

## Paper-14: ADVANCED FINANCIAL MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

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

Answer Question No. 1 which is compulsory.

From Section A: Answer any two questions.

From Section B: Answer any one question.

From Section C: Answer any one question.

From Section D: Answer any one question.

Working Notes should form part of the answer.

“Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates.”

1. (a) Write down the features of a well developed money market? [2]
- (b) What are the requirements for registration of Non-Banking Financial Company (NBFC's) with RBI? [2]

(c) Considering the following quotes.

Spot (Euro/Pound)	= 1.6543/1.6557
Spot (Pound/NZ\$)	= 0.2786/0.2800

- (i) Calculate the % spread on the Euro/Pound Rate [5]
- (ii) Calculate the % spread on the Pound/NZ\$ Rate
- (iii) The maximum possible % spread on the cross rate between the Euro and the NZ\$.
- (d) The stock of APTECH Ltd (FV ₹10) Quotes ₹ 920 today on NSE and the 3 month futures price quotes at ₹ 950. The one month borrowing rate is given as 8% and the expected annual dividend yield is 15% p. a. payable before expiry  
You are required to calculate the price of 3 month APTECH FUTURES. [2]
- (e) The following quotes were observed by Mr Karuna on March 10, 2012 in the Economic Times:
- SBI March 2012 Fut 1441
  - Nifty April 2012 Fut 4280.
- Required:
- (i) Explain what these quotes indicate?
- (ii) If the initial Margin is 10% and Mr. Karuna wants to buy 100 of each how much margin he has to deposit individually? [2]

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- (f) Vatsan Ltd. is considering a project with the following expected cashflows: Initial investment ₹1 00,000

Year	1	2	3
Expected Cash Inflow (₹)	70,000	60,000	45,000

Due to uncertainty of future cash flows, the management decides to reduce the cash inflows to Certainty Equivalent (CE) by taking only 80% for 1<sup>st</sup> year, 70% for 2<sup>nd</sup> year and 60% for 3<sup>rd</sup> year respectively.

Required:

Is it worthwhile to take up the project?

[5]

- (g) You can earn a return of 13 percent by investing in equity shares on your own. You are considering a recently announced equity mutual fund scheme where the initial issue expense is 7 percent. You believe that the mutual fund scheme will earn 16.5 percent. At what recurring expenses (in percentage terms) will you be indifferent between investing on your own and investing through the mutual fund.

[2]

### SECTION A

(Answer any two of the following.)

#### Question 2.

- (a) Define Non-Banking Financial Company (NBFC). Point out the main problems in the working of State Cooperative Banks?
- (b) The following are the data on five mutual funds-

Fund	Return	Standard Deviation	Beta
Laheri	15	7	1.25
Mitra	18	10	0.75
Vredhi	14	5	1.40
Varsha	12	6	0.98
Raksha	16	9	1.50

What is the reward – to – variability ratio and the ranking, if the risk-free rate is 6%?

[ (3+5)+(2+2) ]

#### Question 3.

What are the factors affecting fluctuation of call rate? Point out the measures adopted from time to time for stabilizing call rates?

[7+5]

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### Question 4.

Ascertain the Time Weighted Rate of Return and annual Compounded Rupee Weighted Rate of return from the following information given relating to Subham Fund.

- Fund value at the beginning is ₹ 6 Crores.
- 3 months hence, the value had increased by 15% of the opening value.
- 3 months hence, the value had increase by 12% of the value three months before. At that time there was an outflow of ₹ 1 Crore by way of dividends.
- 3 months hence, the value had decreased by 10% of the value three months before.
- During the last three months of the year, value of the fund had increased by ₹ 1 Crores.

[6+6]

### SECTION B

(Answer any one of the following.)

### Question 5.

(a) What is Arm's Length Principle? Why Arm's Length Pricing determine? What are the difficulties in applying the arm's length principle?

(b) Mr. Khan established the following spread on the Alpha Corporation's stock:

- Purchased one 3-month call option with a premium of ₹20 and an exercise price of ₹550.
- Purchased one 3-month put option with a premium of ₹10 and an exercise price of ₹450. Alpha Corporation's stock is currently selling at ₹500. Determine profit or loss, if the price of Alpha Corporation's:
  - (i) remains at ₹500 after 3 months.
  - (ii) falls at ₹350 after 3 months.
  - (iii) rises to ₹600.

Assume the size option is 100 shares of Alpha Corporation.

(c) MNC rolls over a \$25 million loan priced at LIBOR on a three-month basis. The company feels that interest rates are rising and that rates will be higher at the next roll- over date in three months. Suppose the current LIBOR is 5.4375%. Explain how MNC can use FRA at 6% offered by a bank to reduce its interest rate its FRA? Assume the three month period as 90 days.

[(3+4+4)+(2+2+2)+3]

### Question 6.

(a) Alert Ltd. is planning to import a multi-purpose machine from Japan at a cost of 3,400 lakhs yen. The company can avail loans at 18% interest per annum with quarterly rests with which it can import the machine. However, there is an offer from Tokyo branch of an India based bank extending credit of 180 days at 2% per annum against opening of an irrevocable letter of credit.

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Other Information:

Present exchange rate ₹ 100 = 340 Yen.

180 days' forward rate ₹ 100 = 345 Yen.

Commission charges for letter of credit at 2% per 12 months.

Advise whether the offer from the foreign branch should be accepted?

- (b) XYZ Ltd is considering a project in US, which will involve an initial investment of US \$1,10,00,000. The project will have 5 years of life. Current spot exchange rate is ₹ 48 per US \$. The risk free rate in US is 8% and the same in India is 12%. Cash inflows from the project are as follows —

Years	1	2	3	4	5
Cash Inflow (US \$)	20,00,000	25,00,000	30,00,000	40,00,000	50,00,000

Calculate the NPV of the project using foreign currency approach. Required rate of return on this project is-14%.

- (c) Following information relates to AKC Ltd. which manufactures some parts of an electronics device which are exported to USA, Japan and Europe on 90 days credit terms.

Cost and Sales information:

	Japan	USA	Europe
Variable cost per unit	₹225	₹395	₹510
Export sale price per unit	Yen 650	US\$10.23	Euro 11.99
Receipts from sale due in 90 days	Yen 78,00,000	US\$1,02,300	Euro 95,920
Foreign exchange rate information:			
	Yen/₹	US\$/₹	Euro/₹
Spot market	2.417-2.437	0.0214-0.0217	0.0177-0.0180
3 months forward	2.397-2.427	0.0213-0.0216	0.0176-0.0178
3 months spot	2.423-2.459	0.02144-0.02156	0.0177-0.0179

Advice AKC Ltd. by calculating average contribution to sales ratio whether it should hedge it's foreign currency risk or not.

**[8+5+7]**

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## SECTION C (Answer any one of the following.)

### Question 7.

(a) The returns on Stock B and Market Portfolio for a period of 6 Years are as follows —

Year	Return on B (%)	Return on Market Portfolio
1	12	8
2	15	12
3	11	11
4	2	-4
5	19	11
6	-10	-2

You are required to determine —

- Characteristic line for Stock B
- The systematic and unsystematic risk of Stock B.

(b) ABC Ltd., is a consumer goods company which earns expected return of 14% on its existing operations subject to standard deviation of 20%. The company is owned by a family and the family has no other investment. New project is under consideration and the new project is expected to give a return of 18% subject to standard deviation of 32%. The new project has a correlation of 0.25 with ABC's existing operations.

The new project is likely to account for 25% of ABC's operations.

ABC is identified a utility function to apprise risky project.

The function is as under:-

Shareholder's utility =  $100R - \sigma^2$ ; Where, R = Expected return (in %);  $\sigma^2$  = Standard deviation of return (in %)

The project can be accepted only if total utility goes up. Evaluate the project.

**[(7+3)+6]**

### Question 8.

(a) The historical rates of return of two securities over the past ten years are given.

Calculate the Covariance and the Correlation coefficient of the two securities;

Years	1	2	3	4	5	6	7	8	9	10
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Security A : (Return %)	12	8	7	14	16	15	18	20	16	22
Security B: (Return %)	20	22	24	18	15	20	24			

(b) Write down the objectives of portfolio management?

(c) A Ltd., and B Ltd., has the following risk and return estimates

$R_A$	$R_B$	$\sigma_A$	$\sigma_B$	(Correlation coefficient) = $r_{AB}$
20%	22%	18%	15%	-1.50

Calculate the proportion of investment in A Ltd., and B Ltd., to minimize the risk of Portfolio. **[7+4+5]**

### SECTION D

(Answer any one of the following.)

#### Question 9.

(a) Excel Ltd. manufactures a special chemical for sale at ₹ 40 per kg. The variable cost of manufacture is ₹ 25 per kg. Fixed cost excluding depreciation is ₹ 2,50,000. Excel Ltd. is currently operating at 50% capacity. It can produce a maximum of 1,00,000 kgs at full capacity.

The Production Manager suggests that if the existing machines are fully replaced the company can achieve maximum capacity in the next five years gradually increasing the production by 10% per year. The Finance Manager estimates that for each 10% increase in capacity, the additional increase in fixed cost will be ₹ 50,000. The existing machines with a current book value of ₹ 10,00,000 can be disposed of for ₹ 5,00,000. The Vice-President (finance) is willing to replace the existing machines provided the NPV on replacement is about ₹ 4,53,000 at 15% cost of capital after tax.

(i) You are required to compute the total value of machines necessary for replacement.

For your exercise you may assume the following:

- I. The company follows the block assets concept and all the assets are in the same block. Depreciation will be on straight-line basis and the same basis is allowed for tax purposes.
- II. There will be no salvage value for the machines newly purchased. The entire cost of the assets will be depreciated over five year period.
- III. Tax rate is at 40%.

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- IV. Cash inflows will arise at the end of the year.  
V. Replacement outflow will be at the beginning of the year (year 0).  
VI. Discounting Factor.

Year	0	1	2	3	4	5
Discount Factor at 15%	1	0.87	0.76	0.66	0.57	0.49

(ii) On the basis of data given above, the managing director feels that the replacement, if carried out, would at least yield post tax return of 15% in the three years provided the capacity build up is 60%, 80% and 100% respectively. Do you agree?

(b) Elite Builders has been approached by a foreign embassy to build for it a block of six flats to be used as guest houses. As per the terms of the contract, the foreign embassy would provide Elite Builders the plans and the land costing ₹25 lakhs. Elite Builders would build the flats at their own cost and lease them to the foreign embassy for 15 years. At the end of which the flats will be transferred to the foreign embassy for a nominal value of ₹ 8 lakh. Elite Builders estimates the cost of constructions as follows:

Area per flat, 1,000 sq. feet ; Construction cost, ₹400 per sq. feet ; Registration and other costs, 2.5 per cent of cost of construction; Elite Builders will also incur ₹4 lakhs each in years 14 and 15 towards repairs.

Elite Builders proposes to charge the lease rentals as follows:

Years	Rentals
1 - 5	Normal
6 - 10	120 per cent of normal
11 - 15	150 per cent of normal

Elite builders present tax rate averages at 35 per cent which is likely to be the same in future. The full cost of construction and registration will be written off over 15 years at a uniform rate and will be allowed for tax purposes.

You are required to calculate the normal lease rental per annum per flat. For your exercise you may assume: (a) Minimum desired return of 10 per cent, (b) Rentals and repairs will arise on the last day of the year, and, (c) Construction, registration and other costs will be incurred at time= 0.

**[(6+6)+8]**

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### Question 10.

- (a) A firm has an investment proposal, requiring an outlay of ₹ 80,000. The investment proposal is expected to have two years economic life with no salvage value. In year 1, there is a 0.4 probability that cash inflow after tax will be ₹ 50,000 and 0.6 probability that cash inflow after tax will be ₹ 60,000. The probability assigned to cash inflow after tax for the year 2 are as follows:

The cash inflow year 1	₹ 50,000	₹ 60,000
The cash inflow year 2	Probability	Probability
	₹ 24,000    0.2	₹ 40,000    0.4
	₹ 32,000    0.3	₹ 50,000    0.5
	₹ 44,000    0.5	₹ 60,000    0.1

The firm uses a 8% discount rate for this type of investment.

Required:

- (i) Construct a decision tree for the proposed investment project and calculate the expected net present value (NPV).
- (ii) What net present value will the project yield, if worst outcome is realized? What is the probability of occurrence of this NPV?
- (iii) What will be the best outcome and the probability of that occurrence?
- (iv) Will the project be accepted?

(Note: 8% discount factor 1 year 0.9259; 2 year 0.8573)

- (b) Cyber Company is considering two mutually exclusive projects. Investment outlay of both the projects is ₹ 5,00,000 and each is expected to have a life of 5 years. Under three possible situations their annual cash flows and probabilities are as under:

Situation	Probabilities	Cash Flow	
		Project A	Project B
Good	0.3	6,00,000	5,00,000
Normal	0.4	4,00,000	4,00,000
Worse	0.3	2,00,000	3,00,000

The cost of capital is 9 per cent, which project should be accepted? Explain with workings.

**[(5+4+4+2)+5]**