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

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

Suppose you are a risk manager at a financial institution, and your company has loaned a significant amount of ₹ 500 crore to a company X Ltd. for a period of 3 years at 6-month at MCLR plus 200 bps. You are concerned about X Ltd.'s ability to repay the debt due to recent market volatility. To protect your institution from potential default, you decide to purchase a Credit Default Swap (CDS) from ABC Bank Ltd. for same notional amount at a premium quoted at 1% per year through cash settlement.

On the respective reset dates for the same period actual MCLR interest rate comes out as follows:

Reset	MCLR
1	9.75%
2	10.00%
3	10.25%
4	10.35%
5	10.50%
6	10.60%

Based on above case scenario answer the following questions:

1.   The primary purpose of a Credit Default Swap (CDS) is...................

   (a)   to increase the value of bonds.

   (b)   to protect against default risk of a debt obligation.

   (c)   to provide guaranteed profit to the buyer.

   (d)   to create a new form of loan.

2.   Which of the following statements is true about CDS contracts?

   (a)   CDS contracts cannot be used for speculation.

1

(b) CDS contracts are governed by government regulations.

(c) CDS contracts are private agreements between two parties.

(d) CDS contracts eliminate all risks for the buyer.

3. Which organization publishes the guidelines and rules for conducting Credit Default Swap transactions?

(a) Federal Reserve

(b) International Swap and Derivative Association (ISDA)

(c) Securities and Exchange Commission (SEC)

(d) World Trade Organization (WTO)

4. Assuming no default occurs the total premium your company will pay during the designated loan period shall be........

(a) ₹ 5 crore

(b) ₹ 10 crore

(c) ₹ 15 crore

(d) ₹ 30 crore

5. Suppose if the lender defaults somewhere in the beginning of third year of loan (after payment of interest upto 2 years) and the market value of a reference loans falls to 75% of its par value, then ABC Bank will pay your company ....in a cash settlement.

(a) ₹ 15 crore

(b) ₹ 30 crore

(c) ₹ 125 crore

(d) ₹ 500 crore   **(5 x 2 = 10 Marks)**

Case Scenario II

XYZ Ltd. is a mid-sized manufacturing company that produces industrial equipment. The company is considering a new investment project—a state-of-the-art automated production line, which is expected to improve production efficiency. The details of the same project are as follows:

	₹
Initial Cost of the project	10,00,000
Sales price/unit	60
Cost/unit	40
Sales volumes	
Year 1	20000 units
Year 2	30000 units
Year 3	30000 units

The applicable discount rate is 10% p.a.

Based on above case scenario answer the following questions:

6. Sensitivity analysis helps to identify…………………..

    (a)   the exact profitability of the project

    (c)   the break-even point.

    (c)   the degree to which a change in each variable affects the NPV.

    (d)   the amount of investment required

7. The sale price per unit so that the project would break even with zero NPV shall be approximately…………..

    (a)   ₹ 40.00

    (b)   ₹ 55.28

    (c)   ₹ 60.00.

    (d)   ₹ 44.74

8. The cost per unit so that the project would break even with zero NPV shall be approximately…………..

    (a)   ₹ 40.00

    (b)   ₹ 55.28

    (c)   ₹ 60.00.

    (d)   ₹ 44.74

9. Overall …………in the sale volume will lead to the project to break even with zero NPV.

    (a)   increase of 23.68%

    (b)   fall of 23.68%

    (c)   Increase of 31.03%

    (d)   fall of 31.03%

10. A/an …………in the initial outlay will lead to the project to break even with zero NPV.

    (a)   increase of 23.68%

    (b)   fall of 23.68%

    (c)   Increase of 31.03%

    (d)   fall of 31.03%   **(5 x 2 = 10 Marks)**

Case Scenario III

You are an investment analyst working for a financial advisory firm. You have been asked to analyze the bond market's yield curve to assist your clients in making investment decisions. The yield curve represents the relationship between the

interest rates (yield) and the time to maturity for debt securities, usually government bonds.

For simplicity, assume the following yield data for government bonds over various maturities (measured in years):

Yield Curve Table

Maturity (Years)	Yield (%)
1 Year	3.00%
2 Years	4.00%
3 Years	5.00%
5 Years	6.00%
7 Years	6.40%
10 Years	7.00%
15 Years	7.40%
30 Years	7.60%

Based on above case scenario answer the following questions:

11. The main characteristic of a normal yield curve is……………….

   (a)   Short-term yields are higher than long-term yields.

   (b)   Short-term yields are lower than long-term yields.

   (c)   Yields remain the same across all maturities.

   (d)   Yields fluctuate randomly over different maturities.

12. Based on the revised yield data, what is the yield spread between the 10-year bond and the 1-year bond?

   (a)   2.0%

   (b)   3.5%

   (c)   4.0%

   (d)   5.0%

13. An inverted yield curve typically indicates……………….

   (a)   Economic growth

   (b)   Economic uncertainty

   (c)   An upcoming recession

   (d)   Inflationary pressure

14. If an investor is looking to invest for 2 years starting 3 years from now, the forward rate he would expect shall be………

   (a)   7.41%

(b) 7.52%

(c) 7.76%

(d) 7.93%

15. If an investor is looking to invest for 2 years starting 5 years from now, the forward rate he would expect shall be………

(a) 7.41%

(b) 7.52%

(c) 7.76%

(d) 7.93% **(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) The ABC Startup has the following expected profits under different scenarios along respective probabilities:

Year	Best Case		Base Case		Worst Case	
	Revenue	Expenses	Revenue	Expenses	Revenue	Expenses
1	₹ 100,00,000	₹ 80,00,000	₹ 100,00,000	₹ 90,00,000	₹ 100,00,000	₹ 95,00,000
2	₹ 120,00,000	₹ 92,40,000	₹ 110,00,000	₹ 95,70,000	₹ 102,00,000	₹ 98,94,000
3	₹ 144,00,000	₹ 108,00,000	₹ 121,00,000	₹ 102,85,000	₹ 104,04,000	₹ 101,95,920
Probability	30%		60%		10%	

You are required to suggest the value of ABC Startup using First Chicago Method assuming that:

(i) Applicable discounting rate is 20%.

(ii) Startup is located in Tax-free Zone.

(iii) The multiple for Terminal is 10.

(iv) No depreciable assets are held by the ABC Startup.

Note: 1. Present Value Factor (PVF)

Year	1	2	3
PVF@20%	0.8333	0.6944	0.5787

2. Round off the calculation to whole numbers. **(8 Marks)**

(b) List out the points to be kept in mind while preparing a Pitch Presentation. What are the basic documents that are included in financial projections that make up a business's financial statement.

(6 Marks)

5

2. (a) Calculate the value of one equity share of X Ltd. from the following Information:

Profit of the company (Before tax)	₹ 8000 crores
Equity share capital of the Company	₹ 19000 crores
No. of Equity Shares	380 crores
Long run growth rate of the company	7%
Risk free Rate of Return	9.50%
Beta of the company	0.1
Market Risk Premium	3.10%
Total Capital expenditure	₹ 20140 crore
Chargeable Depreciation	₹ 17100 crore
Total Increase in working capital	₹ 1755.60 crore
New Debt to be issued for funding	₹ 2062.108 crore
Tax Rate	30%

Note: All calculation to rounded off upto 4 decimal points and final value of equity share to be rounded off upto 2 decimal points.

(6 Marks)

(b) A multinational company is planning to set up a subsidiary company in India (where hitherto it was exporting) in view of growing demand for its product and competition from other MNCs. The initial project cost (consisting of Plant and Machinery including installation) is estimated to be US$ 500 million. The net working capital requirements are estimated at US$ 50 million. The company follows straight line method of depreciation. Presently, the company is exporting two million units every year at a unit price of US$ 80, its variable cost per unit being US$ 40.

The Chief Financial Officer has estimated the following operating cost and other data in respect of proposed project:

(i) Variable operating cost will be US $ 20 per unit of production;

(ii) Additional cash fixed cost will be US $ 30 million p.a. and project's share of allocated fixed cost will be US $ 3 million p.a. based on principle of ability to share;

(iii) Production capacity of the proposed project in India will be 5 million units;

(iv) Expected useful life of the proposed plant is five years with no salvage value;

(v) Existing working capital investment for production & sale of two million units through exports was US $ 15 million;

(vi) Export of the product in the coming year will decrease to 1.5 million units in case the company does not open subsidiary

company in India, in view of the presence of competing MNCs that are in the process of setting up their subsidiaries in India;

(vii) Applicable Corporate Income Tax rate is 35%, and

(viii) Required rate of return for such project is 12%.

Assuming that there will be no variation in the exchange rate of two currencies and all profits will be repatriated, as there will be no withholding tax, estimate Net Present Value (NPV) of the proposed project in India.

Present Value Interest Factors (PVIF) @ 12% for five years are as below:

Year	1	2	3	4	5
PVIF	0.8929	0.7972	0.7118	0.6355	0.5674

(8 Marks)

3. (a) Following are the details of a portfolio consisting of three shares:

Share	Portfolio weight	Beta	Expected return in %	Total variance
A	0.20	0.40	14	0.015
B	0.50	0.50	15	0.025
C	0.30	1.10	21	0.100

Standard Deviation of Market Portfolio Returns = 10%

You are given the following additional data:

Covariance (A, B)   = 0.030

Covariance (A, C)   = 0.020

Covariance (B, C)   = 0.040

Calculate the following:

(i)   The Portfolio Beta

(ii)   Residual variance of each of the three shares

(iii) Portfolio variance using Sharpe Index Model

(iv)   Portfolio variance (on the basis of modern portfolio theory given by Markowitz)   (**10 Marks**)

(b)   **Either**

Explain briefly various types of interest rate risk faced by companies/ banks.   (**4 Marks**)

(b)   **Or**

Explain the various areas where Blockchain can be applied.   (**4 Marks**)

4. (a) On 1st April, an open ended scheme of mutual fund had 300 lakh units outstanding with Net Assets Value (NAV) of ₹ 18.75. At the end of April, it issued 6 lakh units at opening NAV plus 2% load, adjusted for dividend equalization. At the end of May, 3 Lakh units were repurchased at opening NAV less 2% exit load adjusted for dividend equalization. At the end of June, 70% of its available income was distributed.

In respect of April-June quarter, the following additional information are available:

	₹ in lakh
Portfolio value appreciation	425.47
Income of April	22.950
Income for May	34.425
Income for June	45.450

You are required to calculate

(i)   Income available for distribution;

(ii) Issue price at the end of April;

(iii) repurchase price at the end of May; and

(iv) net asset value (NAV) as on 30th June.   **(10 Marks)**

(b) Followings are the spot exchange rates quoted at three different forex markets:

USD/INR   48.30 in Mumbai

GBP/INR   77.52 in London

GBP/USD   1.6231 in New York

The arbitrageur has USD1,00,00,000. Assuming that there are no transaction costs, explain whether there is any arbitrage gain possible from the quoted spot exchange rates.   **(4 Marks)**

5. (a) ICL is proposing to take over SVL with an objective to diversify. While ICL growth rate is 18%, the SVL growth rate is 15%. Both the companies pay dividend regularly. The summarized Profit & Loss Account of both the companies are as follows:

₹ in Crores

Particulars	ICL	SVL
Net Sales	9090	3000
PBIT	5960	1440
Interest	1500	50
Provision for Tax	2880	890
PAT	1580	500
Dividends	470	304.35

	ICL		SVL	
Fixed Assets				
Land & Building (Net)	1440		380	
Plant & Machinery (Net)	1800		700	
Furniture & Fixtures (Net)	60	3300	20	1100
Current Assets		1550		1160
Less: Current Liabilities				
Creditors	460		260	
Overdrafts	70		20	
Provision for Tax	290		100	
Provision for dividends	120	940	100	480
Net Assets		3910		1780
Paid up Share Capital (₹ 10 per share)	500		250	
Reserves and Surplus	2100	2600	1320	1570
Borrowing		1310		210
Capital Employed		3910		1780

Market Price Share (₹)	175	98
Cost of Equity	25%	20%

ICL's Land & Buildings are stated at current prices. SVL's Land & Buildings are revalued three years ago. There has been an increase of 7.65 per cent per year in the value of Land & Buildings.

SVL is expected to grow @ 18 per cent each year, after merger.

ICL is interested to do justice to the shareholders of both the Companies. For the swap ratio weights are assigned to different parameters by the Board of Directors as follows:

Net Worth Per Share*   25%

EPS (Earning per share)   30%

Share price as per Dividend Growth Model 20%

Market Price per share   25%

* After required adjustment.

You are required to suggest the swap ratio based on above weights and total number of shares.

Note: Round off calculations upto two decimal points.   **(10 Marks)**

(b) Explain the characteristics of Global Depository Receipts (GDRs).

                                                              (4 Marks)

9

6. (a) Sensex futures are traded at a multiple of 50. Consider the following quotations of Sensex futures in the 10 trading days during February, 2009:

Day	High	Low	Closing
4-2-09	3306.4	3290.00	3296.50
5-2-09	3298.00	3262.50	3294.40
6-2-09	3256.20	3227.00	3230.40
7-2-09	3233.00	3201.50	3212.30
10-2-09	3281.50	3256.00	3267.50
11-2-09	3283.50	3260.00	3263.80
12-2-09	3315.00	3286.30	3292.00
14-2-09	3315.00	3257.10	3309.30
17-2-09	3278.00	3249.50	3257.80
18-2-09	3118.00	3091.40	3102.60

Abshishek bought one Sensex Futures contract on February, 04. The average daily absolute change in the value of contract is ₹ 10,000 and standard deviation of these changes is ₹ 2,000. The maintenance margin is 75% of initial margin.

You are required to determine the daily balances in the margin account and payment on margin calls, if any. **(8 Marks)**

(b) "Technical Analysis has several supporters as well several critics." Explain this statement. **(6 Marks)**

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

(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 = $R_f + ß (R_m – R_f)$ or $R_f + ß$ Market Risk Premium

= 9.50% + 0.1 x 3.10% = 9.81%

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

= ₹ 109151.7295 crore

3

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

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

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

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

5

(iv) Portfolio variance on the basis of Markowitz Theory

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

= (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

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

8

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 $\left(\dfrac{₹\ 483,000,000}{₹\ 77.52}\right)$

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

10

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.