FINAL EXAMINATION

June 2015

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) 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.

   (b) You can earn a return of 15% by investing in equity shares on your own. You are considering a recently announced equity mutual fund scheme where the initial issue expense is 5%. You believe that the mututal fund scheme will earn 18%. At what recurring expenses (in percentage terms) will you be indifferent between investing on your own and investing through the mutual fund?

   (c) M Ltd. and N Ltd. have the following risk and return estimates:

R_M	R_N	σ_M	σ_N	(Correlation coefficient) = r_{MN}
22%	25%	18%	15%	0·5

   Calculate the proportion of investment in M Ltd. and N Ltd. to minimize the risk of the Portfolio.

   (d) Ram sold in July Nifty futures contract for ₹ 5,00,000 on July 15. For this he had paid an initial margin of ₹ 50,000 to his broker. Each Nifty futures contract is for the delivery of 250 Nifties. On July 25, the index was closed at 1900. How much profit/loss has Ram made?

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(e) The Power Tech Ltd. has to select either project A or project B. Both the projects are mutually exclusive. The expected profits are as follows:

	Profit if there is strong Demand	Profit/(Loss) if there is weak Demand
Option A (₹)	10,000	(2,500)
Option B (₹)	6,000	2,000
Probability of Demand	0·3	0·7

Which project should be selected?

(f) If the risk free rate of interest (R_f) is 12% and expected return as Market portfolio (R_m) is 18%, ascertain expected return of the portfolio, if portfolio betas are 0·10.

(g) The following data in respect of three securities are available:

Security	σ(%)	Correlation with index
J	20	0·64
K	18	0·93
L	12	0·73

The standard deviation of market portfolio (BSE Sensex) is observed to be 18%.

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

(h) The following particulars aere furnished about Mutual Fund Scheme P:

Dividend Distributed	₹ 1·75
Capital Appreciation	₹ 2·97
Opening NAV	₹ 32·00
Beta	1·46

Ascertain Jensen's Alpha. (Given Government of India Bonds carry an interest of 6·84% and NIFTY has increased by 12·13%).

(i) A company is considering projects X and Y with the following information:

Project	Expected NPV	Standard Deviation
	(₹)	
X	1,06,000	75,000
Y	2,40,000	1,35,000

Which project will you recommend based on co-efficient of variation as a measure of risk?

(j) 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?

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

(a) The following particulars relates to Gilt Fund Scheme:

1.	Investment in Shares (at cost)	
	IT and ITES Companies	₹ 20 Crores
	Infrastructure Companies	₹ 22 Crores
	FMCG	₹ 15 Crores
	Automotive	₹ 20 Crores
	Banking/Financial Services	₹ 8 Crores
2.	Cash and other Assets in Hand (even throughout the fund period)	₹ 4 Crores
3.	Investment in Fixed Income Bearing Bonds	
	Listed Bonds [10,000 10% Bonds of ₹ 10,000 each]	₹ 10 Crores
	Unlisted Bonds	₹ 10 Crores
4.	Expenses payable as on closure date	₹ 2 Crores
5.	Market Expectation on Listed Bonds	9%
6.	No. of Units Outstanding	4 Crores

The particulars relating to sectoral index are as follows:

Sector	Index on the date of purchase	Index on the valuation date
IT and ITES	1800	2800
Infrastructure	1400	2500
FMCG	1600	2500
Automotive	2000	3000
Banking/Financial Services	1500	2200

The Fund has incurred the following expenses:

Management Advisory Fees	₹ 260 Lakh
Administration Expenses	₹ 300 Lakh
Publicity and Documentation	₹ 100 Lakh
Total	₹ 660 Lakh

The period under consideration is 2 years. The Fund has distributed ₹ 1.5 per unit as annual cash dividend. Compute the annualised net return (%) and the expense ratio of the Fund.   8

(b) (I) PS Fund invests exclusively in Public sector undertakings, yielded ₹ 4.85 per unit for the year. The opening NAV was ₹ 26.85. The Fund has a risk factor of 3.50%. Ascertain the Sharpe Ratio and compare the fund performance with market performance if

 (i) Risk Free Return is 6%, if return on sensex is 16% with a standard deviation of 3.75%.

 (ii) Risk Free Return is 5%, return on sensex is 18% with a standard deviation of 4%.   4

(II) Classify the following items under the appropriate category—Whether Money Market (MM) or Capital Market (CM):

(i) RBI and Government are participants

(ii) Regulated by SEBI

(ii) Tenor of instruments is usually less than a year

(iv) Treasury Bills

(v) Commercial Papers

(vi) Zero Coupon Bonds

(vii) Equity Shares

(viii) Debentures   4

(c) (I) 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.   4

(II) What are the differences between Merchant Banks and Commercial Banks?   4

(d) (I) A Fund made an issue of 20 Lakh units of ₹ 10 each on January 01, 2014. No entry load was charged. It made the following investments:

	₹
1,00,000 equity shares of ₹ 100 each @ ₹ 160	160 Lakhs
7% Government 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.   4

(II) How would you manage risk in infrastructure projects?   4

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

   (a)   (I) Given the following information:

            BSE Index   25,000

            Value of Portfolio   ₹ 50,50,000

            Risk Free Interest rate   9% p.a.

            Dividend Yield on Index   6% p.a.

            Beta of Portfolio   2.00

         Assume that a futures contract on the BSE Index @ 50 units per contract with 4 months maturity is
         used to hedge the value of the portfolio over the next 3 months. Based on the information calculate
         the price of a future contract and the gain per contract on short futures position if Index turms out to
         be 22,500 in 3 months.   6

         (II) Explain the advantages of the Book Building Process.   ·   4

   (b)   (I) The following two-way quotes appear in the foreign exchange market—

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

         Required:

         (1) How many US Dollers should a firm sell to get ₹ 30 Lakhs after two months?

         (2) How many Rupees is the firm required to pay to obtain US $ 2,40,000 in the Spot market?

         (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?   6

         (II) Explain any two limitations of Credit Rating.   4

(c) Union Bankers Ltd. offer the following interest rates to two of its customers for a loan of ₹ 150 Crores, repayable in 7 years.

Company	DHARAM Co.	SMOOTH-TECH Ltd.
Nature of activity	Supply and installations of security systems for homes, offices and corporate surveillance	Providing IT support to various airlines, shipping companies and Government Companies.
Years in Industry	25	1.5
Market position	Market Leader	Market Extrants in fant)
Rating by UBL	A + +	B +
Floating Interest Rate	MIBOR—0.50%	MIBOR + 1%
Fixed Interest Rate	10%	12.50%
Share in the Net gain on account of Interest Rate Swap	60%	40%

Assuming Principal amount is repaid at the end of the seven years, what is the effective gain in % as well as in value for both the companies, if they enter into a Swap Arrangement for reducing interest effect.

Also ascertain the net interest cost (in %) for both the companies. 10

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

(a) The returns on Stock A and Market Portfolio for a period of 6 years are as follows:

Year	Return on A (%) (R_A)	Return on Market Portfolio (%) (R_M)
1	10	8
2	17	10
3	13	13
4	2	− 4
5	10	11
6	− 10	− 2

You are required to determine:

(i) Characteristic line for Stock A

(ii) The systematic and unsystematic risks of Stock A. 5+3=8

3.

   (b)   (I) ABC is at present engaged in production of sport shoes and has a debt equity ratio of 0.70. Its present cost of debt founds is 16% and it has a marginal tax rate of 50%. The company is proposing to diversify to a new field of adhesives which is considerably different from the present line of operations. ABC Ltd. is not well conversant with the new field. The company is not aware of risk involved in area of adhesives but there exists another company STP, which is a representative company in adhesives. STP is also a public limited company whose shares are traded in the market. STP has a debt to equity ratio of 0.25, equly beta of 1.15 and an effective tax rate of 40%. Assume that debt is risk free.

   (i) Calculate what systematic risk is involved for ABC Ltd., if the company enters into the business of adhesives. You may assume CAPM holds and ABC employs the same amount of leverage.

   (ii) In case risk free rate at present is 12% and expected return on market portfolio is 15% what return should ABC Ltd. require for the new business if it uses a CAPM approach.   2+3=5

   (II) Explain any three macro economic factors considered in Economic analysis.   3

   (c)   (I) Portfolio Value is ₹ 2,00,000 and Beta is 1.50. Compute the value of risk free investment to be bought or sold in following cases:

   (i) Desired Beta is 1.8.

   (ii) Desired Beta is 1.10.   2+2=4

   (II) Build-Con Ltd. is a real-estate company. Market value of their debt is ₹ 400 Lakh. The company has 8,00,000 equity shares of ₹ 10 each, market price of which is presently ₹ 40/-. Equity beta is 1.10. Market risk premium is 5%. RBI Bonds are quoted at 7%. Find the following: 4

   (A) Required return on equity share

   (B) Beta of Assets

   (C) Cost of Capital

   (D) Appropriate discount rate that the company should use for an expansion proposal.

   (E) The company is diversifying into Steel manufacturing. Average ungeared company in that industry carries a beta of 1.20. What should be expected return on this new venture?

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

(a) A Ltd. company has undertaken market research at a cost of ₹ 4 Lakhs in order to forecast the future Cash Flows of an Investment Project with an expected life of four years as follows:

Year	1	2	3	4
Sales revenue	₹ 25,00,000	₹ 51,40,000	₹ 1,37,80,000	₹ 9,06,000
Costs	₹ 10,00,000	₹ 20,00,000	₹ 50,00,000	₹ 35,00,000

These forecast Cash Flows are before considering inflation of 4.7% p.a. The Capital Cost of the project, payable at the start of first year will be ₹ 40 Lakhs. The Investment Project will have zero scrap value at the end of the fourth year. The level of working capital investment at the start of each year is expected to be 10% of the sales revenue in that year.

Capital allowances would be available on the Capital Cost of the Investment Project on a 25% reducing balances basis. A Ltd. pays tax on Profit at an annual rate of 30% per year with tax being paid one year in arrears.

A Ltd. has a nominal (money terms) after tax Cost of Capital of 12% per year.

Discount Factor at 12% is as under:

Year	1	2	3	4	5
Discount Factor	0.893	0.797	0.712	0.636	0.567

Calculate the net Present Value of the Investment Project in nominal terms and comment on its financial acceptability.   10

(b) (I) DJ Company has a Capital Structure of 20% debt and 80% equity. The company is considering various investment proposals costing less than ₹ 60 Lakhs. The company does not want to disturb its Present Capital Structure. The cost of raising the debt and equity are as follows:

Project Cost	Cost of debt	Cost of equity
upto ₹ 10 Lakhs	9%	13%
Above ₹ 10 lakhs and upto ₹ 40 Lakhs	10%	14%
Above ₹ 40 lakhs and upto ₹ 80 Lakhs	11%	15%
Above ₹ 80 lakhs and upto ₹ 2 Crores	12%	15.55%

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3. Assume that the tax rate is 50%. Compute the cost of two Projects A and B, whose fund requirements are ₹ 16 Lakhs and ₹ 44 Lakhs respectively. If the project are expected to yield after tax return of 11%, determine under what conditions it would be acceptable.   6

(II) X enters into an arrangement with Y and receives advance against its receivables from P, Q, R and S. Y retains a margin of m % of an each of the receivables P & Q and n% on receivables R and S. X instructs P, Q, R and S to make the payment to Y on the due dates.

Under the arrangement, if debts from P or Q turn bad, X bears the loss, whereas it receivable R or S turn bad debts, Y bears the loss.

Assume X and Y are Indian entities.

(A) What is the arrangements between X and Y called with respect to:

(i) receivables, from P and Q?

(ii) receivables, from R and S?

(B) What is the mathematical relationship between m and n?

(C) What aspects does the margin m % cover for Y?   1+1+1+1=4

(c) (I) A firm has an investment proposal, requiring an outlay of ₹ 8 Lakhs. 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 ₹ 5 Lakhs and 0.6 probability that Cash Inflow after tax will be ₹ 6 Lakhs. The probability assigned to Cash Inflow after tax for the year 2 are as follows:

Cash Inflow for year I (₹)	5 Lakhs		6 Lakhs	
Cash Inflow for year II (₹)	₹	Probability	₹	Probability
	2.40 Lakh	0.2	4 Lakhs	0.4
	3.20 Lakh	0.3	5 Lakhs	0.5
	4.40 Lakh	0.5	6 Lakhs	0.1

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

(i) Construct a decision tree for the proposed Investment Project.

(ii) Calculate the expected Net Present Value (NPV).

(ii) What Net Present Value will the project yield, if the worst outcome is realized?

(8% discount factor 1 year 0.9259; 2 year 0.8573). 2+3+2=7

(II) A purchases an equipment with life 5 years and permits its use by B for 5 years under a non-cancellable contract; which provides for a fixed year end equal payments.

(i) What is the financing arrangement called?

(ii) What are the income tax benefits for A and B?

(A and B are Indian entities.) 1+2=3

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