MIT-ADT UNIVERSITY

A Leap Towards World Class Education

Corporate Finance

Semester – VI 2025-26

MDM Minor Elective – Finance Technology

Lab Manual

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CERTIFICATE

This is to certify that the **Lab Manual on "Corporate Finance"** submitted by **Mr./Ms.** _____ bearing Enrollment No. _____, of Semester-VI, pursuing MDM Minor Elective - Finance Technology offered by MIT College of Management and Computer Applications, A.D.T. University, Pune is a bona fide record of the laboratory work conducted during the academic year 2025 –26.

The work recorded in this lab manual is based on the experiments and practical sessions conducted as part of the **Corporate Finance** curriculum. The manual has been verified and found satisfactory.

Date:

Place:

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Date:

Practical No. 1: Calculate Simple Interest?

Formula: SI=P × r × t

Format:

Simple Interest (SI)	
Principal	Rs. 1,00,000.00
Annual Interest Rate	10%
Time (in years)	3
Simple Interest (SI)	
Total Amount (A)	

Date:

Practical No. 2: Calculate Compound Interest?

Formula:

$$A = P \times (1 + \frac{r}{n})^{n \times t}$$

$$CI = A - P$$

Format:

Compound Interest Calculator	
Principal Amount	1,00,000.00
Rate of Interest	10%
Time (in years)	10

Year	Principle Amount	Interest	Compound Interest	EOY
1				1 Year
2				2 Year
3				3 Year
4				4 Year
5				5 Year
6				6 Year
7				7 Year
8				8 Year
9				9 Year
10				10 Year

Date:

Practical No. 3: Calculate Present Value (PV) Ordinary Annuity and Annuity Due?

Formula:

$$PV = C \times \left[1 - \frac{1}{(1+r)^n}\right] \div r \qquad PV_{AD} = P \times \frac{1-(1+r)^{-n}}{r} \times (1+r)$$

Format:

Ordinary Annuity			**Annuity Due**	
Present Value (PV)			**Present Value (PV)**	
Future Value	10,000.00		Future Value	60,000.00
Interest Rate	8%		Interest Rate	7%
Time (in years)	5		Time (in years)	5
Present Value (PV)			**Present Value (PV)**	

Date:

Practical No. 4: Calculate Future Value (FV) Ordinary Annuity and Annuity Due?

Formula:

$$FV_{AD} = P \times \frac{(1+r)^n - 1}{r} \times (1+r)$$

Format:

Ordinary Annuity			**Annuity Due**	
Future Value (FV)			**Future Value (FV)**	
Present Value	10,000.00		Present Value	12,000.00
Interest Rate	8%		Interest Rate	8%
Time (in years)	5		Time (in years)	4
Future Value (FV)			**Future Value (FV)**	

Date:

Practical No. 5: Calculate Cash Payment (EMI)?

Formula:

$$EMI = PV \times \frac{r(1+r)^n}{(1+r)^n - 1}$$

Format:

Cash Payments (EMI)	
Amount	5,00,000.00
Interest Rate	10%
Period (in years)	10
Annual Payments	
Monthly Payments	

Date:

Practical No. 6: Calculate Net Present Value of Standalone Project?

Formula:

$$NPV = -C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

Format:

Standalone Project				
Net Present Value (NPV)				
Initial Investment		15,000.00		
Discount Rate		8%		
	1st Year	**2nd Year**	**3rd Year**	**4th Year**
Cash Flow	5,000.0	5,000.0	5,000.0	5,000.0
Net Present Value (NPV)				

Date:

Practical No. 7: Calculate Net Present Value of comparing mutually exclusive Projects?

Formula: $NPV = -C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$

Format:

Comparing Mutually Exclusive Projects			
Net Present Value (NPV)			
Initial Investment	**1,00,000.00**	**1,20,000.00**	**1,35,000.00**
Discount Rate	**8%**	**8%**	**8%**
	Project "A"	**Project "B"**	**Project "B"**
1st Year	**35,000.00**	**45,000.00**	**50,000.00**
2nd Year	**40,000.00**	**50,000.00**	**55,000.00**
3rd Year	**45,000.00**	**55,000.00**	**60,000.00**
Net Present Value(NPV)			

Date:

Practical No. 8: Calculate free cash flow?

Formula:

1. From Operating Cash Flow:

$$FCF = \text{Operating Cash Flow (OCF)} - \text{Capital Expenditures (CapEx)}$$

2. From Net Operating Profit After Tax (NOPAT):

$$FCF = \text{EBIT} \times (1 - \text{Tax Rate}) + \text{Depreciation/Non-Cash Expenses} - \text{Change in Working Capital} - \text{Capital Expenditur}$$

Format:

Free Cash Flow	
Item	**Value**
EBIT	12,00,000.00
Tax Rate	15%
Net Operating Profit After Tax	
Depreciation	12,000.00
Change in Working Capital	35,000.00
Capital Expenditure	1,25,000.00
Free Cash Flow	

Date:

Practical No. 9: Calculate risk-free bond?

Formula:

$$P = \sum_{t=1}^{n} \frac{C}{(1+r)^t} + \frac{F}{(1+r)^n}$$

Format:

Valuing Risk-Free Bond	
Face Value	1,000.00
Coupon Rate	8%
Years to Maturity	3
Risk-Free Rate	6%
Bond Price (P)	

Date:

Practical No. 10: Calculate zero-coupon risk-free bond price?

Formula: $$P = \frac{F}{(1+r)^n}$$

Format:

Zero-Coupon Risk-Free Bond	
Face Value	10,000.00
Years to Maturity	5
Risk-Free Rate	5%
Bond Price (P)	

Date:

Practical No. 11: Calculate duration?

Formula:

$$D_{Mac} = \frac{\sum_{t=1}^{n} t \times PV_t}{P} \qquad D_{\text{Mod}} = \frac{D_{\text{Mac}}}{1 + y}$$

Format:

Duration				
Face Value			1,000.00	
Years to Maturity			3	
Annual Coupon Rate			10%	
Yield to Maturity			8%	
Change in Yield			0.50%	
Year	**Cash Flow**	**PV Factor**	**PV of CF**	**t × PV**
1				
2				
3				
Sum				
Macaulay Duration (D_Mac)				
Modified Duration				
Approximate Change				
Bond New Price				
Current Yield				

Date:

Practical No. 12: Calculate forward interest rates?

Formula:

$$f_{1,2} = \frac{(1+R_2)^2}{(1+R_1)} - 1$$

Format:

Forward Interest Rates	
1st Year Spot Rate (R1)	5%
2nd Year Spot Rate (R2)	6%
Forward Interest Rates	

Date:

Practical No. 13: Find out Bond's intrinsic value by using Zero-Growth Model?

Formula:

$$P_0 = \frac{D}{r}$$

Format:

Zero-Growth Model	
Dividend	6.00
Rate of Return	12%
Bond's Intrinsic Value	

Date:

Practical No. 14: Calculate bond price by using Gordon Growth Model?

Formula: $$P_0 = \frac{D_1}{r - g}$$

Format:

Constant Growth Model (Gordon Growth Model)	
Dividend	5.00
Rate of Return	10%
Growth Rate	6%
Bond Price (P)	

Date:

Practical No. 15: Calculate bond value by using multi-stage growth model?

Formula:

$$P_0 = \sum_{t=1}^{n} \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n} \qquad P_n = \frac{D_{n+1}}{r - g_2}$$

Format:

Multi-Stage Growth Model	
Dividend	4.00
Rate of Return	10%
Growth Rate (First 3 Years)	12%
Growth Rate (After 3 Years)	6%

Year	Dividend	Discount Factor	PV of Dividend
1			
2			
3			
Terminal Value			
Total Value			

Date:

Practical No. 16: Calculate bond intrinsic value by using Total Payout Model?

Formula:

$$P_0 = \frac{\text{PV of Total Payouts to Shareholders}}{\text{Number of Shares Outstanding}} \qquad P_0 = \frac{(D_1 + R_1)}{r - g}$$

Format:

Total Payout Model (TPM)	
Dividend Per Share	2.00
Repurchase Per Share	1.00
Growth Rate	4%
Cost of Equity	10%
Intrinsic Value	

Date:

Practical No. 17: Calculate price per share by using FCF Model?

Formula:

$$\text{Enterprise Value (EV)} = \sum_{t=1}^{n} \frac{FCF_t}{(1+WACC)^t} + \frac{FCF_n(1+g)}{(WACC-g)(1+WACC)^n}$$

Format:

Free Cash Flow (FCF) Model	
WACC	10%
Terminal Growth Rate	4%
Debt	Rs. 500.00
Cash	Rs. 100.00
Outstanding Shares	100.00

Year	FCF	PV
1		
2		
3		
Total		
Terminal Value		
Enterprise Value (EV)		
Equity Value		
Price Per Share		

.

Date:

Practical No.18: Valuation Based on Comparable Firms by using Free Cash Flow Model?

Formula:

$$\text{Enterprise Value (EV)} = \sum_{t=1}^{n} \frac{FCF_t}{(1+WACC)^t} + \frac{FCF_n(1+g)}{(WACC-g)(1+WACC)^n}$$

Format:

Free Cash Flow (FCF) Model

Company 'Ambuja Cement' EPS			Rs. 11.00
Comparable Company	**EPS**	**Price**	**P/E Ratio**
ACC Cement	10.00	150.00	
Birla Cement	8.00	128.00	
Chettinad Cement	12.00	180.00	
Dalmia Cement	9.00	144.00	
Average P/E			
Estimated Price			

Date:

Practical No. 19: Calculate forward interest rates?

Formula:

$$E(R_i) = R_f + \beta_i[E(R_m) - R_f]$$

Format:

The Capital Asset Pricing Model (CAPM)	
Risk-Free Rate (Rf)	6.00%
Market Return (Rm)	12.00%
Beta (β)	1.3
Expected Return	

Date:

Practical No. 20: Determining the Risk Premium?

Formula: Market Risk Premium (MRP) = E(Rm)−Rf

Security Risk Premium (SRP) = βi(E(Rm)−Rf)

Equity Risk Premium (ERP) = Similar to MRP

Format:

Determining the Risk Premium	
Risk-Free Rate (Rf)	6.00%
Market Return (Rm)	12.00%
Beta (β)	1.3
Market Risk Premium	
Security Risk Premium	
Expected Return	

Date:

Practical No. 21: Calculate Equity Cost of Capital (Ke)?

Formula: $Ke = Rf + \beta (E (Rm) - Rf)$

Format:

Equity Cost of Capital (Ke)	
Risk-Free Rate (Rf)	6.00%
Market Return (Rm)	12.00%
Beta (β)	1.2
Cost of Equity (Ke)	

Date:

Practical No. 22: Calculate Beta?

Formula:

$$\beta = \frac{\mathrm{Cov}(R_i, R_m)}{\mathrm{Var}(R_m)}$$

Format:

Beta Estimation		
Month	**Stock Return (Ri)**	**Market Return (Rm)**
1	0.030	0.020
2	0.040	0.030
3	-0.010	-0.020
4	0.050	0.030
5	0.020	0.010
6	0.060	0.040
Covariance		
Variance		
Beta		
Beta		

Date:

Practical No. 23: Calculate Debt Cost of Capital (Kd)?

Formula:

i.Kd = YTM * (1 – T)
ii.Kd = Interest rate * (1 – T)
iii.Kd = bond yield for that rating * (1 – T)

Format:

Debt Cost of Capital (Kd)	
Yield to Maturity (YTM)	10.0%
Interest Rate	12.0%
Bond Yield for Rating	8.5%
Corporate Tax Rate	30.0%
Cost of Debt using YTM	
Cost of Debt using Loan Rate	
Cost of Debt using Credit Rating Yield	

Date:

Practical No. 24: Calculate Equity Value of Firm under MM - I?

Formula: $$V_U = \frac{EBIT}{r_U}$$

Format:

Modigliani–Miller Proposition - I	
EBIT	1,00,000.00
Cost of Equity for Unleveraged	10%
Debt Interest Rate	5.00%
Cost of Debt for Leveraged	Rs. 2,00,000.00
Value of Unleveraged Firm	
Equity Value of Firm	

Date:

Practical No. 25: Calculate WACC by using MM-II ?

Formula:

$$r_E = r_U + \frac{D}{E}(r_U - r_D)$$

Format:

Modigliani–Miller Proposition - II	
Unlevered cost of equity (rU)	10.00%
Cost of debt (rD)	5.00%
D/E ratio	0.25
Levered Cost of Equity (rE)	
E/V	
D/V	
WACC	

Date:

Practical No. 26: Calculate Interest Tax Deduction?

Formula: $\text{Tax Shield} = T_C \times (D \times r_D)$

Format:

Interest Tax Deduction	
Debt	1,00,000.00
Interest Rate	10%
Tax Rate	30.00%
Interest	
Tax Shield	
After-Tax Cost of Debt	

Date:

Practical No. 27: Calculate Interest Tax Shield?

Formula:

$$\text{Tax Shield} = T_C \times (D \times r_D)$$

Format:

Valuing the Interest Tax Shield

Debt	5,00,000.00
Interest Rate	12%
Tax Rate	30.00%

Tax Shield	

PV (Tax Shield)	

Date:

Practical No. 28: Calculate Recapitalization?

Formula: $$V_L = V_U + T_C \cdot D$$

Format:

Recapitalization	
Current firm value (VU)	Rs. 1,00,00,00,000.00
New debt (D)	Rs. 40,00,00,000.00
Tax rate (T)	30.00%
Shares outstanding	Rs. 1,00,00,000.00
Share price	Rs. 100.00
PV (Tax Shield)	
New Firm Value	
Number of Shares Repurchased	
New Shares Outstanding	
New Share Price	

Date:

Practical No. 29: Calculate Personal Taxes in Capital Structure?

Formula:

$$V_L = V_U + D \quad \frac{(1 - T_{pE}) - (1 - T_C)(1 - T_{pD})}{1 - T_{pE}}$$

Format:

Personal Taxes in Capital Structure	
Corporate tax (TC)	30.0%
Personal tax on interest (TpD)	35.0%
Personal tax on equity (TpE)	10.0%
Effective Tax Advantage of Debt	
Effective Tax Advantage of Debt	

Date:

Practical No. 30: Calculate Optimal Capital Structure with Taxes?

Formula: $V_L = V_U + PV(Tax\ Shield) - PV(Financial\ Distress)$

Format:

Optimal Capital Structure with Taxes	
Unlevered firm Value (Vu)	Rs. 100.00
Debt (D)	Rs. 50.00
Tax rate	30.00%
Distress Probability	5.00%
Distress Cost	Rs. 20.00
Tax Shield	
Expected Distress Cost	
Levered Firm Value	

Date:

Practical No. 31: Calculate the Costs of Bankruptcy and Financial Distress?

Formula: ECFD=Probability of Distress × Cost of Distress

Format:

The Costs of Bankruptcy and Financial Distress	
Unlevered firm Value (Vu)	Rs. 100.00
Debt (D)	Rs. 50.00
Tax rate	30.00%
Distress Probability	5.00%
Distress Cost	Rs. 20.00
Tax Shield	
Expected Distress Cost	
Levered Firm Value	

Date:

Practical No. 32: Calculate Financial Distress Costs and Firm Value?

Formula: $\text{Expected Cost} = P(\text{distress}) \times \text{Loss if distress occurs}$

Format:

Financial Distress Costs and Firm Value	
Unlevered firm Value (Vu)	Rs. 200.00
Debt (D)	Rs. 80.00
Tax rate	30.00%
Interest Rate	10.00%
Distress Probability	20.00%
Distress Cost	Rs. 50.00
Tax Shield	
Expected Distress Cost	
Levered Firm Value	
Net Gain	

Date:

Practical No. 33: Calculate net gain under Trade-off Theory?

Formula: $V_L = V_U + PV(TS) - PV(FD)$

Format:

The Trade-Off Theory	
Unlevered firm Value (Vu)	Rs. 500.00
Debt (D)	Rs. 100.00
Tax rate	30.00%
Distress Probability	5.00%
Distress Cost	Rs. 150.00
Tax Shield	
Expected Distress Cost	
Levered Firm Value	
Net Gain	

Date:

Practical No. 34: Calculate Risk and Return?

Formula: $$\text{Return} = \frac{P_1 - P_0 + D}{P_0}$$

Format:

Risk and Return		
Year	**Stock A**	**Bond B**
1	12%	6%
2	–8%	6%
3	15%	5%
4	10%	5%
Average Return		
Standard Deviation (Risk)		

Date:

Practical No. 35: Measures of Risk and Return?

Formula: $TR = \frac{R_p - R_f}{\beta_p}$

Format:

Measures of Risk and Return		
Year	**Stock A**	**Bond B**
1	12%	6%
2	5%	6%
3	10%	5%
4	8%	5%
Arithmetic Average Return		
Standard Deviation (Risk)		
Geometric Average Return		
Variance of Returns		
Coefficient of Variation (CV)		
Covariance Between Assets		
Correlation Coefficient		
Beta (Systematic Risk)		
Sharpe Ratio (Risk-Adjusted Return)		
Treynor Ratio		
Jensen's Alpha		