

PAPER-14: Advanced Financial Management

Time Allowed: 3 hours

Full Marks: 100

This paper contains 5 questions. All questions are compulsory, subject to instruction provided against each question. All workings must form part of your answer.

Assumptions, if any, must be clearly indicated.

Question No. 1. (Answer **all** questions. Each question carries **2 marks**)

- (a) Are Secured debentures treated as Public Deposit? If not who regulates them? **[2]**
- (b) Tata Ltd. has a target capital structure of 40% debt and 60% equity for one of its new subsidiaries. The yield to maturity of the company's outstanding bonds is 9% and the tax rate is 40%. The CFO has calculated the company's WACC as 9.96%. Find out the company's equity cost of capital. **[2]**
- (c) What types of risk is involved in Investment in Government Securities? **[2]**
- (d) The spot USD/Yen = 190 yen and one year forward rate of USD/Yen = 210 Yen. The prime rate in US is 15%. What should the Japanese prime rate be? **[2]**
- (e) Write down the objectives of interbank participation certificate? **[2]**
- (f) The spot USD/INR = 43.70 and six-month forward premium is 40 paise (= ₹ 0.40). Calculate the annualized forward premium. **[2]**
- (g) Mr. Pravin requires a monthly payment of ₹ 1000 for 5 years from a mutual fund that has a track record of paying 9% per annum. What should be his investment today to get this amount? **[2]**
- (h) The spot and 6 months forward rates of US\$ in relation to the rupee (₹/\$) are ₹ 48.95/49.13 and ₹ 49.85/49.96 respectively. What will be the annualized forward margin (premium with respect to bid price)? **[2]**
- (i) Airtel Communications is trying to estimate the first-year operating cash flow (at $t = 1$) for a proposed project. The finance staff has collected the following information:
- | | |
|------------------|---|
| Projected Sales | = ₹ 1 crore |
| Operating costs | = ₹ 70 lakhs (not including depreciation) |
| Depreciation | = ₹ 20 lakhs |
| Interest expense | = ₹ 20 lakhs |
- The company faces a 4% tax rate. What is the project's operating cash flow for the year ($t=1$)? **[2]**

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- (j) Mr. Adhiraj is planning to construct a minimum risk portfolio by investing in the shares of Arihant Ltd. and Suzlon Ltd. The risks associated with the returns of Arihant Ltd. and Suzlon Ltd. are 23% and 25% respectively. If the co-efficient of correlation between the returns of shares of both companies is "0", what proportion of funds to be invested in the shares of Arihant Ltd? [2]

Question No. 2. (Answer **any three** questions. Each question carries **8 marks**)

- 2.(a)(i) Two funds are available for investment. Fund X is being launched i.e. 31.12.2013 and available for investment at ₹ 10 per unit. A similar Fund Y (same risk profile like Fund X) is also available for investment at ₹ 19.45 per unit. The information of quarterly NAV for the next three quarters are available as given below. Investor Mr. A prefers Fund X and Investor Mr. B prefers Fund Y for investment through SIP (Systematic Investment Plan) each installment entailing ₹ 2,000 for four quarters including initial investment:

Closing NAV	Fund X (₹)	Fund Y (₹)
31.12.2013	10.00	19.45
31.03.2014	11.1567	21.50
30.06.2014	14.7680	27.15
30.09.2014	12.8554	23.69

Which investor (Mr. A or B) would clock a higher return on investment as on 30.09.2014? (Ignore Time Value of Money). [6]

- 2.(a)(ii) Define Cash Reserve Ratio. [2]

2. (b) On 24th March. A refinery needs 1,050 barrels of crude oil in the month of September. The current price of crude oil is ₹ 3,000 per barrel. September futures contract at Multi Commodity Exchange (MCX) is trading at ₹ 3,200. The firm expects the price to go up further and beyond ₹ 3,200 in September. It has the option of buying the stock now. Alternatively it can hedge through futures contract.

(1) If the cost of capital, insurance, and storage is 15% per annum, examine if it is beneficial for the firm to buy now?

(2) Instead, if the upper limit to buying price is ₹ 3,200 what strategy can the firm adopt?

(3) If the firm decides to hedge through futures, find out the effective price it would pay for crude oil if at the time of lifting the hedge (I) the spot and futures price are ₹ 2,900 and ₹ 2,910 respectively, (II) the spot and futures price are ₹ 3,300 and ₹ 3,315 respectively. [[2+2+4]]

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2.(c)(i) 'Clearing of trades that take place on an exchange happens through the exchange clearing house.' - Justify. [5]

2.(c)(ii) Find out NAV per unit from the following information of Scheme Money Plant [3]

Name of the scheme	Money Plant
Size of the scheme	₹100 Lakhs
Face value of the shares	₹100
Number of the outstanding shares	₹1 Lakhs
Market value of the fund's investments	₹180 Lakhs
Receivables	₹2 Lakhs
Liabilities	₹1 Lakh

2.(d)(i) A petrochemical plant needs to process 10,000 barrels of oil in three months time. To hedge against the rising price the plant needs to go long on the futures contract of crude oil. The spot price of crude oil is ₹ 1,950 per barrel, while futures contract expiring three months from now is selling for ₹ 2,200 per barrel. By going long on the futures the petrochemical plant can lock-in the procurement at ₹ 2,200 per barrel. Assuming the size of one futures contract of 100 barrels, the firm buys 100 futures to cover its exposure of 10,000 barrels.

Find out the price that would be payable under two scenarios of rise in price to ₹ 2,400 or fall in price to ₹ 1,800 per barrel after three months. [4]

2.(d)(ii) 'As the nation's financial regulator, the Reserve Bank handles a range of activities.' - List the activities. [4]

Question No. 3. (Answer **any two** questions. Each question carries **10 marks**)

3.(a)(i) Consider a trader who buys an European call option on British Pound with a strike price of \$ 1.6500 and a premium of 2 cents (\$0.020). The current spot rate is \$ 1.6329. Calculate his gain/loss when the option expires if the spot rates are as follows. 1.6300, 1.6270, 1.6400, 1.6500, 1.6549, 1.6320, 1.6500, 1.6900, 1.7000. [6]

3.(a)(ii) Write a note on the process of Dematerialisation. [4]

3.(b)(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

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turned over to one of the larger international banks, which can reduce the transfer time to an average of two 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? [4]

3.(b)(ii) You as a dealer in foreign exchange have the following position in Swiss Francs on 31.10.2013-

Particulars	SFr.	Particulars	SFr.
Balance in the Nostro A/c Credit	1,00,000	Forward purchase contract	30,000
Opening Position Over bought	50,000	cancelled	
Purchased a bill on Zurich	80,000	Remitted by TT	75,000
Sold forward TT	60,000	Draft on Zurich cancelled	30,000

What steps would Mr. Sen take, if he required maintaining a credit balance of S Fr. 30,000 in the? [6]

3 (c)(i). A company has borrowed \$200 million on floating basis for 3 years. The interest rates are reset every year. The spread over LIBOR is 25 bps. The company buys a 3 year cap on a 1-year LIBOR with a strike rate of 9% and having a face value of \$200 million. The cap carries a premium of 2% of face value or \$4 million. Current 1 year LIBOR is 9%. If the LIBOR at the end of 1,2 and 3 years are 9.5% 8.5% and 10%. What is the cash flow from cap each year? Amortize premium equally over three years. [7]

3 (c)(ii). State the types of credit risk. [3]

Question No. 4. (Answer **any two** questions. Each question carries **8 marks**)

4 (a). A Study by a Mutual Fund has revealed the following data in respect of the three securities:

Security	σ (%)	Correlation with Index, ρ_{sm}
P	20	0.66
Q	18	0.95
R	12	0.75

The Standard Deviation of the Market Portfolio (BSE Sensex) is observed to be 18%.

(1) What is the sensitivity of returns of each stock with respect to the market?

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- (2) What are the Co-variances among the various stocks?
 (3) What would be the risk of portfolio consisting of all the three stocks equally?
 (4) What is the beta of the portfolio consisting of equal investment in each stock?

[1+2+4+1]

4.(b)(i) Securities X and Y have standard deviations of 3% and 9%. Nitin is having a surplus of ₹20 Lakhs for investment in these two securities. How much should he invest in each of these securities to minimize risk, if the correlation co-efficient for X and Y is — (i) -1; (ii) -0.30; (iii) 0; (iv) 0.60

[5]

4.(b)(ii) Discuss the techniques used in company analysis.

[3]

4.(c)(i) Calculate the market sensitivity index and the expected return on the Portfolio from the following data;

Standard deviation of an asset	4.5%
Market standard deviation	4.0%
Risk – free rate of return	15.0%
Expected return on market Portfolio	17.0%
Correlation coefficient of Portfolio with market	0.89

What will be the expected return on the Portfolio? If Portfolio beta is 0.5 and the risk free return is 10%.

[2+1]

4.(c)(ii) 'Systematic Risk arises out of external and uncontrollable factors, which are not specific to a security or industry to which such security belongs.'- Justify.

[5]

Question No. 5. (Answer **any two** questions. Each question carries **10 marks**)

5. (a) A company is considering two mutually exclusive projects X and Y. Project X costs ₹3,00,000 and Project Y ₹3,60,000. You have been given below the net present value, probability distribution for each project:

Project X		Project Y	
NPV Estimate	Probability	NPV Estimate	Probability
₹		₹	
30,000	0.1	30,000	0.2
60,000	0.4	60,000	0.3
1,20,000	0.4	1,20,000	0.3

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1,50,000	0.1	1,50,000	0.2
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- (1) Compute the expected net present value of Projects X and Y.
- (2) Compute the risk attached to each project i.e., Standard Deviation of each probability distribution.
- (3) Which project do you consider more risky and why?
- (4) Compute the profitability index of each project. **[4+2+2+2]**

5.(b)(i) Determine the risk adjusted net present value of the following projects: **[5]**

	A	B	C
Net cash outlays (₹)	1,00,000	1,20,000	2,10,000
Project life	5 years	5 years	5 years
Annual cash inflow (₹)	30,000	42,000	70,000
Coefficient of variation	0.4	0.8	1.2

The company selects the risk-adjusted rate of discount on the basis of the co-efficient of variation:

Coefficient of variation	Risk adjusted rate of discount	Present value factor 1 to 5 years at risk adjusted rate of discount
0.0	10%	3.791
0.4	12%	3.605
0.8	14%	3.433
1.2	16%	3.274
1.6	18%	3.127
2.0	22%	2.864
More than 2.0	25%	2.689

5.(b)(ii) List the advantages of Project Report. **[5]**

5. (c) Mr. Samik, a business man has two independent investments A and B available to him: but he lacks the capital to undertake both of them simultaneously. He can choose to take A first and then stop, or if A is successful then take B, or vice versa. The probability of success on A is 0.7, while for B it is 0.4. Both investment require an initial capital outlay of ₹ 2,000, and both return nothing if the venture is unsuccessful. Successful completion of A will return ₹ 3,000 (over cost), and successful completion of B will return ₹ 5,000 (over cost). Draw the decision tree and determine the best strategy. **[4+6]**