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Answer Paper	
ADVANCED FINANCIAL MANAGEMENT	Duration: 3 Hours
Details: Full Test-2	Marks: 100

Instructions:

- All the questions are compulsory
- Properly mention test number and page number on your answer sheet, Try to upload sheets in arranged manner.
- In case of multiple choice questions, mention option number only Working notes are compulsory wherever required in support of your solution
- Do not copy any solution from any material. Attempt as much as you know to fairly judge your performance.

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MCQs:

Ans-1 B) 0.5

Explanation: Beta of Defensive Stock

We calculate β using: $\beta = \frac{\text{Cov}(R_i R_m)}{\text{Var}(R_m)}$

Step-by-step:

$$\text{Mean Market Return} = \frac{7\% + 25\%}{2} = 16\%$$

$$\text{Mean Defensive Return} = \frac{9\% + 18\%}{2} = 13.5\%$$

$$\text{Covariance} = \frac{(9-13.5)(7-16) + (18-13.5)(25-16)}{2} = \frac{(-4.5)(-9) + (4.5)(9)}{2} = \frac{40.5 + 40.5}{2} = 40.5$$

$$\text{Variance of Market Return} = \frac{(7-16)^2 + (25-16)^2}{2} = \frac{81 + 81}{2} = 81$$

$$\text{Beta: } \beta = \frac{40.5}{81} = 0.5$$

Ans-2 C) 22%

Explanation: Expected Return of Aggressive Stock = $\frac{4\% + 40\%}{2} = 22\%$

Ans-3 D) Harry Markowitz

Ans-4 B) Risk of Default

Explanation: The emphasis on credit rating, interest coverage ratios, and earning power all point toward assessing the risk that the issuer might default on its obligations.

Ans-5 A) Yield to maturity

Explanation: For a buy-and-hold investor planning to hold till maturity, YTM represents the total return they will earn, making it the most relevant factor.

Ans-6 B) Fundamental Analysis

Explanation: In weak form efficient markets, technical analysis loses its effectiveness since past price patterns are already incorporated into current prices, but fundamental analysis can still provide value by analyzing company financials, industry trends, and economic factors.

Ans-7 D) Repurchase Option

Explanation: This is a Repurchase Agreement (Repo) because:

Bank A sells the bond to Bank B with an agreement to repurchase after 14 days.

Ans-8 B) Rs. 106,700

Explanation: Accrued Interest = $262 / 360 \times 10,000 = \text{Rs. } 7,278 = \text{Rs. } 7,280$

Dirty Price = Rs. 99,420 + Rs. 7,280 = Rs. 106,700

Ans-9 B) Rs. 8,36,52,800

Explanation: Bonds = Rs. 8 crore / Rs. 1,00,000 = 800 bonds

Total Dirty Price = 800 × Rs. 106,700 = Rs. 8,53,60,000

Apply 2% Initial Margin:

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Start Proceeds = Rs. 8,53,60,000 × (1–0.02) = Rs. 8,36,52,800

Ans-10 A) Rs. 7280

Explanation: Accrued Interest per bond

As calculated earlier: = $262 / 360 \times \text{Rs. } 10,000 = \text{Rs. } 7,277.78 = \text{Rs. } 7,280$

Ans-11 C) 20 lakhs

Explanation: Determine number of existing shares

Market Cap = EPS × P/E × Number of Shares

Let number of shares = x

Market Cap = EPS × P/E × x ⇒ $3,00,000 = 200 \times 15 \times x \Rightarrow x = 3,00,000 / 3,000 = 100$ lakhs

So, total shares = 100 lakhs

Shares to be bought back = 20% of 100 lakhs = 20 lakhs

Ans-12 A) Rs. 5,280.00 Lakhs

Explanation: Loan amount = Rs. 66,000 lakh

Annual interest = Rs. 66,000 lakh × 8% = Rs. 5,280 lakh

Ans-13 C) Rs. 66000 Lakhs

Explanation: Interest Rate = 8%

Loan = Interest / Rate = 5,280 / 0.08 = Rs. 66,000 lakhs

Ans-14 C) Rs. 300

Explanation: Buyback price per share = Loan amount ÷ Number of shares bought back

= Rs. 66,000 lakhs ÷ 20 lakhs = Rs. 3,300

Premium = Buyback price - Current MPS = Rs. 3,300 - Rs. 3,000 = Rs. 300

Ans-15 C) 10%

Explanation: Premium over CMP = $(300 / 3,000) \times 100 = 10\%$

(15 x 2 = 30 Marks)

Descriptive Answers

Ans-1 (a)

(i) Current Market Price of Bond

= Rs. 850 (PVIAF 10%, 5) + Rs. 10,000 (PVIF 10%, 5)

= Rs. 850 (3.79) + Rs. 10,000 (0.621) = Rs. 3,221.50 + Rs. 6,210 = Rs. 9,431.5

(ii) Macaulay's Duration

Year	Cash flow	P.V. @ 10%		Proportion of bond value	Proportion of bond value x time (years)
1	850	0.909	772.65	0.082	0.082

2	850	0.826	702.10	0.074	0.148
3	850	0.751	638.35	0.068	0.204
4	850	0.683	580.55	0.062	0.248
5	10,850	0.621	6,737.85	0.714	3.57
			9431.50	1.000	4.252

Duration of the Bond is 4.252 years

(iii) Volatility of Bond

$$\text{Volatility of Bonds} = \frac{\text{Duration}}{(1 + \text{YTM})} = \frac{4.252}{1.10} = 3.865$$

(iv) Convexity of Bond

$$C^* \times (\Delta Y)^2 \times 100$$

$$C^* = V_+ + V_- - 2V_0$$

$$2V_0 (\Delta Y)^2$$

Year	Cash flow	P.V. @ 8%		P.V @12%	
1	850	0.926	787.10	0.892	758.20
2	850	0.857	728.45	0.797	677.45
3	850	0.794	674.90	0.712	605.20
4	850	0.735	624.75	0.636	540.60
5	10,850	0.681	7388.85	0.567	6,151.95
			10204.05		8,733.40

$$C^* = \frac{10,204.05 + 8,733.40 - 2 \times 9,431.50}{2 \times 9,431 \times (0.02)^2}$$

$$= \frac{74.45}{7.5452} = 9.867$$

$$\text{Convexity of Bond} = 9.867 \times (0.02)^2 \times 100 = 0.395\%$$

(v) The expected market price if decrease in YTM by 200 basis points.

(A) By Macaulay's duration-based estimate

$$= \text{Rs. } 9431.50 \times 2 (3.865/100) = \text{Rs. } 729.05$$

Hence expected market price is Rs. 9431.50 + Rs. 729.05 = Rs. 10,160.55

Hence, the market price will increase.

(B) By Intrinsic Value method

Intrinsic Value at YTM of 10% Rs. 9,431.50

Intrinsic Value at YTM of 8% Rs. 10,204.05

Price increased by Rs. 772.55

Hence, expected market price is Rs. 10,204.05

(6 Marks)

Ans-1 (b)

(i) Computation of Business Value

		(Rs. Lakhs)
Profit before tax $\frac{154}{1-0.30}$		220
Less: Extraordinary income		(16)
Add: Extraordinary losses		20

		224
Profit from new product	(Rs. Lakhs)	
Sales	140	
Less: Material costs	(40)	
Labour costs	(24)	
Fixed costs	(20)	56
		280.00
Less: Taxes @30%		84.00
Future Maintainable Profit after taxes		196.00
Relevant Capitalisation Factor		0.14
Value of Business (Rs. 196/0.14)		1400

(ii) Determination of Market Price of Equity Share

Future maintainable profits (After Tax)	Rs. 1,96,00,000
Less: Preference share dividends 2,00,000 shares of Rs. 100 @ 13%	Rs. 26,00,000
Earnings available for Equity Shareholders	Rs. 1,70,00,000
No. of Equity Shares	1,00,00,000
Earning per share = $170,00,000 / 1,00,00,000 =$	Rs. 1.70
PE ratio	12
Market price per share	Rs. 20.40

(4 Marks)

Ans-1 (c)

First Situation – Compliance Risk:

The first situation illustrates a Compliance Risk. ABC Ltd., by entering into a new line of business in a different geographical location (chemical manufacturing in Gujarat), was subject to a different set of legal, environmental, and industrial regulations. Failure to comply with these resulted in fines and operational disruptions.

Compliance risk arises when a company fails to adhere to laws, rules, or regulations applicable to its operations, especially when venturing into new industries or regions. In this case, the risk materialized due to inadequate legal due diligence and lack of a compliance framework before starting the new operations.

Mitigation Strategy: The company should have conducted a thorough regulatory compliance audit before expansion and consulted local legal experts. A dedicated compliance officer or department should be appointed to ensure adherence to applicable laws in any new business endeavor.

Second Situation – Operational Risk:

The second situation is a clear example of Operational Risk, which arises from internal process failures or human errors. The payment of ₹3,00,000 instead of ₹30,000 due to manual error, and absence of an approval mechanism, highlights a breakdown in internal financial controls.

Operational risk can result from inefficient systems, weak controls, or inadequate supervision. Such risks can have financial implications and impact credibility with vendors or stakeholders.

Mitigation Strategy: To avoid such risks, ABC Ltd. should implement a maker-checker system, where all financial transactions are reviewed and approved by a second authority. Additionally, automated payment systems with pre-set transaction limits and alerts for unusual payments should be introduced. Periodic internal audits should also be conducted to identify and correct process weaknesses.

(4 Marks)

Ans-2 (a)

We have $E_p = W_1E_1 + W_3E_3 + \dots + W_nE_n$

and for standard deviation $\sigma^2_p =$

$$\sum_{i=1}^n \sum_{i=1}^n w_i w_j \sigma_{ij}$$

$\sigma^2_p =$

$$\sum_{i=1}^n \sum_{i=1}^n w_i w_j \rho_{ij} \sigma_i \sigma_j$$

Two asset portfolio

$$\sigma^2_p = w^2_1 \sigma^2_1 + w^2_2 \sigma^2_2 + 2 w_1 w_2 \sigma_1 \sigma_2 \rho_{12}$$

Or

$$\sigma_p = \sqrt{w_1 \sigma_1 + w_2 \sigma_2 + 2 w_1 w_2 \sigma_1 \sigma_2 \rho_{12}}$$

Substituting the respective values we get,

(i) 50% of funds in each of X and Y

$$E_p = 0.50 \times 19\% + 0.50 \times 23\% = 21\%$$

$$\sigma^2_p = (0.50)^2 (14\%)^2 + (0.50)^2 (18\%)^2 + 2(0.50)(0.50)(0.16)(14\%)(18\%)$$

$$\sigma^2_p = 49 + 81 + 20.16 = 150.16$$

$$\sigma_p = 12.25\%$$

(ii) 75% in X and 25% in Y

$$E_p = 0.75 \times 19\% + 0.25 \times 23\% = 20\%$$

$$\sigma^2_p = (0.75)^2 (14\%)^2 + (0.25)^2 (18\%)^2 + 2(0.75)(0.25)(0.16)(14\%)(18\%)$$

$$\sigma_p^2 = 110.25 + 20.25 + 15.12 = 145.62$$

$$\sigma_p = 12.07\%$$

(iii) 25% in X and 75% in Y

$$E_p = 0.25 \times 19\% + 0.75 \times 23\% = 22\%$$

$$\sigma_p^2 = (0.25)^2(14\%)^2 + (0.75)^2(18\%)^2 + 2(0.25)(0.75)(0.16)(14\%)(18\%)$$

$$\sigma_p^2 = 12.25 + 182.25 + 15.12 = 209.62$$

$$\sigma_p = 14.48\%$$

(iv) 60% in X and 40% in Y

$$E_p = 0.60 \times 19\% + 0.40 \times 23\% = 20.60\%$$

$$\sigma_p^2 = (0.60)^2(14\%)^2 + (0.40)^2(18\%)^2 + 2(0.60)(0.40)(0.16)(14\%)(18\%)$$

$$\sigma_p^2 = 70.56 + 51.84 + 19.35 = 141.75$$

$$\sigma_p = 11.91\%$$

(v) 35% in X and 65% in Y

$$E_p = 0.35 \times 19\% + 0.65 \times 23\% = 21.60\%$$

$$\sigma_p^2 = (0.35)^2(14\%)^2 + (0.65)^2(18\%)^2 + 2(0.35)(0.65)(0.16)(14\%)(18\%)$$

$$\sigma_p^2 = 24.01 + 136.89 + 18.35 = 179.25$$

$$\sigma_p = 13.39\%$$

Portfolio	(i)	(ii)	(iii)	(iv)	(v)
Return	21.00	20.00	22.00	20.60	21.60
σ	12.25	12.07	14.48	11.91	13.39

In the terms of return, we see that portfolio (iii) is the best portfolio.

In terms of risk we see that portfolio (iv) is the best portfolio.

(6 Marks)

Ans-2 (b)

Computation of Missing Entries in the Table: For computing the missing entries in the table we will use Interest Rates Parity (IRP) theorem

$$\text{Or } \frac{(1+r_f)}{(1+r_d)} = \frac{S_{f/d}}{F_{f/d}}$$

Where,

r_f is the rate of interest of country F (say the foreign country)

r_d is rate of interest of country D (say domestic country)

$S_{f/d}$ is the spot rate between the two countries F and D and

$F_{f/d}$ is the forward rate between the two countries F and D.

(i) 3 months

(1) Dollar interest rate = $11\frac{1}{2}\%$ (annually compounded)

Franc interest rate = $19\frac{1}{2}\%$ (annually compounded)

Then Forward Franc per Dollar rate would be:

$$= 7.05 \left(\frac{1 + \frac{0.195}{4}}{1 + \frac{0.115}{4}} \right) = 7.05 \left(\frac{1 + 0.04875}{1 + 0.02875} \right)$$

= Franc 7.19 per US Dollar

(2) Further Forward discount per Franc per cent per year = Interest Differential i.e.

$$= 19\frac{1}{2}\% - 11\frac{1}{2}\% = 8\%$$

Alternatively, more precisely it can also be computed as follows:

Spot per Franc Rate = $1 / 7.05 = \text{US Dollar } 0.142 \text{ per Franc}$

One Year Forward Rate = $0.142 \left(\frac{1 + 0.115}{1 + 0.195} \right) = \text{US Dollar } 0.132 \text{ per Franc}$

Accordingly, the discount per annum will be = $\frac{0.142 - 0.132}{0.142} \times 100 = 7.04\%$

Alternatively, it can also be computed using forward rate computed above as follows:

Forward per Franc Rate = $1/7.19 = 0.139$

Accordingly, the discount per annum will be = $\frac{0.142 - 0.139}{0.142} \times \frac{12}{3} \times 100 = 8.45\%$

(ii) 6 months

(1) Forward discount on Franc % per year = $- 6.3\%$ or $- 3.15\%$ for 6 months

Spot per Franc Rate = $\text{US\$ } 0.142$

Forward per Franc Rate = $\text{US\$ } 0.142 \times (1 - 0.0315) = \text{US\$ } 0.138$

Accordingly, Forward Francs per US\$ = $1/0.138 = 7.25$

Alternatively, it can also be computed as follows:

6 months Forward rate = $7.05 / (100\% - 3.15\%)$

Forward Francs per Dollar = 7.28 Francs

(2) Let r be the Franc interest rate (annually compounded) then as per IRP Theory:

$$7.05 \left(\frac{1 + \frac{r}{2}}{1 + \frac{0.1225}{2}} \right) = \text{Franc } 7.25 \text{ per Dollar}$$

On solving the equation, we get the value $r = 18.27\%$ i.e. Franc Interest rate (annually compounded)

Alternatively, it can also be computed as follows:

$$7.05 \left(\frac{1 + \frac{r}{2}}{1 + \frac{0.1225}{2}} \right) = \text{Franc } 7.28 \text{ per Dollar}$$

On solving the equation we get the value of $r = 19.17\%$ i.e. Franc interest rate (annually compounded)

(iii) 1 Year

Franc interest rate = 20% (annually compounded)

Forward Franc per Dollar = 7.5200

As per Interest Rate Parity the relationship between the two countries rate and spot rate is

1+Franc Interest Rate

$$7.52 = 7.05 \left(\frac{1 + \text{Franc Interest Rate}}{1 + \text{Dollar Interest Rate}} \right)$$

$$\text{i.e.} = \frac{1 + \text{Dollar interest rate}}{1 + 0.20} = \frac{7.05}{7.52}$$

Accordingly, the Dollar interest rate = $1.20 \times 0.9374 - 1 = 1.125 - 1 = 0.125$ or 12.5%

The completed Table will be as follows:

	3 Months	6 Months	1 Year
Dollar interest rate (annually compounded)	11½%	12¼%	12.50%
Franc interest rate (annually compounded)	19½%	19.17% or 18.27%	20%
Forward Franc per Dollar	7.19	7.25 or 7.28	7.5200
Forward discount per Franc percent per year	8% or 7.04% or 8.45%	6.3%	

(4 Marks)

Ans-2 (c)

The sustainable growth rate (SGR) is the maximum rate of growth in sales that a firm can achieve without borrowing more money, given its profitability, asset utilization, and desired dividend payout and debt ratios. It is calculated as $SGR = ROE \times (1 - \text{Dividend payment ratio})$. The sustainable growth model assumes that the business wants to maintain a target capital structure without issuing new equity, maintain a target dividend payment ratio, and increase sales as rapidly as market conditions allow.

Sustainable growth is crucial for an organization's long-term development. Too fast or too slow growth can hinder the enterprise's growth and development. Hence, finance should play a vital role in ensuring that the organization's growth speed is close to the sustainable growth ratio for healthy, sustainable development.

To be financially sustainable, an organization must:

- (i) Have more than one source of income and more than one way of generating income.
- (ii) Conduct strategic, action, and financial planning regularly.
- (iii) Have adequate financial systems.
- (iv) Maintain a good public image.
- (v) Be clear about its values (value clarity).
- (vi) Have financial autonomy.

(4 Marks)

Ans-3 (a)

Working Notes:

Calculation of Forward Exchange Rates

End of Year	Rs.	Rs./LKR
1	$0.37 \times \frac{1.06}{1.052}$	0.373

2	$0.373 \times \frac{1.06}{1.052}$	0.376
3	$0.376 \times \frac{1.06}{1.052}$	0.379
4	$0.379 \times \frac{1.06}{1.052}$	0.382
5	$0.382 \times \frac{1.06}{1.052}$	0.385

1. Home Currency Approach

Year	Cash Flow Billion LKR	Rs./ LKR	Cash flow Billion Rs.	PVF @ 8%	PV Billion Rs.
1	5	0.373	1.865	0.92593	1.7269
2	6	0.376	2.256	0.85734	1.9342
3	7	0.379	2.653	0.79383	2.1060
4	8	0.382	3.056	0.73503	2.2463
5	9	0.385	3.465	0.68058	2.3582
					10.3716
Less: Investment	25	0.37			9.2500
NPV					1.1216

2. Foreign Currency Approach

$$(1 + 0.06) (1 + \text{Risk Premium}) = 1.08$$

$$1 + \text{Risk Premium} = 1.08/1.06 = 1.01887$$

$$\text{Therefore, Risk adjusted LKR Rate} = 1.01887 \times 1.0502 - 1 = 0.07 \text{ i.e. } 7\%$$

Calculation of NPV

Year	Cash Flow (Billion LKR)	PVF @ 7%	PV (Billion LKR)
1	5	0.93457	4.6729
2	6	0.87344	5.2406
3	7	0.81630	5.7141
4	8	0.76290	6.1032
5	9	0.71299	6.4169
			28.1477
Less: Investment			25.0000
NPV			3.1477

Thus, Rupee NPV of the Project = Rs. 0.37 × 3.1477 = Rs. 1.1646 billion

Decision: NPV is positive in the approach so, project will worth investment

(6 Marks)

Ans-3 (b)

(a) The FRA on Yen shall be Nil as interest rate for both periods i.e. 3 months and 6 months are same.

(b) 3 Months Interest rate is 4.50% p.a. & 6 Months Interest rate is 5% p.a.

Future Value 6 Months from now is a product of Future Value 3 Months now & 3 Months

Future Value from after 3 Months.

$$(1+0.05*6/12) = (1+0.045*3/12) \times (1+i_{3,6} * 3/12)$$

$$i_{3,6} = [(1+0.05 \cdot 6/12) / (1+0.045 \cdot 3/12) - 1] \cdot 12/3$$

i.e. 5.44% p.a.

(c) 6 Months Interest rate is 5% p.a. & 12 Month interest rate is 6.5% p.a.

Future value 12 month from now is a product of Future value 6 Months from now and 6 Months Future value from after 6 Months.

$$(1+0.065) = (1+0.05 \cdot 6/12) \times (1+i_{6,6} \cdot 6/12)$$

$$i_{6,6} = [(1+0.065/1.025) - 1] \cdot 12/6$$

6 Months forward 6 month rate is 7.80% p.a.

The Bank is quoting 6/12 USD FRA at 6.50 – 6.75%

Therefore, there is an arbitrage Opportunity of earning interest @ 7.80% p.a. & Paying @ 6.75%

Borrow for 6 months, buy an FRA & invest for 12 months

To get \$ 1.065 at the end of 12 months for \$ 1 invested today

To pay \$ 1.060# at the end of 12 months for every \$ 1 Borrowed today

Net gain \$ 0.005 i.e. risk less profit for every \$ borrowed

$$\# (1+0.05/2) (1+0.0675/2) = (1.05959) \text{ say } 1.060$$

(4 Marks)

Ans-3 (c)

The reasons for the statement “In a rational, well ordered and efficient market, technical analysis may not work very well” 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.

(iii) By the time an uptrend and down trend may have been signalled 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.

(4 Marks)

Ans-4 (a)

(i) Straight Value of Bond

$$= \text{Rs. } 85 \times 0.905 + \text{Rs. } 85 \times 0.819 + \text{Rs. } 85 \times 0.741 + \text{Rs. } 1085 \times 0.671$$

$$= \text{Rs. } 76.93 + \text{Rs. } 69.62 + \text{Rs. } 62.99 + \text{Rs. } 728.04 = \text{Rs. } 937.56$$

(ii) Conversion rate is 30 shares per bond. Market price of share Rs. 55

$$\text{Conversion Value } 30 \times \text{Rs. } 55 = \text{Rs. } 1,650$$

(iii) Conversion Premium

$$\frac{\text{Market Price} - \text{Conversion Value}}{\text{Conversion Value}} \times 100$$

$$\frac{\text{Rs.}1725 - \text{Rs.}1650}{\text{Rs.}1650} \times 100 = 4.55\%$$

Alternatively, it can also be computed on Per Share/ Bond basis as follows:

$$\frac{\text{Rs.}1725 - \text{Rs.}1650}{\text{Rs. } 30} = \text{Rs. } 2.50 \text{ Per Share or Rs. } 1725 - \text{Rs. } 55 \times 30 = \text{Rs. } 75$$

$$(iv) \frac{\text{Rs.}1725 - \text{Rs.}937.50}{937.50} \times 100 = 0.84 \text{ or } 84\%$$

Or $\frac{\text{Rs.1725} - \text{Rs.937.50}}{\text{Rs.1725}} \times 100 = 0.4565$ or 45.65%

This ratio gives the percentage price decline experienced by the bond if the stock becomes worthless.

(v) Conversion Parity Price

Bond Price / No. of Shares on Conversion

Rs. 1725 / 30 = Rs. 57.50

(6 Marks)

Ans-4 (b)

Purchase price [$\text{Rs. } 50 \times 1.03$]	Rs. 51.5
Total investment	Rs. 10000
No. of units purchased	194.17 units
Total Return	
Dividend distributions [$\text{Rs. } 0.25 \times 194.17$]	Rs. 48.54
Capital gain distribution [$\text{Rs. } 0.40 \times 194.17$]	Rs. 77.67
NAV Appreciation [$54 (1 - 0.03) - 51.5 \times 194.17 \text{ units}$]	Rs. 170.87
Total Return in rupees terms	Rs. 297.08
Total Return in % terms	$2.97\% \left[\frac{297.08}{10000} \times 100 \right]$

(4 Marks)

Ans-4 (c)

Disagree.

While stamp duty, taxation issues, and lack of standardization are indeed significant obstacles to the growth of securitization in India, the issue of ineffective foreclosure laws also plays a crucial role, particularly in the case of mortgage-backed securities.

1. Stamp Duty:

Stamp duty on mortgage debts, which can be as high as 12% in certain states under the Transfer of Property Act, 1882, is a major impediment to securitization. Although Pass Through Certificates (PTC) are exempt from stamp duty due to their non-debt nature, the general stamp duty on mortgage debts discourages the efficient transfer of assets, which affects securitization growth.

2. Taxation:

The lack of clear provisions in the Income Tax Act regarding the taxation of SPVs and securitized instruments creates confusion. Some experts believe that the SPV should be taxed as a representative of investors, while others argue that investors should be taxed directly. The ambiguity in capital gain implications further complicates matters, preventing a smooth functioning of the market for securitized instruments.

3. Lack of Standardization:

The absence of standardized documentation and administrative processes across originators leads to inconsistency in the securitization process. Different originators may adopt different formats and procedures, creating uncertainty for investors and slowing down the securitization market.

4. Ineffective Foreclosure Laws:

Foreclosure laws in India have a direct impact on the attractiveness of mortgage-backed securities. Lenders face difficulties in reclaiming properties in the event of borrower default due to lengthy and cumbersome foreclosure procedures. This not only increases the risk for lenders but also reduces the liquidity and desirability of mortgage-backed securities. Without

a streamlined and efficient foreclosure process, lenders and investors are discouraged from participating in the market for securitized assets, as the risk of loss in case of default is high.

Therefore, while stamp duty, taxation, and standardization issues are significant, ineffective foreclosure laws are a critical factor that impacts the overall attractiveness and growth of securitization in India, particularly in the case of mortgage-backed securities.

(4 marks)

Or

Ans-4 (c)

1. Eligibility Criteria for SISFS:

- **Incorporation Timeline:** Start-up must be recognized by DPIIT and not more than two years old at the time of application.
- **Focus Areas:** The start-up must have a business idea with market fit, viable commercialization, and scalability potential.
- **Priority Sectors:** Includes social impact, waste and water management, financial inclusion, education, agriculture, healthcare, AI, and more.
- **Funding Limit:** Seed funding of up to ₹50 lakhs for activities like Proof of Concept, prototype development, product trials, and commercialization.

2. Addressing Challenges Faced by Start-ups:

- **Funding Gap:** Provides financial support during critical early stages, addressing the lack of capital for Proof of Concept or prototype development.
- **Support Ecosystem:** Encourages innovation in priority sectors through 300 incubators, fostering entrepreneurship.
- **Encourages Risk-Taking:** Reduces financial risk for early-stage entrepreneurs, promoting experimentation and innovation.

3. Potential Limitations of SISFS:

- **Narrow Focus:** Start-ups outside priority sectors may find it challenging to access the scheme.
- **Recognition Barrier:** start-ups must be DPIIT-recognized, which involves strict compliance and administrative hurdles.
- **Limited Reach:** The scheme targets only 3,600 entrepreneurs, which may not suffice given India's large start up ecosystem.

4. Conclusion:

SISFS is a significant step in promoting innovation and supporting early-stage start-ups, but its sectoral focus and eligibility criteria may exclude many potential beneficiaries. Broader inclusion and increased outreach could enhance its impact.

(4 Marks)

Ans-5 (a)

(i) Calculation of Standard Deviation of Funds

Year	MF-A (%)	Dev.	Dev. ²	MF-B (%)	Dev.	Dev. ²	MF-C (%)	Dev.	Dev. ²
2020	10	-	-	5	-2.67	7.13	14	-	-
2021	8	-2	4	10	2.33	5.43	10	-4	16
2022	12	2	4	8	0.33	0.11	18	4	16
	30		8	23		12.67	42		32
	Avg. = 30/3 = 10		Var. = 8/3 = 2.67	Avg. = 23/3 = 7.67		Var. 12.67/3 = 4.22	Avg. = 42/3 = 14		Var. 32/3 = 10.67

			$\sigma_A =$ 1.63			$\sigma_B =$ 2.05			$\sigma_C =$ 3.27
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(ii) Calculation of Beta of MFs

	r	σ_M	σ_i	Var. of Market	β_i
MF-A	0.45	3	1.63	9	0.244
MF-B	0.25	3	2.05	9	0.171
MF-C	0.65	3	3.27	9	0.709

Reward to Variability (Sharpe Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	σ_p	Reward to Variability	Ranking
MF-A	10.00	7.00	3.00	1.63	1.84	2
MF-B	7.67	7.00	0.67	2.05	0.33	3
MF-C	14.00	7.00	7.00	3.27	2.14	1

Reward to Volatility (Treyner Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	β_p	Reward to Volatility	Ranking
MF-A	10.00	7.00	3.00	0.244	12.30	1
MF-B	7.67	7.00	0.67	0.171	3.92	3
MF-C	14.00	7.00	7.00	0.709	9.87	2

(7 Marks)

Ans-5 (b)**Working Notes:****(i) Computation of Net Worth Per Share of SVL**

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

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

(ii) Computation of Net Worth Per Share of ICL

Share Capital + Reserves and Surplus = Rs. 2600 Crore

Total Number of Shares = 50 Crore

Net Worth Per Share = $\text{Rs. } 2600 \text{ Crore} / 50 \text{ Crore} = \text{Rs. } 52.00$

(iii) Earning Per Share (EPS)

	ICL	SVL
PAT	Rs. 1580 Crore	Rs. 500 Crore

No. of Shares	50 Crore	25 Crore
EPS	Rs. 31.60	Rs. 20.00

(iv) Share price as per Dividend Growth Model

	ICL	SVL
Total Dividend	Rs. 470 Crore	Rs. 304.35 Crore
No. of Shares	50 Crore	25 Crore
Dividend Per Share (D ₀)	Rs. 9.40	Rs. 12.17
Expected Dividend (D ₁)	Rs. 9.40 (1 + 0.18) = Rs. 11.09	Rs. 12.17 (1 + 0.15) = Rs. 14.00
Value of Per Share as Growth Model	$\frac{11.09}{0.25-0.18} = \text{Rs. } 158.43$	$\frac{14.00}{0.20-0.15} = \text{Rs. } 280$

Calculation of Swap Ratio

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

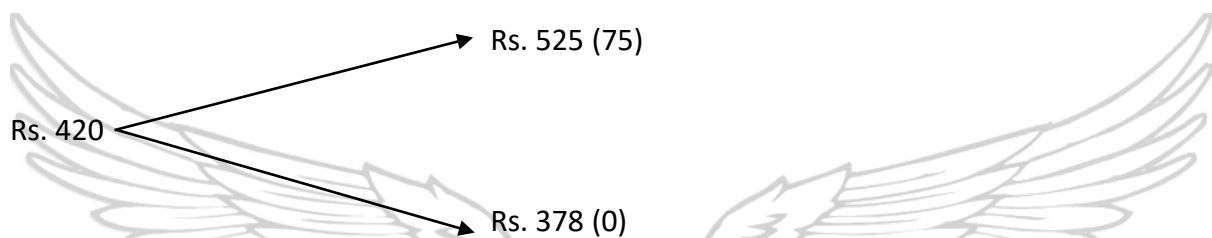
Swap ratio is for every one share of SVL, to issue 1 share of ICL.

Hence, total no. of shares to be issued 25 crores.

(7 Marks)

Ans-6 (a)

(i) (1) Call Option value using Binomial Model



$$\Delta = \frac{Rs.525 - Rs.378}{Rs.75 - 0} = 0.51$$

Initial Investment = $0.51 \times 420 = 214.20$

Value of Portfolio if Price goes down to Rs. 378

Value of holding $0.51 \times Rs. 378 = 192.78$

Accordingly, Let 'P' be the option price, then

$$Rs. 214.20 - P = Rs. 192.78 / 1.0202 = Rs. 188.96$$

$$P = Rs. 25.24$$

(2) Value of Call Option using Risk Neutral Method

Let 'P' be the probability of Price increase, then

$$p \times 525 + (1 - p) \times 378 = 420 (1.0202)$$

$$147p = 50.48$$

p = 0.34

Probability of Price increase = 0.34

Probability of Price decrease = 0.66

$$\frac{0.34 \times 75 + 0.66 \times 0}{1.0202} = \text{Rs. } 25.24$$

Yes, the value of option under both Models is same.

(ii) Basis of valuation of options:

- Binomial model uses an approach called “Risk less Hedge Approach” to find the price of the option, by creating a portfolio which will have same value at expiration irrespective of any price. Hedge means to create an equal and opposite position for protecting the value of portfolio.
- In Risk Neutral Model, valuation of options is based on arbitrage and is therefore independent of risk preferences, one should be able to value options assuming any set of risk preferences and get the same answer.

(7 Marks)

Ans-6 (b)

Calculation of Net Present value of the investment project using a nominal terms approach.

Year	1	2	3	4	5
Sales Revenue	2617.50	5634.52	15815.74	10887.16	
Less: Costs	1047.00	2192.42	5738.66	4205.86	
Net Revenue	1570.50	3442.10	10077.08	6681.30	
Less: Tax Payable	---	-471.16	-1032.64	-3023.12	(2004.40)

Capital Allowance	---	300.00	225	168.76	506.26
After Tax Cash Flow	1570.50	3270.94	9269.44	3826.94	1498.14
Less: Working Capital	(301.72)	(1018.12)	(492.86)	(1088.72)	
Project Cash Flow	1268.78	2252.82	9762.30	4915.66	(1498.14)
Discount Factor 12%	0.893	0.797	0.712	0.636	0.567
Present Value of Cash Flow	1133.02	1795.50	6950.76	3126.36	(849.44)

P.V. of Future Cash Flow	12156.20
Less: Initial Investment	4000.00
Less: Working Capital	261.76
NPV	Rs 7894.44

The net present value is Rs 7894440. So the investment project is financially acceptable.

Working Notes:

(Rs'000)

Year	1	2	3	4
Sales Revenue	2500	5140	13780	9060
Inflated Sales (by 4.7%)	2617.50	5634.52	15815.74	10887.16

Inflated costs have been calculated accordingly although the normal discount rate is 12% and general rate of inflation is 4.7%.

2. Capital Allowance Cost of project = Rs 40, 00,000

Tax @ 30% = Rs 12, 00,000

$12, 00,000 \times 25\% = 3, 00,000$

$(12, 00,000 - 3, 00,000) \times 25\% = 2, 25,000$

$(9, 00,000 - 2, 25,000) \times 25\% = 1, 68,750$

$12,00,000 - 3,00,000 - 2,25,000 - 1,68,750 = 5,06,250$

3. Working Capital

10% of Incremental Sales.

$(2617.50 - 5634.52) \times 10\% = (301.72)$

$(5634.52 - 15815.74) \times 10\% = (1018.12)$

$(15815.74 - 1088.72) \times 10\% = 1472.70$

$(1088.72 - 0) \times 10\% = 108.87$

(7 marks)

