FINAL EXAMINATION

GROUP III

(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS

DECEMBER 2015

Paper- 14 : ADVANCED FINANCIAL MANAGEMENT

Time Allowed : 3 Hours **Full Marks : 100**

The figures in the margin on the right side indicate full marks.

All workings must form part of your answer.

Wherever required, suitable assumptions may be made and clearly stated in the answer,

No present value table or other statistical table will be provided along with this question paper.

1. All sub-divisions are compulsory: **2×10 = 20**

(a) The following are the data on two Mutual Funds:

Fund	Return %	Beta
Vreedhi	14	1.40
Mitra	16	1.50

Compute their Volatility ratios and rank them if the risk-free rate is 6%.

(b) An aggressive mutual fund promises an expected return of 18 per cent with a possible volatility (standard deviation) of 20%. On the other hand, a conservative mutual fund promises an expected return of 17 per cent and volatility of 19%. Assuming, you can borrow from your provident fund at an opportunity cost of 10%, which fund would you invest your money in?

(c) Distinguish between the terms: 'basis' and 'basis grade', as used in commodity market.

(d) A Unit Trust wants to hedge its portfolio of shares worth `10 million using BSE-SENSEX index futures. The contract size is 100 times the index. The index is currently quoted at 6,840. The beta of the portfolio is 0.8. The beta of the index may be taken as 1. What is the number of contracts to be traded?

(e) Given the following:

$/£	1.3670/1.3708
S.Fr/DEM	1.0030/1.0078
$ / S. Fr	0.8790 / 0.8803

Find out the cross rate for DEM / S. Fr.

(f) The distribution of return of Security 'P' is given below:

Probability	Return %
0.30	30
0.40	20
0.30	10

Calculate: Expected return of Security 'P' and the risk on the security 'P'.

(g) Express ROE (Return on Equity) in terms of sustainable growth of a firm.

(h) Write a short note: 'Arbitrage Pricing Model' in portfolio analysis.

(i) The Net Present Value (NPV) and Probability distribution for the Project X of a company are:

NPV Estimate	Probability
30,000	0-1
60,000	0-4
1,20,000	0-4
1,50,000	0-1

Compute the Profitability Index of Project X which costs ` 3,00,000.

(j) What is 'margin money'? How is 'margin money' provided in case of borrowing for working capital?

Answer:

1.

(a) Trenor's Ratio is applicable here.

Vreedhi Fund: $[R_P - R_F] / \beta_P] = [(14 - 6)/1.4] = 5.71$

Mitra Fund: $[16 - 6)/1.50] = 6.67$

(b) The slopes of Capital Market Line for two funds are:

Aggressive fund: (18 – 10) / 20 = 0.40; Conservative fund: (17 – 10) / 19 = 0.37

So, Aggressive fund is preferable.

(c) 'Basis' is the different between the cash price of an asset and futures price of the underlying, asset. Basis can be negative or positive depending on the prices prevailing in the cash and futures.

'Basis grade' is the special grade or grades named in the exchanges futures market. The other grades deliverable are subject to price of underlying futures.

(d) Value per Futures Contract = VF = `6,840 × 100 = ` 6.84 lakhs

Value of Portfolio = VP ` 10 million = ` 100 lakhs

Hedge ratio = Beta of Portfolio / Beta of Index = 0.8/1 = 0.8

No. of futures contract to be treated = Portfolio value × [Hedge ratio / Value of futures contract]
= VP × [Hedge ratio / VF] = ` 100 lakhs × [0.8 / ` 6.84 lakhs] = 11.70 i.e. 12 Contracts.

(e) DEM/S. Fr. Is not a cross rate.

The cross rate is DEM/£. So it is calculated as:

Bid [DEM/£] = Bid [$ /£] × Bid [S.Fr/$] × Bid [DEM / S.Fr]

= Bid [$/£]×(1/Ask [$/S.Fr]) × (1/Ask [S.Fr/DEM]) = 1.3670 × (1/0.8803) × (1/1.0078) = 1.54086;

Ask [DEM/£] = Ask [$ /£] × Ask [S.Fr/$] × Ask [DEM/S.Fr]

= Ask [$ / £] × (1/Bid [$/S.Fr] ×(1/Bid [S.Fr/DEM] = 1.3708 ×(1/0.8790) × (1/1.0030) = 1.55483

So, Cross Rate is DEM/£ = 1.54086/1.55483.

(f) Scenario:

	1	2	3	Total
Probability	0.30	0.40	0.30	
Return %	30	20	10	
Expected Return%	9	8	3	20.0
Deviation (D%)	30 - 20 = 10	20 - 20 = 0	10 - 20 = (-)10	
D^2	100	0	100	
Variance (Prob. X D^2)	30	0	30	60.0

So, Expected return on Security P = 20% and Risk on Security P = $\sigma_p = \sqrt{\text{Variance}} = \sqrt{60} =$ 7.746%

(g) Return on Equity also ties into how much growth one can expect from a company. When a firm reinvests its net income, then it can be expected to grow. The fastest this can be expected to occur is the return on equity. This is calculated as:

Sustainable growth = Retention ratio x ROE = (1 - Payout ratio) × ROE

= (1 - Total dividend paid/ Net income) × ROE

(h) Arbitrage pricing theory states that the expected return on an investment is dependent on how that investment reacts to a set of individual macro-economic factors [degree of reaction measured by Betas] and the risk premium associated with each of those macro-economic factors. Most factors such as inflation and money supply, interest rate, industrial production and personal consumption are interrelated. It seeks to identify the risk return relationship, for each of the factors individually. In Arbitrage Pricing Theory, Expected Return = $R_F + R_1 \beta_1 + R_2\beta_2 + \ldots\ldots\ldots\ldots + R_N\beta_N$

Where R_N is the risk premium for each of the factors in the model and β_N is the measure of sensitivity of the particular security to each of the factors.

(i) Expected NPV = NPV estimate × Probability = 3,000 + 24,000 + 48,000 + 15,000

= ` 90,000

So, Profitability Index = Discounted cash inflow / Discounted cash outflow

= [` 90,000 + ` 3,00,000]/ `3,00,000

= 1.30

(j) Margin money is the cushion which Bankers keep to safeguard against changes in value of the securities while extending loans against which loans are given to customers.
In case of borrowing for Working capital, Margin money has to be provided as per norms that are prescribed from time to time by RBI.

2. Answer *any three* sub-divisions from (a) to (d): 8×3 = 24

(a) (1) (i) A mutual fund had a Net Asset Value (NAV) of ` 620 at the beginning of the year. During the year a sum of ` 5 was distributed as dividend besides ` 3 as capital gains distribution. At the end of the year, NAV was ` 700. Calculate the total return for the year.

(ii) Suppose the aforesaid mutual fund in the next year gives a dividend of ` 5 and no capital gains distribution and NAV at the end of second year is ` 650. What is the return for the second year?

(2) Enumerate in brief the various prudential norms/regulations applicable to NBFCs. 4+4=8

Answer:

2. (a) (1) Basic Data for Computation of Return:

Particulars	Case (1)(`)	Case (2)(`)
Opening NAV	620	700
Dividend	5	5
Capital Gains	3	0
Closing NAV	700	650

Computation of Return:

Particulars	Case (1)(`)	Case (2)(`)
Capital Appreciation= Closing NAV less Opening NAV	`(700 – 620)= `80	`(650 – 700) =-(`50)
Returns = [Cash Dividend + Capital Appreciation + Capital Gains]/Opening NAV	=[5+80+3]/620 =14.19%	= [-50 + 5+0]/700 =(-)6.43%

(2) As per Non-banking Financial Companies Prudential Norms(Reserve Bank) Directions, 1998, the directions prescribe guidelines on income recognition, asset classification and provisioning requirements applicable to NBFCs, exposure norms, constitution of audit committee, disclosure in the Balance Sheet, requirement of capital adequacy, restrictions of investment in land and building and unquoted shares, besides others. Deposit accepting NBFCs have also to comply with statutory liquidity requirements.

(b) The following particulars are furnished about three Mutual Fund schemes P, Q and R:

Particulars	Scheme P	Scheme Q	Scheme R
Dividend distributed (`)	**1.75**	**—**	**1.30**
Capital appreciation (`)	**2.97**	**3.53**	**1.99**
Opening NAV (`)	**32.00**	**27.15**	**23.50**
Beta	**1.46**	**1.10**	**1.40**

Ascertain the Alpha of the three schemes and evaluate their performance, if Govt. of India Bonds carry an interest rate of 6.84% and the Nifty has increased by 12.13%. (2×3)+2=8

Answer:

(b)

Particulars		Scheme P	Scheme Q	Scheme R
Dividend distributed	(`)	1.75	-	1.30
Add: Capital appreciation	(`)	2.97	3.53	1.99
Total return (A)	(`)	4.72	3.53	3.29
Opening NAV (B)	(`)	32.00	27.15	23.50
Actual return (A)/(B) = (C)		14.75 %	13.00%	14.00%
Beta (D)		1.46	1.10	1.40
Expected return under CAPM:				
$R_F+\beta_P(R_M-R_F)$ = (E)		14.56 %	12.66 %	14.25%
Jensen's Alpha = (C) - (E)		0.19 %	0.34 %	(-) 0.25%
Ranking		2	1	3

Evaluation: Schemes P and Q have outperformed the Market portfolio NIFTY, whereas Scheme R has under-performed in comparison with NIFTY.

(c) (i) State two main distinguishing features of Project financing vs. Capital financing.

(ii) How does the Futures Trading accrue benefits in commodity exchange? 4+4=8

Answer:

(c) (i) Two distinguishing features are :

1. **Enhanced verifiability of cash flows:** Due to contractual agreements possible because of a single discreet 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.
2. **Lack of sponsors' assets and cash flows:** In the 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.

(ii) The benefits are:

1. Price discovery for commodity players – A farmer can plan his crop by looking at prices prevailing in the futures market.
2. Hedging against price risk –
   - A farmer can sell in futures to ensure remunerative prices.
   - A processor or manufacturing firm can buy in futures to hedge against volatile raw material costs.
   - An exporter can commit to a price to his foreign clients.
   - A stockist can hedge his carrying risk to ensure smooth prices of the seasonal commodities round the year.
3. Easy availability of finance- Based on hedged positions commodity market players, stated above, may get easy financing from the banks.

(d) (i) Briefly touch upon the following regulatory concessions, initiated by the Reserve Bank of India, for facilitating increased flow of credit to infrastructure projects:

(1) Asset-Liability management for infrastructure projects:

(2) Issuance of Guarantee.

(ii) An investor purchased 300 units of a mutual fund at `12.25 per unit on 15th December, 2014. As on 15th December, 2015 he has received `1.25 as dividend and `1.00 as capital gains distribution per unit.

Calculate:

(1) Return on investment if the NAV as on 15th December, 2015 is ` 13.00; and

(2) Return on investment as on 15th December, 2015 if all dividends and capital gains distributions are reinvested into additional units of the fund at `12.50 per unit. (2+1)+(2+3)=8

Answer:

(d) (i) (1) Asset-Liability management : In order to meet long-term financing requirements of infrastructure projects and address asset-liability management issue, banks are permitted to enter into taking out financing arrangement with IDFC / OTHER financial institutions. Banks have also been allowed to issue long term bonds with a minimum maturity of 5 years to the extent of their exposure of residual maturity of more than 5 years to the infrastructure sector.

(2) Issuance of guarantee : Keeping in view the special features of lending to infrastructure projects, viz, high degree of appraisal skills on the part of lenders and availability of resources of a maturity matching with the project period, banks are permitted to issue guarantees favouring other lending institutions in respect of infrastructure projects provided the bank issuing the guarantee takes a funded share in the project at least to the extent of 5 % of the project cost and undertakes normal credit appraisal, monitoring and follow up of the project.

(ii) Return for the year (all changes on per year basis):

Particulars	**`/unit**
Change in price = 13.00 -12.25	0.75
Dividend received	1.25
Capital gains distribution	1.00
Total return	3.00

Return on investment = [3/12.25] x 100 = 24.49%

If all dividends and capital gains are reinvested into additional units @ 12.50 per unit, the position would be:

Total amount reinvested = `2.25 x 300 = `675

Additional units added = 675 / 12.50 = 54 units.

Value of 354 units as on 15.12 2015 = 354 x `13 = `4602

Price paid for 300 units on 15.12.2014 = 300 x `12.25 = ` 3,675

Hence, return = [4,602 – 3,675]/3,675 = 25.22%

3. Answer *any two* sub-divisions from (a) to (c): 10×2 = 20

(a) (i) 'Credit Rating' does not measure certain things/factors. Identify them.

(ii) Madhumita Ltd. will be receiving `120 lakhs by way of interim dividend from its subsidiary in 4 months. At the end of the year, it will be receiving ` 220 lakhs by way of final dividend and interest on loans to subsidiaries.

What is the present value of such interest and dividends if the weighted average cost of capital for Madhumita Ltd. is 13.50% and the company discounts at continuous compounding for income by way of dividends and interests?

[Given: $e^{0.45} = 1.046030$; $e^{0.045} = 1.046278$;

$e^{0.135} = 1.445367$; $e^{0.36} = 1.433329$] 5+5=10

Answer:

3. (a) (i) Credit rating does not measure the following:

1. Investment recommendation: CR does not make any recommendation on whether to invest or not.
2. Investment decision: They do not take into account the aspects that influence an investor.
3. Issue price: CR does not evaluate the reasonableness of the issue price, possibilities for capital gains or liquidity in the secondary market.
4. Risk of payment: Ratings do not take into account the risk of payment by issuer, or interest or exchange risks.
5. Statutory compliance; CR does not imply that there is absolute compliance of statutory requirements in relation to audit, taxation, etc. By the issuing company.

(ii) If we consider $e^{0.135} = 1.445367$ **as mentioned in the question paper**.

Present Value (P) = A × e^{-rt} or A÷ e^{rt}
A = Future Cash Flow
e = Exponential Value
r = Rate of Interest
t = No. of years i.e. Period/Year
Interim Dividend: P.V. Factor @ 13.50% = [1/ $e^{0.135 \times 4/12}$] = [1 / $e^{0.045}$] = [1/1.046278]= 0.9560
Hence, Present Value = 1,20,00,000 × [1/1.046278] = `1,14,72,000.
Final Dividend and Interest: P.V. Factor @ 13.50% = [1/$e^{0.135 \times 12/12}$] = [1/$e^{0.135}$]= [1/1.445367]=0.6919
Hence Present Value = 2,20,00,000 × 0.6919 = `1,52,21,800
Total Present Value = `2,66,93,800.

If we consider actual value $e^{0.135} = 1.1445$
Present Value (P) = A × e^{-rt} or A÷ e^{rt}
A = Future Cash Flow
e = Exponential Value

r = Rate of Interest
t = No. of years i.e. Period/Year
Interim Dividend: P.V. Factor @ 13.50% = [1/ $e^{0.135 \times 4/12}$] = [1 / $e^{0.045}$] = [1/1.046278]= 0.9560
Hence, Present Value = 1,20,00,000 × [1/1.046278] = `1,14,72,000.
Final Dividend and Interest: P.V. Factor @ 13.50% = [1/$e^{0.135 \times 12/12}$] = [1/$e^{0.135}$] = [1/1.1445]=0.8737
Hence Present Value = 2,20,00,000 × 0.8737 = `1,92,21,400
Total Present Value = `3,06,93,400.

(b) (i) Discuss the three types of Credit Risk.

(ii) Shares of Haryana Industrial Equipments Ltd. are quoted at ` 1,200. 30 days call option on HIEL is available with an Exercise price of ` 1,250 with a premium of ` 30.

Compute Time Value and Intrinsic Value of the premium. 5+(3+2)=10

Answer:

(b) (i) Three types of Credit risks are :

1. **Credit default risk:** Risk of loss arising from a debtor being unlikely to pay its loan obligations in full or the debtor is more than 90 days post due on any material credit obligation; default risk may impact all credit sensitive transactions, including loan securities.

2. **Concentration risk:** The risk associated with any single exposure or group of exposures with the potential to produce large enough losses to threaten a bank's core operations. It may arise in the form of single name concentration or industry concentration.

3. **Country risk:** The risk of loss arising from sovereign state freezing foreign currency payments or when it defaults on its obligations.

(ii)

Value of Premium:	**VALUE (`)**
Exercise price (EP)	1,250
CURRENT MARKET PRICE (MP)	1,200
Premium paid	30
MP-EP [1,200-1,250]	(-) 50
Intrinsic value [Maximum of MP - EP or '0' = Maximum of '0' or (-) 50]	0
Time value [Maximum of (Premium *less Intrinsic value, 0*]	30

(c) (i) UNITECH DLS's international transfer of funds amounts to US $ 20 lakhs monthly. Presently, the average transfer time is 10 days.

It has been proposed that the transfer of funds be turned over to one of the larger international banks, which can reduce the transfer time by an average of 2 days. A charge of 0.5% of the volume of transfer has been proposed for this service.

In view of the fact that the firm's opportunity cost of funds is 12%, should this offer be accepted?

(ii) Mr. Alok sold Nifty futures contract for ` 3,60,000 on December 10. For this, he had paid an initial margin of ` 34,000 to his broker. Each Nifty futures contract is for the delivery of 200 Nifties. On December 2015, the index was closed on 1850. How much Profit or Loss Mr. Alok has made? 6+4=10

Answer:

(c) (i) 1. Effective yield on saving:

Period saved = 10 days *Less* 2 days	8
Cost of funds	12% p.a.
Percentage yield for the period saved = [8/365] x 12%	0.263%

2. Evaluation:

* The cost of international transfer of 0.5 % is more than the amount of interest saved at 0.263 % i.e. more by around 0.237 %. Therefore, prima facie, the company should not opt for the proposal of transferring through international bank.

** However, saving in time also reduces the exposure of funds to various foreign exchange risks. The company has to consider the effect of such exposure and decide on the proposal of the international bank. If expected cost of such exposure is more than 0.237 %, then the company should go for transfer through international bank.

(ii) Sale price per NIFTY Future = Contract amount / Lot size = ` 3,60,000/200 = `1,800

Future price (given) = `1,850

Loss on sale of Futures contract = [`1,850 - ` 1,800] × 200 = ` 10,000

4. Answer *any two* sub-divisions from (a) to (c): 8×2=16

(a) From the following information pertaining to returns of Security MN and the market for the past 3 years, ascertain the value of Beta of Security MN:

Year	1	2	3
Security MN	14%	15%	18%
Market	9%	12%	15%

8

Answer:

4. (a) We know: $\beta = [\sum R_M R_D - n \bar{R}_M \bar{R}_D] / \sum[R_M^2 - n \bar{R}_M^2]$

Market return (R_M)	Return of security MN (R_D)	Product ($R_M \times R_D$)	R_M^2
9	14	126	81
12	15	180	144
15	18	270	225
36	47	576	450

n = 3 (numbers of pairs considered for Beta generally the no. of years)

$\sum R_M R_D$ = Aggregate of product = 576; $\sum R_M^2$ = Aggregate of return squares = 450

$\bar{R}_M$ = Mean of market return = [Aggregate of market return]/[No. of years] = 36/3 = 12.00

$\bar{R}_D$ = Mean of security return = [Aggregate of security MN returns]/[No. of years] = 47/3 = 15. 67

Hence, β = [576 - (3 × 12 × 15.67)]/[450 - (3 x 12^2)]

= (576 - 564)/(450 - 432) = 12/18 = 0.667.

Alternative Answer:

$\beta = Cov_{MD}$ /Variance of Market (σ_M) = Cov_{MD}/ σ_M^2

Market return (R_M)	Return of security (R_D)	Deviation of R_M from $\bar{R}_M$ (D_M)	Deviation of security return R_D from $\bar{R}_D$ (D_D)	Variance of market (D_M^2)	Covariance (D_M x D_D)
9	14	9-12 = (3)	14.00-15.67 = (1.67)	9	5.01
12	15	12-12 = 0	15.00-15.67 = (0.67)	0	0
15	18	15-12 = 3	18.00-15.67 = 2.33	9	6.99
36	47			18	12.00

β = 12/18 = 0.667

(b) An investor has two portfolios known to be on minimum variance set for a population of three securities R, S and T, having below-mentioned weights:

	W_R	W_S	W_T
Portfolio X	**0.30**	**0.40**	**0.30**
Portfolio Y	**0.20**	**0.50**	**0.30**

Assume that there are no restrictions on short sales.

Required:

(i) What would be the weight for each stock for a portfolio constructed by investing ` 6,000 in Portfolio X and ` 4,000 in Portfolio Y?

(ii) Suppose the investor invests ` 5,000 out of `10,000 in Security R. How will he allocate the balance between Security S and T to ensure that his portfolio is on minimum variance set? 3+5=8

Answer:

(b) (i) Investment in individual securities:

Security	Portfolio X (`)	Portfolio Y (`)	Total (`)	Weight
R	6,000 x 0.30 = 1,800	4,000 x 0.20 = 800	2,600	2,600/10,000 = 0.26
S	6,000 x 0.40 = 2,400	4,000 x 0.50 = 2,000	4,400	4,400 / 10,000 = 0.44
T	6,000 x 0.30 = 1,800	4,000 x 0.30 = 1,200	3,000	3,000 / 10,000 = 0.30
	6,000	4,000	10,000	1.00

(ii) Investment strategy: Given, W_R = ` 5,000 / `10,000 = 0.50; and $W_R + W_S + W_T = 1$.

Hence, $W_T + W_s = 0.50$; We can establish a simple linear equation like-

$W_T = a + b\ W_s$; From the given data, we get-

0.30 = a + b × 0.40 and 0.30 = a + b × 0.50 ; Solving, we get b = 0 ; a = 0.30

$W_T = 0.30 – 0 \times W_s$; or, $W_T = 0.30$; Hence, $W_s = 0.20$

Allocation of funds: R = `5,000; S = 0.20 × 10,000 = `2,000; and T = 0.30 x `10,000 = ` 3,000.

(c) Investor's weekly, a News Magazine on the happenings at Cloudy Street, publishes the following information in its November 2015 Edition for Security PQR:

Equilibrium return = 20%

Market portfolio return = 20%

6% Treasury Bills (`100) at ` 120.

Covariance of Security with market portfolio = 225% and correlation = 0-85.

Determine the risk of the market portfolio and Security Risk. 5+3=8

Answer:

(c) Risk free rate = Coupon payment/Current market price = [`100 x 6%]/`120 = 5%

Equlibrium return = CAPA return; 20% = R_F + BETA × (R_M - R_F); OR, 20% = 5% + BETA x (20% - 5%);

∴ Beta = 1. Market Risk : $Beta_d = Cov_{dm} / \sigma_m^2$ or, 1 = (225%)/σ_m^2 or, σ_m = 15%;

Security risk = $Beta_d = [\sigma_d / \sigma_m,] \times \sigma_{dm}$; or, 1 = [σ_d/15%] × 0.85 ; or, σ_d = 17.65%

5. Answer *any two* sub-divisions from (a) to (c): 10×2=20

(a) (i) Write down the 'acceptance rule' of the Net Present Value method of an investment proposal.

(ii) Atul & Co. is contemplating whether to replace an existing machine or to spend money on overhauling it. The company currently pays no taxes. The replacement machine costs ` 1,60,000 now and requires maintenance of ` 16,000 at the end of every year for 8 years. At the end of eight years, it would have a salvage value of ` 32,000 and would be sold.

The existing machine requires increasing amounts of maintenance each year and its salvage value falls each year as follows:

Year	Maintenance (`)	Salvage (`)
Present	0	64,000
1	16,000	40,000
2	32,000	24,000
3	48,000	16,000
4	64,000	0

The opportunity cost of capital for ATUL & Co. is 15%. When should the Company replace the machine?

[Given: Present Value of annuity of ` 1 per period for 8 years at interest rate of 15% is 4.4873; and Present Value of ` 1 to be received after 8 Years at interest rate of 15% is 0.3269.] **3+(5+2)=10**

Answer:

5. (a) (i) The Acceptance Rules are as follows:

NPV > 0 Accept the project. Surplus over and above the cut-off rate is obtained.

NPV = 0 Project generates cash flows at a rate just equal to the cost of capital. Hence, it may be accepted or rejected. This constitutes an indifference point.

NPV < 0 Reject the project. The project does not provide returns even equivalent to the cut-off rate.

(ii) Equivalent Annual cost (EAC) of New Machine: `

Cost of new machine now	1,60,000
Add: P.V. of annual repairs @ `16,000 p.a. for 8 years [`16,000 × 4.4873]	71,797
	2,31,797
Less: P.V. of salvage value at the end of 8 years [`32,000 × 0.3269]	10,461
	2,21,336
Equivalent Annual Cost [`2,21,336/ 4.4873]	49,325

EAC of keeping the machine:

		1 Year	2 Year	3 Year	4 Year
Value at present	(`)	64,000	40,000	24,000	16,000
Add: P.V. of annual maintenance [Annual Maintenance/1.15]	(`)	13,919	27,826	41,739	55,652
Total	(`)	77,913	67,826	65,739	71,652
Less: P.V. of Salvage value at year end [Salvage value / 1.15]	(`)	34,783	20,870	13,913	-
		43,130	46,956	51,826	71,652
Multiplied by Yearly factor		1.15	1.15	1.15	1.15
Equivalent Annual Cost (EAC)	(`)	49,600	53,999	59,600	82,400

Advice: The company should replace the old machine immediately because the EAC of the New Machine at ` 49,325 is lower than the Cost of using the Existing Machine 1st., 2nd., 3rd, and 4th year.

(b) (i) What do you understand by: Venture Capital Financing?

(ii) Dividend Payers Ltd. has a stable income and stable dividend policy. The average annual dividend payout is ` 27 per share (Face Value is ` 100).

You are required to find out:

(1) Cost of Equity Capital if market price in year I is ` 150.

(2) Expected Market Price in year II if cost of equity is expected to rise to 20%.

(3) Dividend Payout in year II if the company were to have an expected market price of ` 160 per share, at the existing cost of equity. 4+(2×3)= 10

Answer:

(b) (i) Venture Capital Financing refers to financing of high risk ventures promoted by new, qualified entrepreneurs who require funds to give shape to their ideas. Here, a financier, venture capitalist, invests in the Equity or Debt of an entrepreneur (promoter, venture capital undertaking) who has a potentially successful business idea, but does not have the desired track record or financial backing.

Generally, venture capital funding is associated with:

(1) heavy initial investment businesses, e.g., energy conservation, quality up-gradation or,

(2) sunrise sector like, information technology.

Venture capital co. → Venture Capital Assistance → Venture Capital Undertaking

[Investor] [Promoter, etc.]

(ii) 1. K_e = Dividend per share/Market price per share = ` 27 /`150 = 18%

2. K_e = Dividend per share/Market price per share = `27/MPS= 20%. On substitution, MPS = `135.

3. K_e = Dividend per share/Market price per share = DPS /`160 = 18%;

Hence, DPS = `28.80.

(c) (i) Write down the differences between Factoring and Securitisation, with respect to investors, recourse and receipt of payment.

(ii) The management of Techno India Ltd. must choose whether to go ahead with either of two mutually exclusive projects A and B. The expected profits are as follows:

Particulars	Profit if there is STRONG demand (`)	Profit/(Loss) if there is WEAK demand (`)
Project A	**4,000**	**(1,000)**
Project B	**1,500**	**500**
Probability of demand	**0.3**	**0.7**

Required:

(1) What would be the decision, based on expected values, if no information about demand were available?

(2) What is the value of perfect information about demand? (1×3)+(3+4)= 10

Answer:

(c) (i)

Basis	Factoring	Securitisation
1. Investors	Only one party is involved	Issues of securitization are sold to a wide Range of investors.
2. Recourse	This may be with or without	It is generally without recourse.

	recourse	
3. Receipt of payment	Payment from the factor comes in after a time lag, during which the factor charges interest for any advances allowed.	Cash is generally received as soon as the issue is placed.

(ii) (1) If there were no information to help the decision, Project with higher E.V. of profit would be selected;

Probability	Project A		Project B	
	Profit (`)	Expected Value (`)	Profit (`)	Expected Value (`)
0.3	4,000	1,200	1,500	450
0.7	(1,000)	(700)	500	350
1.0		500		800

Analysis: Project B would be selected. This is clearly the better option if demand turns out to be weak. However, if demand were to turn out to be strong, Project A would be more profitable. There is a 30 % chance that this could happen.

(2) Perfect information will indicate for certain whether demand will be weak or strong. If demand is forecast weak, project B would be selected. If demand is forecast as strong, Project A would be selected and perfect information would improve the profit from `1,500, which would have been earned by selecting B, to `4,000.

Forecast demand	Probability	Project chosen	Profit (if)	Expected value (if)
WEAK	0.7	B	500	350
STRONG	0.3	A	4,000	1,200
EV of Profit with Perfect information				1,550

The value of perfect information derives from the 0.3 probability that if demand is going to be strong, the information would reveal this fact, and the decision is changed Project B to Project A, thereby earning ` 2,500 [`4,000 - `1,500] more profit. EV of the value of perfect information is therefore 0.3 × `2,500 = `750.

Alternative way to find out value of Perfect Information:

Particulars	`
EV of profit without perfect information (i.e. choose B all the time	800
EV of profit with perfect information (calculated above)	1,550
Value of perfect information	750

Analysis: Provide that the information does not cost more than ` 750 to collect, it would be worth having.