FINAL EXAMINATION
Syllabus 2016

Paper 14: STRATEGIC FINANCIAL MANAGEMENT (SFM)

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

There are Sections A, B, C and D to be answered subject to instructions given against each.

Section A **You are required to answer all the questions. Each question carries 1 mark.** **Instructions: Each question is followed by 4 Answer choices and only one is correct. You are required to select the choice which according to you represents the correct answer.**					**20 X 1 = 20 Marks**
1.	**a.**	In case of divisible projects, which of the following can be used to attain maximum NPV?			
		(i)	Feasibility Approach		
		(ii)	Internal Rate of Return		
		(iii)	Profitability Index Approach	A	
		(iv)	Any of the above		
	b.	Where the costs and revenues change at differing rates of inflation, it is known as _____.			
		(i)	differential inflation	A	
		(ii)	general inflation		
		(iii)	synchronized inflation		
		(iv)	specific inflation		
	c.	Which of the following items can the lessee can claim as an expenditure ?			
		(i)	Lease rent		
		(ii)	Insurance and repairs		
		(iii)	Maintenance expenses		
		(iv)	All the above	A	
	d.	ABC Leasing Company expects a minimum yield of 10% on its investment in the leasing business. It proposes to lease a machine costing Rs. 5,00,000 for 10 years. If yearly lease payments are received in advance, the lease rental to be charged by the company for lease will be:			
		(i)	Rs. 81,372		
		(ii)	Rs. 72,370		
		(iii)	Rs. 73,975	A	
		(iv)	Rs. 84,130		
	e.	XYZ Ltd. has a debt-equity mix of 30/70. If XYZ Ltd.'s debt beta for its activity (or projects) is 1.21, what is the beta for its equity?			
		(i)	1.65		
		(ii)	1.52		
		(iii)	1.60	A	
		(iv)	1.68		

	f.	Assume CAPM is correct, you are holding a stock, which has a beta of 1.5 and is currently in equilibrium. The required return on stock is 12% and the expected return on the market is 10%. Suddenly due to economic conditions, the expected return on the market increases by 20%. If nothing else changes, how much will this affect your required premium?			
		(i)	+20%		
		(ii)	-25%		
		(iii)	+25%	A	
		(iv)	+30%		
	g.	Markowitz Portfolio Theory is most concerned with _____.			
		(i)	the elimination of systematic risk		
		(ii)	the effect of diversification on portfolio risk	A	
		(iii)	the identification of systematic risk		
		(iv)	active portfolio management to enhance return		
	i.	ABC Ltd. intends to invest Rs. 50 lakhs in commercial paper and has received the following quotes from primary leader: Bid 5.30%, Ask 5.00%. if the maturity period of the Commercial Paper is 45 days, the investment amount will be (assume day count basis as "actual/365")			
		(i)	Rs.49,67,541		
		(ii)	Rs. 49,69,367	A	
		(iii)	Rs. 49,68,454		
		(iv)	None of the above		
	j.	According to CAPM assumptions, variances, expected returns, and covariance of all assets are _____.			
		(i)	identical	A	
		(ii)	not identical		
		(iii)	fixed		
		(iv)	variable		
	k.	An average return of portfolio divided by its standard deviation is classified as _____.			
		(i)	Jensen's alpha		
		(ii)	Treynor's variance to volatility ratio		
		(iii)	Sharpe's reward to variability ratio	A	
		(iv)	Treynor's reward to variability ratio		
	l.	The portfolio's return is 14%. The market's and fund's returns standard deviations are 4 and 3. The fund's beta value is 1.5. The risk free rate of return is 5%. the Treynor index is _____.			
		(i)	6.0	A	
		(ii)	5.1		
		(iii)	0.48		
		(iv)	7.0		
	n.	PQR Company's equity share is expected to provide a dividend of Rs. 3 and fetch a price of Rs. 40 a year. What price would it sell for now if investors' required rate of return is 15%?			
		(i)	Rs. 35.50		
		(ii)	Rs. 38.27		
		(iii)	Rs. 37.39	A	
		(iv)	Rs. 40.00		

	o.	The dividend policy of a firm and its market price of share is determined by_____.			
		(i)	earnings per share	A	
		(ii)	price earnings ratio		
		(iii)	book value		
		(iv)	dividend yield		
	p.	The risk that arise due to fluctuations in the exchange rates when the normal trading transactions take place in the normal course of international trade is: _____.			
		(i)	translation risk		
		(ii)	transaction risk	A	
		(iii)	economic risk		
		(iv)	exchange rate risk		
	q.	The process of separating the interest and principal portions of a security, which then may be sold separately in secondary market is known as _____>			
		(i)	strips	A	
		(ii)	straps		
		(iii)	straddle		
		(iv)	strangle		
	r.	If the amount and timing of a foreign currency outflow are both uncertain, then the best hedging technique will be to _____.			
		(i)	buy a put option		
		(ii)	sell a call option		
		(iii)	buy a call option	A	
		(iv)	buy a forward contract		
	s.	Combination of two fixed floating currency swaps to form a fixed to fixed currency swap is called as _____.			
		(i)	circus swap	A	
		(ii)	forward swap		
		(iii)	extendible swap		
		(iv)	vanilla swap		
	t.	Formula written as market risk premium divided by standard deviations of returns on market portfolio is used to calculate _____.			
		(i)	security market line		
		(ii)	capital market line	A	
		(iii)	systematic risk		
		(iv)	None of the above		

		Section B **You are required to answer all the questions. Each question carries 2 mark.** **Instructions: Each question is followed by a space where you are required to type your answer.**	**10 X 2 = 20 Marks**
2.	**a.**	Suppose you invest Rs. 78.35 at an interest rate of 5 percent per year. How long will it take your investment to grow to Rs. 100?	
		Type your answer here 5 years	
	b.	Project with an initial investment of Rs 50 lakhs and life of 10 years, generates a CFAT of Rs 10 lakhs	

		per annum. What will be its payback reciprocal?	
		Type your answer here 20%	
	c.	In the case of NPV method, what is the re-investment rate?	
		Type your answer here Cost of Capital	
	d.	If a mutual fund holds Rs. 205 lakh worth of securities and Rs.30 lakh cash, and Rs. 6 lakh of liabilities and Rs. 20 lakh outstanding at the close of the trading day, compute the Net Asset Value.	
		Type your answer here Rs. 11.45	
	e.	ABC Ltd. announced a rights issue of four shares of Rs. 100 each at a premium of 160% for every five shares held by the existing shareholders. The market value of the shares at the time of rights issue is Rs. 395. The value of right is:	
		Type your answer here Rs.60	
	f.	Assume that Stock X has factor sensitivities (betas) of 0.9 to the inflation portfolio, 1.2 to the industrial production portfolio, and -0.7 to the risk bearing portfolio. Risk free rate of interest is 8%. The required rate of return is 13% on a portfolio with sensitivity to inflation. The required rate of return is 10% on a portfolio with sensitivity to industrial production. The required rate of return is 6% on a portfolio with sensitivity to degree of risk aversion. Compute the required rate of return according to APT.	
		Type your answer here 16.3%	
	g.	The market returns standard deviation is 15. The X stock return is 25%. The riskless rate of interest is 5%. The risk premium of the Stock X is:	
		Type your answer here 20%	
	h.	Mr. A is bearish on the stock of XYZ Ltd. Therefore, he purchases five put option contracts on XYZ shares for a premium of Rs. 3. The exercise price is Rs. 41 and it has a maturity period of three months. The current market price of the stock is Rs. 40. The market lot is 100. If Mr. A is correct and XYZ's share price falls to Rs. 30, how much profit will he earn over a period of three-months?	
		Type your answer here Rs. 4,000	
	i.	A dollar denominated bond issued in the U.S. by a non-American company that makes all payments to the investors in U.S. dollars. Identify the bond.	
		Type your answer here Yankee Bond	
	j.	The XYZ stock price on 21st August 2020 is Rs. 869 and the owner of the share has entered into a call option agreement for six months at a strike price of Rs. 950. The risk free rate of interest and compounded standard deviation are assumed to be 10% and 0.5 respectively. Compute the value of the call option using the Black-Scholes formula.	
		Type your answer here Rs. 110.4	
Section C **You are required to answer any 4 out of 6 questions in this section** **Instructions: Each question is followed by a space where you are required to type your answer.**			**4 X 12 = 48 Marks**
3.	**a.**	ABC Ltd. is thinking of investing in a project costing Rs. 20 lakhs. The life of the project is five years and the estimated salvage value of the project is zero. Straight line method of charging depreciation is followed. The tax rate is 50%. The expected cash flows before tax are as follows:	

Year-end	1	2	3	4	5
Estimated Cash Flow Before Depreciation and Tax (Rs. Lakhs)	4	6	8	8	10

(i) What is the Payback period for the investment? 4

Type your answer here

Payback period for the investment = 3 years 10 months

ROUGH WORK

Particulars / Year-end	1	2	3	4	5
Cash inflow before depreciation and tax	4	6	8	8	10
Less: Depreciation	4	4	4	4	4
EBT	-	2	4	4	6
Less: Tax @50%	-	1	2	2	3
EAT	-	1	2	2	3
Add: Depreciation	4	4	4	4	4
Cash Inflow After Tax	4	5	6	6	7

Payback Period:

Year-end	Cash inflow after tax	Cumulative cash inflow after tax
1	4	4
2	5	9
3	6	15
4	6	21
5	7	28

Payback Period = 3 years + (Rs. 5 lakhs/ Rs. 6 lakhs) * 12 months

(ii) What is the Net Present value at 10% Cost of Capital and the benefit- cost ratio? 4

Type your answer here

Net Present value =Rs. 0.717 lakhs

Benefit-Cost Ratio= 1.036.

ROUGH WORK

Year	Cash Inflow after Tax	Discount factor @10%	Present Value
1	4	0.909	3.636
2	5	0.826	4.130
3	6	0.751	4.506
4	6	0.683	4.098
5	7	0.621	4.347
P.V. cash inflows			20.717
Less: Initial Investment			20.00
NPV			0.717

Benefit-Cost Ratio= P.V. of cash inflows/ P.V. of cash outflows = 20.717/20 = 1.036

b. FL Finance Ltd., a leasing company, has been approached by a prospective customer intending to acquire a machine whose cash down price is Rs. 3 crores. The customer, in order to leverage his tax position, has requested a quote for a three-year lease rentals payable at the end of each year but in a diminishing manner such that they are in the ratio of 3:2:1. Depreciation can be assumed to be on straight line basis and marginal tax rate as applicable to FL Finance Ltd. is 35%. The target rate of return for FL Finance on the transaction is 10%. What will be the lease rents to be quoted for the lease for three years? 4

Type your answer here

Lease Rent for 1st year = Rs.1,91,62,392

Lease Rent for 2st year = Rs.1,27,74,928

Lease Rent for 3st year = Rs.63,87,464

ROUGH WORK

Let Lease Rent of first year=3x

Year	PV of Cash Inflow
1	[(3x)-(3x-1,00,00,000)(0.35)] X 0.909
2	[(2x)-(2x-1,00,000,00)(0.35)] x 0.826
3	[(x)-(x-1,00,00,000)(0.35) x 0.751
TOTAL	3.3345x + 87.01.000

- 3,00,00,000 + 3.3345x + 87,01,000 = 0

Or, x = 63,87,464

Lease Rent for 1st year = Rs.1,91,62,392

Lease Rent for 2st year = Rs.1,27,74,928

Lease Rent for 3st year = Rs.63,87,464

4. a. The NAV of a mutual fund having 6,00,000 units are Rs.8.75 and Rs.9.30 per unit at the beginning and end of the year respectively.

(i) If the fund has to pay a dividend of Rs.0.76 per unit and Rs.0.64 as capital gain per unit what would be the annual returns expressed as a percentage? 3

Type your answer here 22.29%

ROUGH WORK

Formula for computing Annual Returns:

Annual Return = (Closing Fund Assets – [Opening Assets Value) / Opening Asset Value] X 100

Value of Annual Returns:

= [(64,20,000 – 52,50,000) / 52,50,000] X 100

= 11,70,000 / 52,50,000] X 100 = 22.29%

Working Notes:

Computation of Values

Particulars	Computation	Rs.	Rs.
NAV on Closing Date	6,00,000 x 9.30		55,80,000
Dividend Payable	6,00,000 x 0.76	4,56,000	
Capital Gain to be distributed		3,84,000	
Total Distribution			8,40,000
Closing Fund Assets			64,20,000

(ii) If instead of paying dividend and capital gain, the scheme decided to reinvest the distributable amounts at an average NAV of Rs. 8.60 per unit, compute the revised returns and Fund Assets value as it would appear in the balance sheet after the reinvestment. 4

Type your answer here 22.29% The return is same. Fund Asset Balance is Rs. 64,20,000

ROUGH WORK

Opening No. of Units:

Units added by reinvestment:

= Amount Reinvested / Re-investment Rate

= Rs. 8,40,000 / Rs. 8.60 = 97,674.42

Balance Sheet (After Reinvestment)

Liabilities	Rs.	Assets	Rs.
NAV on closing date		Fund Assets (Balancing Figure)	64,20,000
6,00,000 units @ 9.30	55,80,000		
97,674.42 units @ 8.60 per unit	8,40,000		
Total	64,20,000	Total	64,20,000

Revised Return:

		Annual Return = (Closing Fund Assets – [Opening Assets Value) / Opening Asset Value] X 100 = [(64,20,000 – 52,50,000) / 52,50,000] X 100 = 11,70,000 / 52,50,000] X 100 = 22.29% The return is same.	
	b.	What are the tools and techniques used by RBI to maintain financial stability?	5
		Type your answer here The Reserve Bank makes use of a variety of tools and techniques to assess the buildup of systemic risks in the economy and to provide critical inputs in this respect to its policy making departments. The tools include: i. A Financial Stress Indicator - a contemporaneous indicator of conditions in financial markets and in the banking sector; ii. Systemic Liquidity Indicator for assessing stresses in availability of systemic liquidity; iii. A Fiscal Stress Indicator for assessing build-up of risks from the fiscal; iv. A Network Model of the bilateral exposures in the financial system - for assessing the inter-connectedness in the system; v. A Banking Stability Indicator for assessing risk factors having a bearing on the stability of the banking sector; and vi. A series of Banking Stability Measures for assessing the systemic importance of individual banks.	
5.	**a.**	X Co. Ltd. invested on 1.04.2020 in certain equity shares as below: Name of Co. | No.of shares | Cost (Rs.) M Ltd | 1,000 (Rs. 100 each) | 2,00,000 N Ltd | 500 (Rs.10 each) | 1,50,000 In September, 2020, 10% dividend was paid out by M Ltd. And in October,2020,30% dividend was paid out by N Ltd. On 31.3.2021 market quotation showed a value of Rs.220 and Rs.290 per share for M Ltd. and N Ltd. respectively. On 1.4.2021, investment advisors indicate: (a) that the dividends from M Ltd and N Ltd for the year ending 31.3.2022 are likely to be 20% and 35% respectively and (b) that the probabilities of market quotations on 31.3.2022 are as below: Probability Factor | Price/share of M Ltd. (Rs.) | Price/share of N Ltd. (Rs.) 0.2 | 220 | 290 0.5 | 250 | 310 0.3 | 280 | 330	
	(i)	Determine the average return from the portfolio for the year ended 31.3.2021.	4
		Type your answer here Average return from the portfolio for the year ended 31.03.2021 = 7.57% **ROUGH WORK** Year-end wealth: Cash (received on account of dividend from M) = 10,000 + Cash (received on account of dividend from N) = 1,500 + Market Value of shares of M = 2,20,000 + Market Value of shares of N = 1,45,000 = 3,76,500 Investment in the beginning of the year = 2,00,000+1,50,000 = 3,50,000 Average return from the portfolio for the year ended 31.03.2021 = (3,76,500/3,50,000) -1 = 0.0757 i.e. 7.57%	

	(ii)	Determine the average return from the portfolio for the year 2021-22.	5
		Type your answer here Average return for the portfolio for the year ended 31.03.2022= 18.01% **ROUGH WORK** Expected share price of M= 220 X 0.2 + 250 X0.5 + 280 X 0.3= Rs.253 Expected share price of N= Rs.312 Year-end wealth: Cash (received on account of dividend from M) = 20,000 + Cash (received on account of dividend from N) =1750 + Market Value of shares of M= 2,53,000 + Market Value of shares of N= 1,56,000 =4,30,750 Investment in the beginning of the year= 2,20,000+1,45,000=3,65,000 Average return from the portfolio for the year ended 31.03.2022: = (4,30,750/3,65,000)-1 =0.1801=18.01%	
	b.	You are supplied the following information regarding equity shares of the two companies: K Ltd. / R Ltd. Average Return: 12% / 15% SD of Return: 6% / 3% Co-efficient of correlation between returns from equity shares of K Ltd. And R Ltd.=0.50 An investor is interested in investing Rs. 15,00,000 in these securities. Suggest portfolio to minimize the risk.	3
		Type your answer here Invest total amount of Rs.15,00,000 in the equity shares of R Ltd. **ROUGH WORK** If r = 0.50 Let K Ltd. = 1 Let R Ltd. = 2 $W1 = [(SD_2)^2 - r(SD_1)(SD_2)]/[(SD_1)^2 + (SD_2)^2 - 2r((SD_1)(SD_2)] = 0$ Or, $W_1 = [(0.03)^2 - (0.05)(0.06)(0.03)]/[(0.06)^2 + (0.03)^2-2(0.50)(0.06)(0.03)] = 0$	
6.	**a.**	A gold company needs 1,500 ounces of gold after eight months. The current price per ounce of gold is Rs. 4,200. It is expected that after 8 months, the price per ounce of gold is likely to touch Rs. 4,900. The company wants to hedge against the rising price for its requirement after 8 months. The 8-month futures contract price is now traded Rs. 4,500 per ounce. The size of a futures contract is 100 ounce.	
	(i)	If the cost of capital, insurance and storage is 13% p.a., examine whether it is beneficial for the gold company to buy now.	2
		Type your answer here Decision: It is not beneficial to buy now. **ROUGH WORK** Fair Price of the futures contract: If the cost of carry (including interest, insurance and storage) is 13%, the fair price of the futures contract is = So e^rt = 4200 e^8/12x0.13 = 4200 x 1.091 = Rs. 4,582.20. It implies that if the company buys gold today to be used after eight months, it would effectively cost Rs. 4,582.20.	
	(ii)	What strategy can the firm adopt if the upper limit to buying price is Rs. 4,500?	2
		Type your answer here Strategy: Since futures are trading at Rs. 4,500, it can lock up in the price of around Rs. 4,500 through a long	

		hedge. Under the long hedge the company would buy the futures on gold today and sell it eight months later. Expected Result: The firm would end up paying a price of Rs. 4,500.	
	(iii)	If the company decided to hedge through futures, what will be the effective price it would pay for gold if at the time of lifting the hedge the spot and future prices are: Spot price = Rs. 4,340; Futures = Rs. 4,600.	5
		Type your answer here Effective cost of buying (Rs. 43,40,000 - Rs. 1,00,000) Rs. 42,40,000 Effective price per ounce (Rs. 42,40,000/1,000 ounce) Rs. 4,240 **ROUGH WORK** If the company adopts the strategy mentioned in (a)(ii), the effective price to be paid by the firm in the two cases of rise and fall in spot values is calculated as follows: Quantity of gold to be hedged — 1,000 ounce Size of futures contract — 100 ounce Number of futures contract bought = 1,000 / 100 — 10 contracts Futures price — Rs. 4,500 Value of Futures Bought = Rs. 4,500 x 10 x 100 — Rs. 45,00,000 Strategy: Eight months later the company would unwind its futures position and buy its requirement from the spot market. Expected Result: 1. Futures sold at price — Rs. 4,600 2. Value of futures sold = Rs. 4,600 x 10 x 100 — Rs. 46,00,000 3. Gain on Futures (Rs. 46,00,000 - Rs. 45,00,000) — Rs. 1,00,000 4. Spot Price — Rs. 4,340 5. Actual cost of buying for 1,000 ounce Rs. 4,340 x 1,000 — Rs. 43,40,000 6. Effective cost of buying (Rs. 43,40,000 - Rs. 1,00,000) — Rs. 42,40,000 7. Effective price per ounce (Rs. 42,40,000/1,000 ounce) — Rs. 4,240	
	b.	The following data relates to ABC Ltd.'s shares: Current price per share Rs.180. Price per share in future market- 6 months: Rs.195. It is possible to borrow money in the market @12% p.a. Determine the theoretical minimum price of a 6-month forward contract. Explain if any arbitrage opportunity exists.	3
		Type your answer here Theoretical price of futures = Rs.190.80 Arbitrage gain = Rs.4.20 **ROUGH WORK** Theoretical price of futures: spot price + carrying cost – returns = 180 + 180 x 0.06-0 = Rs.190.80 Arbitrage opportunity can be made by entering into futures sale contract of the share @Rs.195 maturity 6 months and buying the share at current price of Rs. 180 Borrow Rs.180 @12%p.a. for six months. Purchase one share. Realization from futures contract after six months=Rs. 195 Repay the borrowings along with interest: Rs.180(1.06) = Rs.190.80 Profit = Rs.195 – Rs.190.80 = Rs.4.20	

7. a. A company has estimated the unit variable cost of a Product to be Rs. 10, and the selling price is Rs. 15 per unit. Budgeted sales for the year are 20,000 units. Estimated fixed costs are as follows: **3**

Fixed costs p.a. (Rs.)	50,000	60,000	70,000	80,000	90,000
Probability	0.1	0.3	0.3	0.2	0.1

What is the probability that the company will equal or exceed its target profit of Rs. 25,000 for the year.

Type your answer here

Probability=0.7 or 70%

ROUGH WORK

The different outcomes for fixed cost are mutually exclusive events. If fixed costs are Rs. 50,000 for example, they can't be anything else as well.

Budgeted sales = 20,000 units

Budgeted unit contribution = 15 - 10 = Rs. 5

Budgeted total contribution (20,000 × 5)	100000
Target profit	25000
Maximum fixed costs if target is to be achieved	75000

The probability that fixed costs will be Rs. 75,000 or less is:

= P (50,000 or 60,000 or 70,000)

= P (50,000) + P (60,000) + P (70,000)

= 0.1+ 0.3 + 0.3

= 0.7 or 70%

b. On 19th April, 2022 the following are the spot rates: Spot EURO/USD 1.20000 USD/INR 44.8000 Following are the quotes of European Options: **9**

Currency Pair	Call/Put	Strike Price	Premium	Expiry Date
EURO/USD	Call	1.2000	$ 0.035	19 July, 2022
EURO/USD	Put	1.2000	$ 0.04	19 July, 2022
USD/INR	Call	44.8000	Rs. 0.12	19 September, 2022
USD/INR	Put	44.8000	Rs. 0.04	19 September, 2022

(i) A trader sells an at-the-money spot straddle expiring at three months (19th July, 2022). Determine the gain or loss if three months later the spot rate is EURO/USD 1.2900. **5**

Type your answer here

Net loss = $0.015 per EURO

ROUGH WORK

Straddle is a portfolio of a Call and a Put option with identical Strike price. A trader sells Straddle of at the Money Straddle by selling a call option and put option with strike price of USD per EURO. He will receive premium of $ 0.035+$0.040=$ 0.075.

At the expiry of three months spot rate is 1.2900 i.e. higher than Strike Price. Hence, buyers of the call option will exercise the option, but buyer of Put option will allow the option to lapse.

Profit or loss to a trader is:

Premium received = $0.075

Loss on call option exercised (1.2900-1.200) = $0.090

So the Net loss is $(0.075-0.090) = $0.015 per EURO.

(ii) Which strategy gives a profit to the dealer if five months later (19th September, 2022) expected spot rate is USD/INR 45.00? Also calculate profit for a transaction USD 1.5 million. **4**

Type your answer here

BUY Strategy i.e. either Call or Put:

Net Gain or Profit = Rs. 1,20,000

		ROUGH WORK BUY Strategy i.e. either Call or Put: When price is expected to go up then call option is beneficial, On 19th April, 2022 to pay premium 15,00,000 @Rs.0.12 i.e. Rs. 1,80,000 On 19th September, 2022 exercise call option to gain 15,00,000 @Rs.0.20 Rs. 3,00,000 Net Gain or Profit Rs. 1,20,000	
8.		**You are required write Short Notes on any 4 out of 5 questions.**	**4 X 3 = 12 Marks**
	a.	Differentiate between certainty equivalent approach and Risk Adjusted Discount Rate method	3
		Type your answer here The risk adjusted discount rate method (RADR) is similar to the NPV. It is defined as the present value of the expected or mean value of future cash flow distributions discounted at a discount rate, k, which includes a risk premium for the riskiness of the cash flows from the project. The certainty equivalent method (CE) adjusts for risk directly through the expected value of the cash flow in each period and then discounts these risk adjusted cash flows by the risk free rate of interest, R_f. The major difference between the RADR and CE methods is that the RADR method adjusts for risk in the discount rate while the CE method adjusts the cash flows for risk and then discounts at a risk-free rate of interest.	
	b.	Directional Margin Traders	3
		Type your answer here These traders have a slightly longer term view on specific commodities compared to speculators who typically operate at the short end of the market. Margin traders use futures as a proxy for buying the commodity in the sport market as the benefit of margin trading is available in the futures market. Instead of locking up their entire capital in holding to a spot position, the margin traders use futures as a proxy for spot positions by paying a margin. Margin traders are not only willing to wait till expiry but are also willing to take a longer period contract and even to bear the rollover cost for carrying forward the position. Margin traders normally do not rely too much on technicals but have a very strong fundamental premise due to which they are willing to bear the roll cost to carry the position longer. The trades of these margin traders typically give hints to traders and analysts regarding which commodities are attracting long term interest and acting as a lead indicator of underlying shifts.	
	c.	Problems associated with diversification of portfolio with too many assets	3
		Type your answer here The problems associated with diversification of portfolio with too many assets are as follows: (i) Poor performers – when numerous stocks are involved, the investor may sometimes also buy stocks that will not yield adequate return. (ii) Information inadequacy – if there are too many securities in a portfolio, it is difficult for the portfolio manager to have all information about their individual performance. (iii) High research costs – when a large number of stocks are included in a portfolio, the returns and risks associated with individual stocks should be analyzed before their inclusion. For this, a lot of information has to be gathered and this involves high costs. (iv) High transaction costs – when small quantities of stocks are purchased frequently, the investor has to incur higher transaction cost than for the purchase of large blocks at less frequent intervals.	
			3
	d.	Assumptions of CAPM	
		Type your answer here Following are the assumptions of CAPM:	

(i) Efficient capital market exists.
(ii) Investors, may borrow and lend without limit at risk-free rate of interest.
(iii) All investors have the same expectations about the risk and return.
(iv) No transaction costs involved.
(v) Capital markets are in equilibrium.

3

e. Stages of currency swap

Type your answer here

A currency swap consists of three stages:
(i) A spot exchange of principal – this forms part of the swap agreement as a similar effect can be obtained by using the spot foreign exchange market.
(ii) Continuing exchange of interest payments during the terms of the swap – this represents a series of forward foreign exchange contracts during the term of the swap contract. The contract is typically fixed at the same exchange rate as the spot rate used at the outset of the swap.
(iii) Re-exchange of principal on maturity – in a currency swap the principal sum is usually exchanged in one of the following manner:

- At the start
- At the end
- At a combination of start and end
- Neither

Section D
You are required to answer all the questions in this section.

12 Marks

9. Waste generation has tremendously increased in the last decade with rapid urbanization and industrialization where it has reached a humongous figure of 62 million tonnes (MT)/year in India. Out of the total waste generated only 43 MT is collected, 11.9 MT is treated and rest of the 31 MT is simply dumped. Well it can be better disposed of with segregation and recycling to boost economy as well as benefit the environment. During the recent past, the management of solid waste has received considerable attention from the Central and State Governments and local (municipal) authorities in India. A number of partnerships/alliances are found to exist in the field of solid waste management in Indian cities. These alliances are public-private, community-public and private-private arrangements.

S Ltd, a large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be converted into a marketable product. At present, the waste is removed by a contractor for disposal; on payment by the company of Rs. 50 lacs per annum for the next four years. The contract can be terminated upon installation of the aforesaid machine on payment of a compensation of Rs. 30 lacs before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

The machine required for carrying out the processing will cost Rs. 200 lacs to be financed by a loan repayable in 4 equal instalments commencing from the end of year 1. The interest rate is 16% per annum. At the end of the 4th year, the machine can be sold for Rs. 20 lacs and the cost of dismantling and removal will be 15 lacs.

Sales and direct costs of the product emerging from the waste processing for 4 years are estimated as under:

	(Rs. in lakhs)			
Year	1 (Rs.)	2 (Rs.)	3 (Rs.)	4 (Rs.)
Sales	322	322	418	418
Material consumption	30	40	85	85
Wages	75	75	85	100
Other expenses	40	45	54	70

Factory overheads	55	60	110	145
Depreciation (as per income tax rules)	50	38	28	21

Initial stock of materials required before commencement of the processing operations is Rs. 20 lacs at the start of year 1.The stock levels of materials to be maintained at the end of year 1,2 and 3 will be Rs. 55 lacs and the stocks at the end of year 4 will be nil. The storage of materials will utilize space which would otherwise have been rented out for Rs. 10 lacs per annum. Labour costs include wages of 40 workers whose transfer to this process will reduce idle time payments of Rs.15 lacs in year 1 and Rs. 10 lacs in year 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of Rs. 30 lacs per annum payable on this venture. The company's tax rate is 50%.

Present value factors for four years are as under:

Year	1	2	3	4
PV Factors	0.870	0.756	0.658	0.572

a. What is the incremental profit/ loss emerging from the waste processing for the 4 years? — 4

Type your answer here

Incremental profit after tax:

Year 1 = Rs. 35 lacs

Year 2 = Rs. 35lacs

Year 3 = Rs. 55 lacs

Year 4 = Rs. 47 lacs

ROUGH WORK

Statement of Incremental Profit

	(Rs. in lakhs)			
Years	1 (Rs.)	2 (Rs.)	3 (Rs.)	4 (Rs.)
Sales (A)	322	322	418	418
Costs:				
Material consumption	30	40	85	85
wages	60	65	85	100
Other expenses	40	45	54	70
Factory overheads(insurance	30	30	30	30
Interest	32	24	16	8
Loss of rent	10	10	10	10
Depreciation (as per IT rules)	50	38	28	21
Total cost (B)	252	252	308	324
Incremental profit:				
C= A-B	70	70	110	94
LESS: Tax @ 50%	(35)	(35)	(55)	(47)
Incremental profit after tax	35	35	55	47

b. What will be the net present value on installing the machine for processing the waste material? — 4

Type your answer

NPV= Rs.73.658 lakhs

ROUGH WORK

Statement of Incremental Cash Flow and Calculation of NPV

			(Rs. in lakhs)					
		Years	0 (Rs.)	1 (Rs.)	2 (Rs.)	3 (Rs.)	4 (Rs.)	
		Stock of material	(20)	(35)	-	-	-	
		Compensation for contract	(30)	-	-	-	-	
		Contract payment saved	-	50	50	50	50	
		Tax on contract payment		(25)	(25)	(25)	(25)	
		Incremental profit (after tax)		35	35	55	47	
		Depreciation added back		50	38	28	21	
		Loan repayment		(50)	(50)	(50)	(50)	
		Profit on sale of machinery	-	-	-	-	5	
		Incremental cash flow	(50)	25	48	58	48	
		Present value factor	1.00	0.870	0.756	0.658	0.572	
		Net present value of cash flows	(50)	21.75	36.288	38.164	27.456	
		NPV = Rs. 123.658- Rs. 50 = Rs.73.658 lakhs Working Notes: (1) Material stock increases are taken in cash flow because it will lead to cash outflow. (2) Sale of machinery: Sale Proceeds = 20 lakhs Less: Dismantling = 15 lakhs Profit on sale of machinery = 5 lakhs						
	c.	Advise the management on the desirability of installing the machine for processing the waste.						2
		Type your answer Since the net present value of cash flows is Rs. 73.658 lakhs, which is positive therefore the companies should install the machine for processing the waste material.						
	d.	Enumerate on the concept of Social-Cost Benefit Analysis.						2
		Type your answer Social cost benefit analysis is a part of process of evaluating the proposal regarding undertaking a project. The concept of social cost benefit analysis is that while evaluating the proposal regarding the investment of a project, the entrepreneur should consider not only its financial soundness and technical feasibility but also make cost benefit analysis of the project from the point of society and economy as a whole.						

END