# Paper 14- Advanced Financial Management

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

## Sec-A

**Answer Question No. 1 which is compulsory Carries 20 Marks.**

**1. (A) Each Question carries 2 Marks** **[7×2=14]**

(i) What is the difference between Swap Point and Spread with respect to International currency market?

(ii) X purchased 182 days, Indian T-Bills of face value 35 lacs at an issue price of P. If the effective yield is 10% for the T-Bill, determine P.

(iii) If the risk free rate of interest (Rf) is 12% and expected return as Market portfolio (Rm) is 18%, ascertain expected return of the portfolio, if portfolio betas are 0.10.

(iv) Nile Ltd. issues 12% debentures of face value ₹100 each and realized ₹90 per debenture. The debentures are redeemable after 12 years at a premium of 10%. The Company is paying tax of 35%. What will be the Cost of Debt?

(v) The spot price of securities of X Ltd. is ₹160. With no dividend and no carrying cost, compute the theoretical forward price of the securities for 1 month. You may assume a risk free interest rate of 9% p.a.

(vi) It is given that Re/ £ quote is ₹94.30 – ₹95.20 and that ₹/ $ quote is ₹66.25 – ₹66.45. What would be the $/£ quote?

(vii) Following information is available regarding a mutual fund: Return 13 %, Risk (σ) 16, Beta (β) 0.90 Risk free rate 10. Compute the Sharpe Ratio.

**1. (B) State whether each of the following is True (T) or False (F). Each question carries 1 mark:** **[6]**

(i) A straddle is a strategy that is accomplished by holding an equal number of puts and calls with the same strike price and expiration dates.
(ii) Treasury Bills are not eligible for Repo transactions
(iii) Arbitrageurs are interested in making purchases and sales in different markets at different times to profit from the price discrepancy between the markets.
(iv) Forward market commission is formed to resolve the issues in futures market of shares and debentures
(v) Mutual funds and Hedge funds are one and the same.
(vi) Credit rating is a must for issue of commercial paper

## Sec-B

**Answer any 5 Questions from the following. Each Question carries 16 Marks.**

**2. (a)** A company is considering a proposal of installing drying equipment. The equipment would involve a cash outlay of ₹6,00,000 and net working capital of ₹80,000. The expected life of the project is 5 years without any salvage value. Assume that the company is allowed to charge depreciation on straight line basis for income tax purpose. The estimated before-tax cash inflows (₹' 000) are given below:

| Year-end | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Before-tax cash inflows | 240 | 275 | 210 | 180 | 160 |

The applicable income-tax rate of the company is 35%. If the company's cost of capital is 12%, calculate the equipment's discounted payback period, and net present value. **[8]**

**2. (b)** A firm has an investment proposal requiring an outlay of ₹1,92,000. The Investment proposal is expected to have two years economic life with no salvage value. In year- end 1, there is a 0.4 probability that cash inflow after tax will be ₹1,20,000 and 0.6 probability that cash inflow after tax will be ₹1,44,000. The probability assigned to cash in flows after tax for the 2nd

| Year | Cash flow | Probability | Year | Cash flow | Probability |
|---|---|---|---|---|---|
| Year 1 | 1,20,000 | 0.4 | Year 1 | 1,44,000 | 0.6 |
| Year 2 | 57,600 | 0.2 | Year 2 | 96,000 | 0.4 |
| Year 2 | 76,800 | 0.3 | Year 2 | 1,20,000 | 0.5 |
| Year 2 | 1,05,600 | 0.5 | Year 2 | 1,44,000 | 0.1 |

year-end are as follows:

(i) Construct a decision tree for the proposed Investment project and calculate the expected Net Present Value.
(ii) What is the most likely NPV of the project and what is the corresponding probability?
(i) What is the probability of the project having a negative NPV? **[8]**

**3. (a)** The following particulars are furnished about three Mutual Fund schemes P, Q and R:

| Particulars | Scheme P | Scheme Q | Scheme R |
|---|---|---|---|
| Dividend Paid | ₹1.75 | - | ₹1.3 |
| Capital Appreciation | ₹2.97 | ₹ 3.53 | ₹1.99 |
| Opening NAv in Rs | ₹ 32 | ₹ 27.15 | ₹ 23.5 |
| Beta | 1.46 | 1.1 | 1.4 |

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%. **[8]**

**3. (b)** A Fund made an issue of 20 Lakh units of 10 each on January 01, 2015. No entry load was charged. It made the following investments:

| Particulars | ₹ |
|---|---|
| 1,00,000Equity Shares of ₹100 each @ ₹160 | 160 Lakhs |
| 7% GOI Securities | 16 Lakhs |
| 9% Debentures (unlisted) | 10 Lakhs |
| 10 % Debentures (Listed) | 10 Lakhs |

During the year operating expenses were ₹10 Lakhs and in addition to interest &dividend of ₹24 Lakhs was received. You are required to calculate net cash balance and NAV per unit at the end of the year. **[8]**

**4. (a)** 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:

| | WR | WS | WT |
|---|---|---|---|
| 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. **[8]**

**4. (b)** 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 Return | 14% | 15% | 18% |
| Market Return | 9% | 12% | 15% |

**[8]**

**5. (a)** The following two-way quotes appear in the foreign exchange market –

| | Spot Rate | 1 month forward |
|---|---|---|
| INR /US$ | ₹ 56/₹56.25 | ₹57 / ₹57.50 |

Required:
1. (1) How many US Dollars should a firm sell to get ₹30 Lakhs after two months?
2. (2) How many Rupees is the firm required to pay to obtain US $ 2,40,000 in the Spot market?
3. (3) Assume the firm has US $ 69,000 Current Account's earning interest. ROI on Rupee investment is 10% p.a. should the firm encash the US $ now 2 months later?

**[8]**

**5. (b)** A Petrochemical Plant needs to process 20,000 barrels of oil in three months' time. To hedge against the rising price the plants needs to go long on the futures contract of crude oil. The spot price of crude oil is ₹ 2,925 per barrel, while futures contract expiring three months from now is selling for ₹3,300 per barrel. By going long on the futures the petrochemical plant can lock in the procurement at ₹3,300 per barrel. Assuming the size of one futures contract of 100 barrels, the firm buys 200 futures to cover its exposure of 20,000 barrels.

Find out the price that would be payable under two scenarios of rise in price to ₹ 3,600 or fall in price to ₹2,700 per barrel after three months. **[8]**

**6. (a)** A portfolio Manager owns three stocks.

| Stock | Shares owned | Stock price | Beta |
|---|---|---|---|
| 1 | 40,000 | ₹300 | 1.1 |
| 2 | 80,000 | ₹ 200 | 1.2 |
| 3 | 1,20,000 | ₹80 | 1.3 |

The spot Nifty Index is at 1,400 and futures price is 1,420; the index factor is 100. Use stock index futures to:
(a) Decrease beta to 0.8
(b) Increase the portfolio beta to 1.5
(c) Find out the number of contracts of stock index futures to be bought or sold. **[8]**

**6. (b)** The data pertaining to 5 Mutual funds is given below.

| Fund | Return | Standard deviation (σ) | Beta (β) |
|---|---|---|---|
| J | 13 | 6 | 1.50 |
| K | 9 | 2 | 0.90 |

| | | | |
|---|---|---|---|
| L | 11 | 3 | 1.20 |
| M | 15 | 5 | 0.80 |
| N | 12 | 4 | 1.10 |

Compute the reward- to- variability/volatility ratios and rank the funds, if the risk-free rate is 6% **[8]**

**7. (a)** A share is currently priced at ₹ 600. It is known that at the end of one month, it will be either ₹570 or ₹ 630. The risk-free interest rate is 8% per annum with continuous compounding. Find the value of a 1-month European call option with a strike price of ₹ 592, with the help of a Binomial Model. **[8]**

**7. (b)** Classify the following participants of the commodity market under the appropriate category—Hedgers, Speculators and Arbitrageurs

(i) Warehousing Companies (ii) Brokerage Houses

(iii) Food Processing Companies (iv) Farmers **[8]**

**8. Write a short note on any four of the following:** **[4×4=16]**

**(a)** Liquidity Adjustment Facility
**(b)** NBFCs
**(c)** Forward Market Commission
**(d)** Money Market Mutual Funds
**(e)** ADR and GDRs