Solved
Scanner

Appendix

CMA Final Gr. III (New Syllabus)

(**Solution of December - 2014)**

Paper - 14: Advanced Financial Management

Chapter - 2: Financial Market Instruments

2014 - Dec [1] (a), (b), (c)

(a) Financial markets and their economic functions: A financial market is a market where financial instruments are exchanged or traded. Financial markets provide the following three major economic functions:

(i) Price discovery

(ii) Liquidity

(iii) Reduction of transaction costs.

(b) Calculation of Sharpe Ratio & Treynor's Ratio

Sharpe Ratio = $(R_p - R_f) \div \sigma$

Where,

R_p = Return

R_f = Risk free rate of return

σ = Risk

$\Rightarrow$ $(13 - 10) \div 16 = 0.1875$

Treynor's Ratio = $(R_p - R_f) \div \beta_p$

Where,

R_p = Return

R_f = Risk free rate of return

β = Beta

$\Rightarrow$ $(13 - 10) \div 0.90 = 3.33$

(c) Inter Bank Participation Certificate:

Objective: To provide a degree of flexibility in the credit-portfolio of Banks. It can be issued by Scheduled Commercial Bank and can be subscribed by any Commercial Bank.

Types: There are two types of participation certificates:

Aspect	Without Risk to Lender	With Risk to Lender
Period	Period not exceeding 90 Days	91 Days to 180 Days
Disclosure	Issuing Bank: Disclose as Liability under Borrowing from Banks. Participating Bank: Advances to Bank	Issuing Bank: Reduce from Advances Outstanding. Participating Bank: Under Advances

2014 - Dec [2] (a) (ii), (d) (i)

(a) (ii) 1. Return on Mutual fund

$$= \frac{\text{Capital appreciation + Dividend + Capital Gain}}{\text{Opening NAV}}$$

$$= \frac{(13 - 12.25) + 1.25 + 1}{12.25} = \frac{3}{12.25} = 0.2449\% \text{ or } 24.49\% \text{ p.a.}$$

2. Opening Investment

300 × 12.25	₹ 3,675
Amount Received from Mutual fund	
300 × (1.25 + 1)	₹ 675

No. of unit purchased if Reinvested @ 12.50

675 / 12.50 = 54 units

Value of Closing Investment	
(300 + 54) × 13	4,602
Capital Appreciation	
(4,602 - 3,675)	927

$$\text{Return} = \frac{\text{Capital Appreciation}}{\text{Opening Investment}} = \frac{927}{3,675} = 25.22\% \text{ or } 0.2522.$$

(d) (i)

Particulars	Amount
Opening NAV (2,100 × 19)	39,900
Dividend Received in 1st year (39,900 × 0.20)	7,980
No. of units purchased against Reinvested dividend 7980 ÷ 21	380 units
Total number of units (2100 + 380)	2480
Total NAV (2,480 × 21)	52,080
Dividend Received in IInd year 52,080 × 0.25	13,020
No. of units purchased against Reinvested dividend 13020 ÷ 23	566 units
Total No. of units (2480 + 566) =	3046
Total NAV at the end of 2nd year (3,046 × 23)	70,058

Money weighted Rate of Return

$$= \frac{\text{Capital Appreciation}}{\text{Opening Investment}} \times \frac{1}{2} = \frac{70,058 - 39,900}{39,900} \times \frac{1}{2}$$

= 0.3779 or 37.79%

Chapter - 3: Commodity Exchange

2014 - Dec [2] (a) (i), (b) (ii)

(a) (i) **Objectives of Commodity Futures:**

- Hedging with the objective of transferring risk related to the possession of physical assets through any adverse moments in price. Liquidity and Price discovery to ensure base minimum volume in trading of a commodity through market information and demand supply factors that facilitates a regular and authentic price discovery mechanism.
- Maintaining buffer stock and better allocation of resources as it augments reduction in inventory requirement and thus the exposure to risks related with price fluctuation declines. Resources can thus be diversified for investments.

- Price stabilization along with balancing demand and supply position. Futures trading leads to predictability in assessing the domestic prices, which maintains stability, thus safeguarding against any short term adverse price movements. Liquidity in Contracts of the commodities traded also ensures in maintaining the equilibrium between demand and supply.
- Flexibility, certainty and transparency in purchasing commodities facilitate bank financing. Predictability in prices of commodity would lead to stability, which in turn would eliminate the risks associated with running the business of trading commodities. This would make funding easier and less stringent for banks to commodity market players.

(b) (ii) **Risk Management Procedures of Clearing House:**

- Imposition of membership requirements, including capital requirements and an ongoing monitoring of compliance with such requirements in order to limit the likelihood of defaults.
- Imposition of security deposit, collateral requirements and exposure ceilings to limit loss by using more than one settlement bank. Another technique to minimize the risk of settlement bank failure is to convert customer cash held in deposits at the settlement bank into securities, e.g. Treasury bonds, held by the settlement bank. While a cash deposit account creates a debtor/creditor relationship between the bank and its customer for the amount on deposit and a customer claim against the assets of the bank in the event of its insolvency, customer securities held by a settlement bank are segregated for the benefit of the customer on its books, are not included in its assets upon its insolvency and can be recovered by the customer free of any claims against the bank.

Chapter - 4: Infrastructure Financing

2014 - Dec [2] (c) (ii), (d) (ii)

(c) (ii) **Distinguishing features of Project Finance compared to Corporate Finance are:**

(a) **Enhanced verifiability of cash flows:** Due to contractual agreements possible because of a single, discrete project in legal isolation from the sponsor and the resultant absence of future growth opportunities in the Project Financed Company. Since Corporate Finance involves a multitude of future and current projects the same contractual agreements cannot be effected in Corporate Finance Company, and

(b) **Lack of sponsors' assets and cash flows:** In case of Corporate Finance the lender has a potentially larger pool of cash flows from which to get paid as compared to Project Finance where the cash flows from the project only are used to pay the investors.

(d) (ii) **Issues in Infrastructure Financing:**

- Funding Gap
- Fiscal Burden
- Assets-Liability Mismatch of Commercial Bank
- Take out financing
- Investment obligation of Insurance and pension fund.

Chapter - 5: Capital Market Instruments

2014 - Dec [1] (d)

Rolling Settlement:

Settlement refers to the process in which traders who have made purchases make payments while those who have sold shares, deliver them. The exchange ensures that buyers receive their shares and the sellers receive payment for the same. The process of settlement is managed by stock exchanges through Clearing Houses.

A Rolling Settlement is the settlement cycle of the Stock Exchange, where all trades outstanding at the end of the day have to be settled, i.e. the buyer has to make payments for securities purchased and seller has to deliver the securities sold.

Example: In case of T + 1 Settlement, transactions entered on a day should be settled within the next working day. In case of T + 2 Settlement, settlement should be made within two working days from the date of transaction.

Benefits of Rolling Settlement:

(i) In rolling settlements, payments are quicker than in weekly settlements. Thus, investors benefit from increased liquidity.
(ii) It keeps cash and forward markets separate.
(iii) Rolling settlements provide for a higher degree of safety.
(iv) From an investor's perspective, rolling settlement reduces delays. This also reduces the tendency for price trends to get exaggerated. Hence, investors not only get a better price but can also act at their leisure.

International Scenario: Internationally, most developed countries follow the rolling settlement system. For instance, both the US and the UK follow a rolling settlement (T + 3) system, while the German stock exchanges follow a (T + 2) settlement cycle.

2014 - Dec [3] (a) (ii)

Process of Credit Rating:

The steps involved in the Credit Rating are:

1. **Rating Request:** The Customer (prospective issuer of Debt Instrument) makes a formal request to the Rating Agency. The request spells out the terms of the rating assignment and contains analysis of the issues viz. historical performance, competitive position, business risk profile, business strategies, financial policies and evaluation of outlook for performance. Information requirements are met through various sources like references, reviews, experience, etc.
2. **Formation of Rating Team:** The Credit Rating Agency forms a team, whose composition is based on the expertise and skills required for evaluating the business of the Issuer.
3. **Initial Analysis:** On the basis of the information gathered, the analysts submit the report to the Rating team. The authenticity and validity of the information submitted influences the credit rating activity.

4. **Evaluation by Rating Committee:** Rating Committee is the final authority for assigning ratings. The rating team makes a brief presentation about the issuers' business and the management. All the issues identified during discussions stage are analysed.
5. **Actual Rating:** Rating is assigned and all the issues, which influence the rating, are clearly spelt out.
6. **Communication to Issuer:** Assigned rating together with the key issues is communicated to the issuer's top management for acceptance. The ratings, which are not accepted, are either rejected or reviewed. The rejected ratings are not disclosed and complete confidentiality is maintained.
7. **Review of Rating:** If the rating is not acceptable to the issuer, he has a right to appeal for a review of the rating. These reviews are usually taken up, only if the issuer provides fresh inputs on the issues that were considered for assigning the rating. Issuer's response is presented to the Rating Committee. If the inputs are convincing, the Committee can revise the initial rating decision.
8. **Surveillance / Monitoring:** Credit Rating Agency monitors the accepted ratings over the tenure of the rated instrument. Ratings are reviewed every year, unless warranted earlier. During this course, the initial rating could be retained, upgraded or downgraded.

Chapter - 7: Financial Derivatives as a tool for Risk Management

2014 - Dec [1] (e)

Theoritical forward price $= S.P. \times e^{rt}$

$= 160 \times e^{0.09 \times 6/12}$

$= 160 \times e^{0.045}$

$= 160 \times 1.046028 = 167.36448$

2014 - Dec [2] (c) (i)

No. of contracts to be sold

= Quantity to be hedged/quantity in each futures contract

= 100 MT/10 MT = 10

The sugar mill would go short on futures in February. Prior to April, before the future contract expires, the sugar mill buys the future contract to nullify

its position in the futures market. The underlying asset, i.e. sugar is sold in the spot market. The price realized by the sugar mill in two different scenarios of decline or rise in sugar prices, using the principle of convergence of price on the due date of the contract, is worked out as follows.

When the price falls to ₹ 22 per kg. Cash flow (₹ per kg.)

In the futures market	
Sold futures contract in February	+ 25.00
Bought futures contract in April	- 22.00
Gain in the futures market	+ 3.00
Price realized in the spot market	+ 22.00
Effective price realized	**₹ 25.00 per kg.**

Here the loss of ₹ 3 (₹ 25 - ₹ 22) in the spot market is made up by an equal gain in the futures market.

When the price rises to ₹ 26 per kg.

In the futures market	
Sold futures contract in February	+ 25.00
Bought futures contract in April	- 26.00
Loss in the futures market	- 1.00
Price realized in the spot market	+ 26.00
Effective price realized	**₹ 25.00 per kg**.

Here the gain of ₹ 1 (₹ 26 - ₹ 25) in the spot market is offset by the equal loss in the futures market.

Due to the fact that prices of sugar in the spot market and futures market must converge a fixed price of ₹ 25 per kg is realized by the sugar mill. The loss or gain in the spot market is fully compensated by gain/loss in the futures market.

2014 - Dec [3] (a) (i), (b) (ii), (c)

(a) (i) **1. Computation of Zero Rates Implied Interest Rate at Time Zero (Under Annual Compounding)**

Particulars	1 Year Bond	2 Years Bond	3 Years Bond
Current Market Price **[A]**	₹ 91,900	₹ 98,900	₹ 99,400
Redemption Price (assumed at Par Value)	₹ 1,00,400	₹ 1,00,400	₹ 1,00,400
Capital Gain **[B]**	₹ 8,500	₹ 1,500	₹ 1,000
Rate of Interest	0%	10.00%	10.50%
Annual Interest Inflow	—	₹ 10,040	₹ 10,542
Period of Bond **[C]**	1 Year	2 Years	3 Years
Total Interest Inflow **[D]**	NIL	₹ 20,080	₹ 31,626
Total Income to a Bond Holder **[E = B + D]**	₹ 8,500	₹ 21,580	₹ 32,626
Income per Annum **[F = E ÷C]**	₹ 8,500 [8,500/1]	₹ 10,790 [21,580/2]	₹ 10,875 [32,626/3]
Implied Interest Rate **[F ÷ A]**	9.25% [8,500/91,900]	10.91% [10,790/98,900]	10.94% [10,875/99,400]

2. Computation of Forward Rates

(a) Forward Rate for Year 1

Forward Rate for Year 1 = Implied Interest rate for One Year Bond = 9.25%

(b) Forward Rate for Year 2

$$R_{F2} = \frac{R_2 T_2 - R_1 T_1}{T_2 - T_1},$$

Factor	Notation	Value
Zero Rate for 1 Year Bond	R_1	9.25%
Zero Rate for 2 Years Bond	R_2	10.91%
Tenor of Bond 1	T_1	1
Tenor of Bond 2	T_2	2

Forward Rate for Year 2 $= \frac{R_2 T_2 - R_1 T_1}{T_2 - T_1}$ = (10.91% × 2) - (9.25% × 1) / 2 - 1 = (21. 82% - 9.25%) / 1 = 12.57%	R_F	12.57%

(c) Forward Rate for Year 3

$$R_{F2} = \frac{R_2 T_2 - R_1 T_1}{T_2 - T_1},$$

Factor '?-:I-:Vr	Notation	Value
Zero Rate for 2 Years Bond	R_2	10.91%
Zero Rate for 2 Years Bond	R_3	10.94%
Tenor of Bond 2	T_2	2
Tenor of Bond 3	T_3	3
Forward Rate for Year 3 $= \frac{R_3 T_3 - R_2 T_2}{T_3 - T_2}$ = [(10.94%×3)- (10.91%×2)/(3-2)] = (32.82% - 21.82%)/1 = 11.00%	R_{F3}	11.00%

(b) (ii)

1. Call Option (Right to Buy)

Situation	Exercise Price (EP)	Spot Price on Expiry Date (SP_E)	Value of Call [Maximum of (SP_E - EP), 0]	Action
(1)	(2)	(3)	(4) = Max [(3) - (2), 0]	(5)
A	₹ 510	₹ 495	₹ 495 - ₹ 510 = - 15 → ₹ 0	Lapse
B	₹ 510	₹ 500	₹ 500 - ₹ 510 = - 10 → ₹ 0	Lapse
C	₹ 510	₹ 505	₹ 505 - ₹ 510 = - 5 → ₹ 0	Lapse
D	₹ 510	₹ 510	₹ 510 - ₹ 510 = 0 → ₹ 0	Lapse
E	₹ 510	₹ 515	₹ 515 - ₹ 510 = 5 → ₹ 5	Exercise
F	₹ 510	₹ 520	₹ 520 - ₹ 510 = 10 → ₹ 10	Exercise
G	₹ 510	₹ 525	₹ 525 - ₹ 510 = 15 → ₹ 15	Exercise

2. Put Option (Right to Sell)

Situation	Exercise Price (EP)	Spot Price on Expiry Date (SP_E)	Value of Put [Maximum of (EP - SP_E), 0]	Action
(1)	(2)	(3)	(4) = Max [(2) - (3), 0]	(5)
A	₹ 510	₹ 495	₹ 510 - ₹ 495 = 15 → ₹ 15	Exercise
B	₹ 510	₹ 500	₹ 510 - ₹ 500 = 10 → ₹ 10	Exercise
C	₹ 510	₹ 505	₹ 510 - ₹ 505 = 5 → ₹ 5	Exercise
D	₹ 510	₹ 510	₹ 510 - ₹ 510 = 0 → ₹ 0	Lapse
E	₹ 510	₹ 515	₹ 510 - ₹ 515 = - 5 → ₹ 0	Lapse
F	₹ 510	₹ 520	₹ 510 - ₹ 520 = - 10 → ₹ 0	Lapse
G	₹ 510	₹ 525	₹ 510 - ₹ 525 = - 15 → ₹ 0	Lapse

(c)

1. Computation of Value of Option if Current Price is ₹415

(a) Basic Data

Factor	Notation	Value
Current Stock Price	SP_0	₹415
Exercise Price	EP	₹ 400
Time	t	0.25
Risk Free Rate of Return	r	5% or 0.05
Standard Deviation of Return	σ	0.22
Variance	σ^2	0.0484

$$D_1 = \frac{Ln (SP_O / EP) + [(r - 0.50\delta^2) \times t]}{\delta_{\sqrt{t}}}$$

$= [Ln (415/400) + (0.05 + 0.50 \times 0.0484) \times 0.25] / [0.22 \times \sqrt{0.25}]$

$= [Ln\ 1.0375 + (0.05 + 0.0242) \times 0.25] / [0.22 \times 0.5]$

$= [Ln\ 1.0375 + 0.01855] / [0.11]$

$= (0.03922 + 0.01855)/0.11 = 0.05777/0.11 = 0.5252$

$$D_2 = \frac{Ln (SP_O / EP) + [(r - 0.50\delta^2) \times t]}{\sigma_{\sqrt{t}}} = D_1 - \sigma_{\sqrt{t}}$$

$= 0.5252 - 0.11 = 0.4152$

(b) Computation of Probability Factors

$N(D_1) = N (0.5252) = 0.50 + 0.2019 = 0.7019$

$N(D_2) = N (0.4152) = 0.50 + 0.1628 = 0.6628$

(c) Computation of Value of Call

Value of Call = $SP_0 \times N(D_1) - [EP \times e^{-rt} \times N(D_2)]$

= [₹ 415 x 0.7019] - [₹ 400 x $e^{-0.05\times0.25}$ x 0.6628]

= ₹ 291.2885 - ₹ 400 × 1.01308 x 0.6628

= ₹ 291.2885 - ₹ 268.5877 = ₹ 22.7008

Chapter - 8: Financial Risk Management in International Operations

2014 - Dec [1] (f)

$\frac{₹}{£}$ = ₹ 100.68 - 102.95

$\frac{₹}{\$}$ = ₹ 61.86 - 62.87

$\frac{\$}{£} = \frac{₹}{£} \times \frac{\$}{₹}$

Bid = $100.68 \times \frac{1}{62.87} = 1.601$

Ask = $102.95 \times \frac{1}{61.86} = 1.664$

$\frac{\$}{£}$ = \$ 1.601 - 1.664

2014 - Dec [3] (b) (i)

Process for Raising Equity through ADR:

(a) Issue Intermediaries: ADRs are issued by Overseas Depository Bank (ODB), who have a Domestic Custodian Bank (DCB) in India.

(b) Deposit of Securities: Company willing to raise equity through ADRs should deposit the securities with the DCB in India.

(c) Authorization for Issue of ADRs: The Indian Company authorizes the ODB to issue ADR against the security of Company's Equity Shares.

(d) Issue of ADR: ODB issues ADRs to investors at a predetermined ratio to the Company's securities.

(e) Redemption of ADR: When an investor redeems his ADRs, the appropriate number of underlying equity shares or bonds is released.

(f) Dividend / Interest: The Indian Company pays interest to the ODB, which in turn distributes dividends to the ADR holders based on the prevailing exchange rate.

Chapter - 9: Security Analysis and Portfolio Management

2014 - Dec [1] (g), (h)

(g)

Basic Data

Particulars	Notional	Value
Equity Beta of project	B_c	1.3
Risk free Rate of Return	R_f	10%
Return on Market Portfolio	R_m	18%
Debt - Equity Mix		30 : 70
Beta of project	B_p	to be ascertained

Computation of Project Beta

$$\beta_p = \left[\beta_e \times \frac{E}{D+E}\right] + \left[\beta_d \times \frac{D}{D+E}\right]$$

$= [1.3 \times 0.70] + [0 \times 0.30]$

$= 0.91$

Computation of Return from project

$= R_f + B_p (R_m - R_f)$

$= 0.10 + 0.91 (0.18 - 0.10)$

$= 0.1728$ or 17.28%

(h)

Particulars	Standard Deviation	Weight	Correlation Coefficient (r)
A	0.60	0.50	0.50
B	0.80	0.50	0.50

Risk of Portfolio = $\sqrt{(\sigma_A \times W_A)^2 + (\sigma_B \times W_B)^2 + 2\,(\sigma_A\, W_A)\,(\sigma_B\, W_B)\, r}$

= $\sqrt{(0.60 \times 0.50)^2 + (0.80 \times 0.50)^2 + 2\,(0.60 \times 0.50)\,(0.80 \times 0.50)\,0.50}$

= $\sqrt{0.09 + 0.16 + 2 \times 0.3 \times 0.4 \times 0.5}$

= $\sqrt{0.09 + 0.16 + 0.12}$

= $\sqrt{0.37} = 0.6082$

2014 - Dec [2] (b) (i)

1. Computation of Expected Rate of Return under CAPM

E(RX) R_F + [B_X × (R_M - R_F)] [Expected Return on portfolio X]

Risk Free Return R_F 14.50% [RBI Bonds]

Return on Market Portfolio R_M 15.30% [Annual Return × 153 ÷ Investment × ₹ 1,000]

Beta of Equi-Stable BE 1.35 [Given]

Expected Return of Equi-Stable E(R_E) = 4.50% + [1.35 × (15.30% -4.50%)] = 19.08%

2. Computation of Alpha Facto of the 3 Funds

Year	Mutual Fund X		Mutual Fund Y		Mutual Fund Z	
	Actual Return	Abnormal Return [AR_X]	Actual Return	Abnormal Return [AR_Y]	Actual Return	Abnormal Return [AR_Z]
(1)	(2)	(3) = (1) - E (R_E)	(4)	(5) = (4) - E(R_E)	(6)	(7) = (6) - E (R_E)
1	17.35%	17.35-19.08 = (1.73)	17.20%	17.20 - 19.08 = (1.88)	17.10%	17.10 - 19.08 = (1.98)
2	18.70%	18.70- 19.08 = (0.38)	18.25%	18.25 - 19.08 = (0.83)	18.60%	18.60 - 19.08 = (0.48)
3	21.60%	21.60 - 19.08 = 2.52	22.15%	22.15 - 19.08 = 3.07	22.00%	22.00 - 19.08 = 2.92
		0.41		**0.36**		**0.46**

Alpha Factor:

Fund X $\alpha_X = \Sigma AR_x \div n = 0.41 \div 3$ Years = 0.137%

Fund Y $\alpha_Y = \Sigma AR_y \div n = 0.36 \div 3$ Years = 0.120%

Fund Z $\alpha_Z = \Sigma AR_z \div n = 0.46 \div 3$ Years = 0.153%

Evaluation: Equi-Stable Scheme of Mutual Fund Z has the highest Alpha i.e. it has yielded 0.153% return more than the market expectations, when compared to 0.137% and 0.12% of Fund X and Y. Therefore, Fund Manager

of Mutual Fund Z has performed better. Ranking of the fund managers are as follows :

1. Fund Manager of Z
2. Fund Manager of X
3. Fund Manager of Y

2014 - Dec [4] (a), (b), (c) (i), (ii)

(a) Computation of Expected and Average Return

Security	Cost	Dividend	Capital Gain	Expected Return $R_f + (R_m - R_f)$	
A	70	5	70	16 + 0.8 (40.73 - 16)	= 35.78
B	80	5	70	16 + 0.7 (40.73 - 16)	= 33.31
C	90	5	180	16 + 0.5 (40.73 - 16)	= 28.37
D	1,000	160	10	16 + 0.95 (40.73 - 16)	= 39.49
Total	**1,240**	**175**	**330**		

Note:

1. Return on Market Portfolio – R = (Dividend + Capital Gain) ÷ Cost of total Investment = (175 + 330) / 1,240 = 40.73%
2. Portfolio Expected Return based on CAPM

Security	Cost	Proportion	Expected Return	Weighted Return
1	2	3 = 2 ÷ 1,240	4	5 = 3 × 4
A Ltd.	70	0.056	35.78%	2.000
B Ltd.	80	0.065	33.31%	2.165
C Ltd.	90	0.073	28.37%	2.071
GOI Bond	1,000	0.806	39.49%	30.220
Total	**1,240**			**36.456**

(b) 1. Situation A: Investment in M and N at 20% each, equal proportion in O, P and Q

Mutual fund	Proportion of Investment	Beta of the Fund	Proportion × Fund Beta
(1)	**(3)**	**(4)**	**(5) = (3) × (4)**
M	0.2	1.7	0.2 x 1.7 = 0.34
N	0.2	1.0	0.2 x 1.0 = 0.20
O	0.2	0.9	0.2 x 0.9 = 0.18
P	0.2	2.1	0.2 x 2.1 = 0.42
Q	0.2	0.7	0.2 x 0.7 = 0.14
Portfolio Beta			**1.28**

Investment in O, P & Q = (1 - Investment in M and N) ÷ 3 = (1 - 0.2 - 0.2) ÷ 3 = 0.6 ÷ 3 = 0.2 or 20%

2. Situation B: Investment in M at 15%, O at 15% and P at 10%, equal proportion in N and P

Mutual fund	Proportion of Investment	Beta of the Fund	Proportion × Fund Beta
(1)	**(3)**	**(4)**	**(5) = (3) × (4)**
M	0.15	1.7	0.15 x 1.7 = 0.255
N	0.30	1.0	0.30 x 1.0 = 0.300
O	0.15	0.9	0.15 x 0.9 = 0.135
P	0.30	2.1	0.30 x 2.1 = 0.630
Q	0.10	0.7	0.10 x 0.7 = 0.070
Portfolio Beta			**1.390**

Investment in N and P = (1 - Investment in M, O and Q) ÷ 2
= (1- 0.15 - 0.15 - 0.1) ÷ 2
= 0.6 ÷ 2
= 0.3 or 30%

3. Expected Return from Portfolio

Note/Assumption: In the absence of Risk Free Rate of Return (RF), it is assumed that expected return from portfolio is to be computed using Market Model i.e., there is no risk free return, and the entire fund return moves in line with the market return. CAPM is not applicable.

Expected Return = Market Return X Portfolio Beta.

Situation	Return in %	Return in ₹
A	14% X 1.28 = 17.92%	14 × 17.92% = 17.92 lakhs
B	14% X 1.39 = 19.46%	14 × 19.46% = 19.46 lakhs

(c) (i) 1. Expected Return of each project = $R_f + \beta (R_m - R_f)$

A = 8 + 1.3 (12 - 8) = 13.2

B = 8 + 1 (12 - 8) = 12.0

C = 8 + 0.8 (12 - 8) = 11.2

2. Expected Return of company

	Expected Return (A)	Weight (B)	A × B
A	13.2	0.5	6.60
B	12.0	0.3	3.60
C	11.2	0.2	2.24
			12.44

(ii) Expected Return $= R_f + \beta(R_m - R_f)$

$= 4.25 + 2.10(12-4.25)$

$= 20.525\%$

Actual Return $= \left[\frac{380 - 312}{312}\right] \times 100$

$= 21.79\%$

Since actual return is more than expected return, hence, more units of Security B should be purchased.

Chapter - 10: Investment Decisions Under Uncertainty

2014 - Dec [1] (i), (j)

(i) Applications of the Behavioral Finance Theory:

1. **Evaluating market trends:** Behavioral finance is the concept behind understanding markets trends, because these trends are the basis for how people make financial decisions. One application is through the use of technical analysis, which involves using charts and graphs to predict future price movements. The principle behind technical analysis is that humans rely on both conscious and subconscious patterns when investing. Those patterns can be followed and used to predict other future behavior.
2. **Facilitating the planning process:** Forecasters are able to predict significant variables such as the number of units of a particular product they are likely to sell under a given set of circumstances. This is key to understanding financial models. Many forecasters find their numbers are off because they erroneously assumed that consumers or investors would behave in a rational manner. Predicting how consumers and investors will behave rather than how they should behave will lead to more accurate forecasts and models.

(j) Desired Lease rent to earn 20% SRR before expenses and taxes.

$$\text{Lease rent} = \frac{8,00,000}{\text{PVIFA (8 years, 20\%)}}$$

$$= \frac{8,00,000}{3.837} = 2,08,496 \text{ p.a.}$$

2014 - Dec [5] (a), (b) (i), (ii), (c) (i), (ii), (iii), (iv)

(a) Statement Showing EPS under the different Schemes

Particulars	Scheme I	Scheme II	Scheme III
Capital Required	27,00,000	27,00,000	27,00,000
Less: Debt Capital	5,40,000	10,80,000	16,20,000
Balance Equity Required	21,60,000	16,20,000	10,80,000
Market price per share	90	90	72
No. of Equity Share to be issued	24,000	18,000	15,000

Profitability Statement

	I	II	III
EBIT	4,50,000	4,50,000	4,50,000
Less: Interest			
First 3.6 Lacs @ 12%	43,200	43,200	43,200
Next 7.2 Lacs @ 15%	27,000	1,08,000	1,08,000
Balance 17%	-	-	91,800
Total Interest	70,200	1,51,200	2,43,000
EBT	3,79,800	2,98,800	2,07,000
Tax	1,89,900	1,49,400	1,03,500
EAT	1,89,900	1,49,400	1,03,500
EPS (EAT ÷ No. of Shares)	7.9125%	8.3%	6.9%
Average Interest Rate			
(Total Interest ÷ Debt)	13%	14%	15%
ROCE = (EBIT ÷ Capital Employed)	16.67	16.67	16.67

(b) (i) **Difference between Factoring and Forfeiting:**

Basis	Factoring	Forfeiting
Extent of finance	Usually 80% or 90% of the value of the invoice is considered for advance.	100% financing.
Credit worthiness	Factor does the credit rating of the counterparty in case of a non-recourse factoring transaction.	The Forfeiting Bank relies on the credibility of the availing bank.
Services provided	Day to day administration of sales and other allied services are provided.	No services are provided.
Maturity	Advances are short-term in nature.	Advances are generally medium term.

(ii) Statement showing the determination of the risk adjusted net present value:

Pro-jects	Net cash outlays	Coefficient of variation	Risk adjusted discount rate	Ann-ual cash inflow	PV factor 1-5 years at risk adjusted rate of discount	Disco-unted cash inflow	Net present value
	₹			₹	₹	₹	₹
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii) = (v) × (vi)	(viii) = (vii) - (ii)
A	1,00,000	0.4	12%	30,000	3.605	1,08,150	8,150
B	1,20,000	0.8	14%	42,000	3.433	1,44,186	24,186
C	2,10,000	1.20	16%	70,000	3.274	2,29,180	19,180

(c) (i) **Rides sold last year**

$$\text{No. of rides last year} = \frac{\text{Total sales of rides last year}}{\text{Charges per ride last year}}$$

$$= \frac{2,80,00,000}{200} = 1,40,000 \text{ rides}$$

(ii) Expected Net Income FOR this year if price increase is not implemented

Particulars	Amount (₹)
Change per ride	200
Less: Expected variable cost (50 + 20% of 50)	60
Contribution per ride	140
No. of ride	1,40,000
Total contribution	1,96,00,000
Less: Expected fixed cost (120 Lacs + 10% of 120 Lacs)	1,32,00,000
Expected Net Income	64,00,000

(iii) Price Difference point for the new ride price

Particulars	Amount (₹)
New Ride price	250
Less: Variable cost	60
Contribution per ride	190
Fixed cost per year	1,32,00,000
Net Income last year	90,00,000
Contribution Required	2,22,00,000

Price difference point = $\frac{2,22,00,000}{190}$ = 1,16,842 ride

(iv) Break even point for this year using the old price and the new price

Break even point = $\frac{\text{Fixed cost}}{\text{Contribution per ride}}$

At old price = $\frac{1,32,00,000}{200 - 60}$ = 94,285 rides

At new price = $\frac{1,32,00,000}{250 - 60}$ = 69,473 rides

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FOR NOTES

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