	(15.00)
	535.00

    II.   Incremental Cash Inflow after Tax (CFAT)

        (1)   Generated by investment in India for 5 years

	$ Million
Sales Revenue (5 Million x $80)	400.00
Less: Costs	
Variable Cost (5 Million x $20)	100.00
Fixed Cost	30.00
Depreciation ($500Million/5)	100.00
EBIT	170.00
Taxes@35%	59.50
EAT	110.50
Add: Depreciation	100.00
CFAT (1-5 years)	210.50

        (2)   Cash flow at the end of the 5 years (Release of Working Capital)   35.00

        (3)   Cash generation by exports (Opportunity Cost)

	$ Million
Sales Revenue (1.5 Million x $80)	120.00
Less: Variable Cost (1.5 Million x $40)	60.00
Contribution before tax	60.00
Tax@35%	21.00
CFAT (1-5 years)	39.00

(4)   Additional CFAT attributable to Foreign Investment

	$ Million
Through setting up subsidiary in India	210.50
Through Exports in India	39.00
CFAT (1-5 years)	171.50

III.   Determination of NPV

Year	CFAT ($ Million)	PVF@12%	PV ($ Million)
1-5	171.50	3.6048	618.2232
5	35	0.5674	19.8590
			638.0822
Less: Initial Outflow			535.0000
			103.0822

Since NPV is positive the proposal should be accepted.

3.   (a)   (i)   Portfolio Beta

0.20 x 0.40 + 0.50 x 0.50 + 0.30 x 1.10 = 0.66

(ii)   Residual Variance

To determine Residual Variance first of all we shall compute the Systematic Risk as follows:

$\beta_A^2 \times \sigma_M^2$ = $(0.40)^2(0.01) = 0.0016$

$\beta_B^2 \times \sigma_M^2$ = $(0.50)^2(0.01) = 0.0025$

$\beta_C^2 \times \sigma_M^2$ = $(1.10)^2(0.01) = 0.0121$

Residual Variance

A   0.015 – 0.0016 = 0.0134

B   0.025 – 0.0025 = 0.0225

C   0.100 – 0.0121 = 0.0879

(iii)   Portfolio variance using Sharpe Index Model

Systematic Variance of Portfolio = $(0.10)^2$ x $(0.66)^2$ = 0.004356

Unsystematic Variance of Portfolio = 0.0134 x $(0.20)^2$ + 0.0225 x $(0.50)^2$ + 0.0879 x $(0.30)^2$ = 0.014072

Total Variance = 0.004356 + 0.014072 = 0.018428

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(iv) Portfolio variance on the basis of Markowitz Theory

$$
\begin{aligned}
= &(w_A \times w_A \times \sigma_A^2) + (w_A \times w_B \times Cov_{AB}) + (w_A \times w_C \times Cov_{AC}) + (w_B \times \\
&w_A \times Cov_{AB}) + (w_B \times w_B \times \sigma_B^2) + (w_B \times w_C \times Cov_{BC}) + (w_C \times \\
&w_A \times Cov_{CA}) + (w_C \times w_B \times Cov_{CB}) + (w_C \times w_C \times \sigma_C^2)
\end{aligned}
$$

= (0.20 x 0.20 x 0.015) + (0.20 x 0.50 x 0.030) + (0.20 x 0.30 x 0.020) + (0.20 x 0.50 x 0.030) + (0.50 x 0.50 x 0.025) + (0.50 x 0.30 x 0.040) + (0.30 x 0.20 x 0.020) + (0.30 x 0.50 x 0.040) + (0.30 x 0.30 x 0.10)

= 0.0006 + 0.0030 + 0.0012 + 0.0030 + 0.00625 + 0.0060 + 0.0012 + 0.0060 + 0.0090

= 0.0363

(b) Various types of Interest rate risk faced by companies/ banks are as follows:

(1) Gap Exposure: A gap or mismatch risk arises from holding assets and liabilities and off-balance sheet items with different principal amounts, maturity dates or re-pricing dates, thereby creating exposure to unexpected changes in the level of market interest rates. This exposure is more important in relation to banking business.

(2) Basis Risk: Market interest rates of various instruments seldom change by the same degree during a given period of time. The risk that the interest rate of different assets, liabilities and off-balance sheet items may change in different magnitude is termed as basis risk. For example, while assets may be benchmarked to Fixed Rate of Interest, liabilities may be benchmarked to floating rate of interest. The degree of basis risk is fairly high in respect of banks that create composite assets out of composite liabilities.

(3) Embedded Option Risk: Significant changes in market interest rates create another source of risk to banks' profitability by encouraging prepayment of cash credit/demand loans/term loans and exercise of call/put options on bonds/debentures and/or premature withdrawal of term deposits before their stated maturities.

(4) Yield Curve Risk: The movements in yield curve are rather frequent when the economy moves through business cycles. Thus, banks should evaluate the movement in yield curves and its impact on the portfolio values and income.

(5) Price Risk: Price risk occurs when assets are sold before their stated maturities. In the financial market, bond prices and yields are inversely related. The price risk is closely associated with the trading book, which is created for making profit out of short-term movements in interest rates.

Banks which have an active trading book should, therefore, formulate policies to limit the portfolio size, holding period, duration, defeasance period, stop loss limits, marking to market, etc.

(6) **Reinvestment Risk:** Uncertainty with regard to interest rate at which the future cash flows could be reinvested is called reinvestment risk. Any mismatches in cash flows would expose the banks to variations in NII as the market interest rates move in different directions.

OR

(b) Some of the areas where the Blockchain can be applied are as follows:

(i) **Financial Services:** Blockchain can be used to provide an automated trade lifecycle in terms of the transaction log of any transaction of asset or property - whether physical or digital such as laptops, smartphones, automobiles, real estate, etc. from one person to another.

(ii) **Healthcare:** Blockchain provides secure sharing of data in healthcare industry by increasing the privacy, security, and interoperability of the data by eliminating the interference of third party and avoiding the overhead costs.

(iii) **Government:** At the government front, there are instances where the technical decentralization is necessary but politically should be governed by governments like land registration, vehicle registration and management, e-voting etc. Blockchain improves the transparency and provides a better way to monitor and audit the transactions in these systems.

(iv) **Travel Industry:** Blockchain can be applied in money transactions and in storing important documents like passports/other identification cards, reservations and managing travel insurance, loyalty, and rewards thus, changing the working of travel and hospitality industry.

(v) **Economic Forecasts:** Blockchain makes possible the financial and economic forecasts based on decentralized prediction markets, decentralized voting, and stock trading, thus enabling the organizations to plan and shape their businesses.

4. (a) **Calculation of Income available for Distribution**

	Units (Lakh)	Per Unit (₹)	Total (₹ In lakh)
Income from April	300	0.0765	22.9500
Add: Dividend equalization collected on issue	6	0.0765	0.4590
	306	0.0765	23.4090

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Add: Income from May		0.1125	34.4250
	306	0.1890	57.8340
Less: Dividend equalization paid on repurchase	3	0.1890	(0.5670)
	303	0.1890	57.2670
Add: Income from June		0.1500	45.4500
	303	0.3390	102.7170
Less: Dividend Paid		0.2373	(71.9019)
	303	0.1017	30.8151

Calculation of Issue Price at the end of April

	₹
Opening NAV	18.750
Add: Entry Load 2% of ₹ 18.750	0.375
	19.125
Add: Dividend Equalization paid on Issue Price	0.0765
	19.2015

Calculation of Repurchase Price at the end of May

	₹
Opening NAV	18.750
Less: Exit Load 2% of ₹ 18.750	(0.375)
	18.375
Add: Dividend Equalization paid on Issue Price	0.1890
	18.564

Closing NAV

		₹ (Lakh)
Opening Net Asset Value (₹ 18.75 × 300)		5625.0000
Portfolio Value Appreciation		425.4700
Issue of Fresh Units (6 × 19.2015)		115.2090
Income Received (22.950 + 34.425 + 45.450)		102.8250
		6268.504
Less: Units repurchased (3 × 18.564)	-55.692	
Income Distributed	-71.9019	(-127.5939)
Closing Net Asset Value		6140.9101

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Closing Units (300 + 6 – 3) lakh		303 lakh
∴ Closing NAV as on 30th June		₹ 20.2670

(b) The arbitrageur can proceed as stated below to realize arbitrage gains.

(i) Buy ₹ from USD 10,000,000 At Mumbai 48.30 × 10,000,000 ₹ 483,000,000

(ii) Convert these ₹ to GBP at London ($\frac{₹\ 483,000,000}{₹\ 77.52}$)

GBP 6,230,650.155

(iii) Convert GBP to USD at New York GBP 6,230,650.155 × 1.6231 USD 10,112,968.26

There is net gain of USD 10,112968.26 less USD 10,000,000 i.e. USD 112,968.26

5. **(a)** **Working Notes:**

(i) Computation of Net Worth Per Share of SVL

Total Assets (Fixed assets + Current Assets) (₹ Crores)	2260
Less: Liabilities (Current Liabilities + Borrowings) (₹ Crores)	690
Net Assets Value (₹ Crores)	1570
Current Value of Land after growing for three years @ 30% = 380 X 1.2475 (₹ Crores)	474.05*
Less: Book Value (₹ Crores)	380.00
Increase in the Value of land (₹ Crores)	94.05
Adjusted NAV (1570 + 94.05) (₹ Crores)	1664.05
No. Shares (Crores)	25
Net Worth Per Share	₹ 66.56

* Alternatively, this value can also be computed as ₹ 475 Crores.

(ii) Computation of Net Worth Per Share of ICL

Share Capital + Reserves and Surplus = ₹ 2600 Crore

Total Number of Shares = 50 Crore

Net Worth Per Share = ₹ 2600 Crore/ 50 Crore = ₹ 52.00

(iii) Earning Per Share (EPS)

	ICL	SVL
PAT	₹ 1580 Crore	₹ 500 Crore
No. of Shares	50 Crore	25 Crore
EPS	₹ 31.60	₹ 20.00

(iv) Share price as per Dividend Growth Model

	ICL	SVL
Total Dividend	₹ 470 Crore	₹ 304.35 Crore
No. of Shares	50 Crore	25 Crore
Dividend Per Share (D_0)	₹ 9.40	₹ 12.17
Expected Dividend (D_1)	₹ 9.40 (1 + 0.18) = ₹ 11.09	₹ 12.17 (1 + 0.15) = ₹ 14.00
Value of Per Share as Growth Model	$\dfrac{11.09}{0.25-0.18}$ = ₹ 158.43	$\dfrac{14.00}{0.20-0.15}$ = ₹ 280

Calculation of Swap Ratio

Net Worth Per Share	1 : 1.28 i.e. 1.28 × 25%	0.32
EPS	1 : 0.63 i.e. 0.63 × 30%	0.19
Share price as per Dividend Growth Model	1 : 1.77 i.e. 1.77 × 20%	0.35
Market Price	1 : 0.56 i.e. 0.56 × 25%	0.14
	Total	1.00

Swap ratio is for every one share of SVL, to issue 1 share of ICL. Hence, total no. of shares to be issued 25 crores.

(b) **The characteristics of GDRs are as follows:**

(i)   Holders of GDRs participate in the economic benefits of being ordinary shareholders, though they do not have voting rights.

(ii) GDRs are settled through CEDEL & Euro-clear international book entry systems.

(iii) GDRs are listed on the Luxemburg stock exchange.

(iv) Trading takes place between professional market makers on an OTC (over the counter) basis.

(v)   The instruments are freely traded.

(vi) They are marketed globally without being confined to borders of any market or country as it can be traded in more than one currency.

(vii) Investors earn fixed income by way of dividends which are paid in issuer currency converted into dollars by depository and paid to investors and hence exchange risk is with investor.

(viii) As far as the case of liquidation of GDRs is concerned, an investor may get the GDR cancelled any time after a cooling period of 45 days. A non-resident holder of GDRs may ask the overseas bank (depository) to redeem (cancel) the GDRs. In that case overseas depository bank shall request the domestic

custodians bank to cancel the GDR and to get the corresponding underlying shares released in favour of non-resident investor. The price of the ordinary shares of the issuing company prevailing in the Bombay Stock Exchange or the National Stock Exchange on the date of advice of redemption shall be taken as the cost of acquisition of the underlying ordinary share.

6. (a) Initial Margin $= \mu + 3\sigma$

Where μ = Daily Absolute Change

σ = Standard Deviation

Accordingly

Initial Margin = ₹ 10,000 + ₹ 6,000 = ₹ 16,000

Maintenance margin = ₹ 16,000 x 0.75 = ₹ 12,000

Day	Changes in future Values (₹)	Margin A/c (₹)	Call Money (₹)
4/2/09	-	16000	-
5/2/09	50 x (3294.40 - 3296.50) = -105	15895	-
6/2/09	50 x (3230.40 - 3294.40) = -3200	12695	-
7/2/09	50 x (3212.30 - 3230.40) = -905	16000	4210
10/2/09	50 x (3267.50 - 3212.30) = 2760	18760	-
11/2/09	50 x (3263.80 - 3267.50) = -185	18575	-
12/2/09	50 x (3292 - 3263.80) =1410	19985	-
14/2/09	50 x (3309.30 - 3292) = 865	20850	-
17/2/09	50 x (3257.80 - 3309.30) = -2575	18275	-
18/2/09	50 x (3102.60 - 3257.80) = -7760	16000	5485

(b) To some extent this statement is correct. The advocates of technical analysis offer the following interrelated argument in their favour:

(i) Under influence of crowd psychology trend persist for some time. Tools of technical analysis help in identifying these trends early and help in investment decision making.

(ii) Shift in demand and supply are gradual rather then instantaneous. Technical analysis helps in detecting this shift rather early and hence provides clues to future price movements.

(iii) Fundamental information about a company is observed and assimilated by the market over a period of time. Hence price movement tends to continue more or less in same direction till the information is fully assimilated in the stock price.

Detractors of technical analysis believe that it is an useless exercise; their arguments are as follows:

(i) Most technical analysts are not able to offer a convincing explanation for the tools employed by them.

(ii) Empirical evidence in support of random walk hypothesis cast its shadow over the usefulness of technical analysis.

(v) By the time an uptrend and down trend may have been signaled by technical analysis it may already have taken place.

(iv) Ultimately technical analysis must be a self-defeating proposition. With more and more people employing it, the value of such analysis tends to decline.