PAPER-14: ADVANCED FINANCIAL MANAGEMENT

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL C	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identity	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
		Construct	Build up or compile
		Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence
	SYNTHESIS How you are expected to utilize the information gathered to reach an optimum conclusion by a process of reasoning	Discuss	Examine in detail by argument
		Interpret	Translate into intelligible or familiar terms
		Decide	To solve or conclude
	EVALUATION How you are expected to use your learning to evaluate, make decisions or recommendations	Advise	Counsel, inform or notify
		Evaluate	Appraise or asses the value of
		Recommend	Propose a course of action

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) 15% debentures of ₹1,000 (face value) to be redeemed after 10 years. Net proceeds are after 5% floatation costs and 5% discount. The tax rate is 50%. Calculate the cost of debt.   **[2]**

(b) Ms. Vasuda is considering an investment in a Mutual Fund with a 2% load. As another alternative, she can also invest in a Bank deposit paying 10% interest. Her investment planning period is 3 years. What should be the annual rate of return on Mutual fund so that she prefers the investment in the fund to the investment in Bank Deposit?   **[2]**

(c) The characteristics of two securities A and B are as follows:

Particulars	Security A	Security B
Expected Return (%)	12	13
Standard deviation of return (%)	21	29
Beta (β)	1.10	1.20

The correlation co-efficient between the return on Securities A and B is 0.94. If variance of returns on the market index is 400%, calculate the systematic risk of a portfolio consisting of two securities in equal proportion.   **[2]**

(d) The Sterling is trading at $ 1.6100 today. Inflation in U. K. is 4% and that in U. S. A. is 3%. What could be the spot rate ($/£) after 2 years?   **[2]**

(e) Immense Regional Disparities is a key reason to invest in infrastructure in India- Justify.   **[2]**

(f) An investor buys a call option contract for a premium of ₹200. The exercise price is ₹20 and the current market price of the share is ₹17. If the share price after three months reaches ₹25, what is the profit made by the option holder on exercising the option? Contract is for 100 shares. Ignore the transaction charges.   **[2]**

(g) State the term "Commission house" and "Consumption Commodity" in commodity market.
   [1+1]

(h) Your customer requests you to book a sale forward exchange contract for US $ 2 million delivery 3rd month. The quotes are:

Spot US$ 1	=	₹48.050/60
1 month margin	=	0.0850/0900

2 month margin	=	0.2650/2700
3 month margin	=	0.5300/5350

You are required to make an exchange profit of 0.125%. Ignore telex charges and brokerage. What will be your profit? **[2]**

(i) The capital structure of a company is as under:

3,00,000 Equity Shares of ₹10 each.

32,000, 12% Preference Shares of ₹100 each

General Reserve ₹15,00,000

Securities Premium Account ₹ 5,00,000

25,000, 14% Fully Secured Debentures of ₹100 each,

Term Loan of ₹13,00,000.

Based on these, calculate the leverage of the company. **[2]**

(j) The standard deviation of Greaves Ltd. stock is 24% and its correlation coefficient with market portfolio is 0.5. The expected return on the market is 16% with the standard deviation of 20%. If the risk-free return is 6%, calculate the required rate of return on Greaves Ltd. script.

[2]

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

2(a)(i). A mutual fund has a NAV of ₹8.50 at the beginning of the year. At the end of the year NAV increases to ₹9.10. Meanwhile fund distributes ₹0.90 as dividend and ₹0.75 as capital gains.
   I. Calculate the fund's return during the year.
   II. Assuming that the investor had 200 units and also assuming that the distributions been re-invested at an average NAV of ₹8.75, find out the return. **[2+4]**

2(a) (ii). State the Forward Market Commission of India. **[2]**

2(b)(i). From the following particulars, calculate the effective rate of interest p.a. as well as the total cost of funds to Bhaskar Ltd., which is planning a CP issue: **[2+2]**

Issue Price of CP	:	₹97,550
Face Value	:	₹1,00,000
Maturity Period	:	3 Months
Issue Expenses	:	
Brokerage	:	0.15% for 3 months
Rating Charges	:	0.50% p. a.
stamp Duty	:	0.175% for 3 months

2(b) (ii). List the key elements of a well – functioning Financial System. **[4]**

2(c)(i). Suppose a bank offers a 6-month CD at an annual percentage rate of 11.5% compounded monthly and a 1-year CD with an annual percentage rate of 11.3% compound weekly. You are required to find out which of them offers a higher rate of interest. Assume a face value of ₹1000. **[4]**

2(c)(ii). Explain two main distinguishing features of Project Finance compared to Corporate Finance. **[4]**

2 (d). Two funds are available for investment. Fund A is being launched today i.e. 30/9/2005 and available for investment at ₹10 per unit. A similar fund B (same risk profile like Fund A) 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.

Closing NAV	Fund A	Fund B
30/09/2015	10	19.45
31/12/2015	11.1567	21.50
31/03/2016	14.768	27.15
30/06/2016	12.8554	23.69

Assuming that investor X prefers fund A and investor Y prefers Fund B for investment through SIP (Systematic Investment Plan) each installment entailing ₹2,000 for the four quarters including the initial investment, which investor (X or Y) would clock a higher return on investment, as on 30/6/2006? (Ignore time value of money). Is the difference in return because of one investor chose to invest at ₹10 and the other at ₹19.45? **[8]**

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

3(a)(i). The Price of Infosys Stock of a Face Value of ₹10 on 31st December was ₹350 and the Futures Price on the same stock on the same date i.e. 31st December for March (next year) was ₹370.
Other features of the contract are as –
- Time to expiration 3 months (0.25 year)
- Annual dividend on the stock of 30% payable before 31st March.
- Borrowing rate is 20% p. a.

Based on the above information, calculate Future Price for Infosys stock on 31st Dec. Also explain whether any arbitrage opportunity exists. **[5+3]**

3. (a) (ii) Describe the two main types of commodity swaps. **[2]**

3(b)(i). M/s Parker & Company is contemplating to borrow an amount of ₹60 Crores for a period of 3 months in the coming 6 month's time from now. The current rate of Interest is 9% p.a. but it may go up in 6 months' time. The Company wants to hedge itself against the likely increase in Interest Rate. The Company 'Bankers quoted an FRA (Forward Rate Agreement) at 9.30% p.a.

What will be the effect of FRA and actual rate of Interest Cost to the company, if the actual arte of Interest after 6 months happens to be (i) 9.60% p.a. and (ii) 8.80% p.a.?

[3+3]

3(b)(ii). 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 risk on this loan. In three months, if interest rates have risen to 6.25%, how much will MNC receive/pay on its FRA? Assume the three month period as 90 days. **[4]**

3 (c). Given the following:

Strike price	₹200
Current stock price	₹185
Risk free rate of interest	5 % p.a

    I. Calculate the theoretical minimum price of a European put option after 6 months.

    II. If European put option price is ₹5 , then how can an arbitrageur make profit. **[4+6]**

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

4(a)(i). Suppose that all stocks have a rate of return with a standard deviation of 40% and that the correlation between rates of returns for all pairs of stocks is 0.6.
    I. Consider forming an equally-weighted portfolio of 10 stocks. Calculate the standard deviation of this port-folio's return?
    II. How many stocks would be required in an equally-weighted portfolio in order to have a portfolio standard deviation of 31%? **[4+2]**

4(a)(ii). State gross national product analysis. **[2]**

4 (b). Currently the risk-free rate equals 5% and the expected return on the market portfolio equals 11%. We also have the following information:

Stock	Beta	Expected Return
A	1.33	12%
B	0.70	10%
C	1.50	14%
D	0.66	9%

   I.   Which stock has the highest reward to risk ratio and which has the lowest?

   II.   Show how an investor could construct a portfolio of stocks C and D that would outperform stock A.

   III.   Construct a portfolio consisting of some combination of the market portfolio and the risk-free asset such that the portfolio's expected return equals 9%. What is the beta of this portfolio? What does this say about stock D?   **[4+2+2]**

4(c)(i). Century is an Indian conglomerate, with holdings in Cement & Textiles. The beta estimated for the firm, relative to the Indian stock exchange is 1.15, and the long term government borrowing rate in India is 11.5% and market risk premium is 12%.

   I.   Estimate the expected return on the stock.

   II.   If you are an international investor, what concerns if any, would you have about using the beta estimated relative to the Indian Index? If you have concerns, how would you modify the beta?   **[2+3]**

4(c)(ii).A fund manager knows that her fund currently is well diversified and that it has a CAPM beta of 1.0. The risk-free rate is 8 percent and the CAPM risk premium is 6.2 percent. She has been learning about APT measures of risk and knows that there are (at least) two factors: changes in the industrial production index, d1, and unexpected inflation, d2. The APT equation is $E(R_i) = 0.08 + 0.05\, b_i1 + 0.11 b_i2$.

   I.   If her portfolio currently has a sensitivity to the first factor of $bp1 = -0.5$, calculate its sensitivity to unexpected inflation.

   II.   If the fund manager rebalances her portfolio to keep the same expected return but to reduce the exposure to inflation to zero, calculate the portfolio's sensitivity to the first factor.   **[2+1]**

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

5 (a) JKL Ltd. has the following book-value capital structure as on March 31, 2015.

	Amount in (₹)
Equity Share capital (2,000 shares)	40,00,000
11.5% preference shares	10,00,000
10% Debentures	30,00,000
	80,00,000

The equity share of the company sells for ₹20. It is expected that the company will pay next year a dividend of ₹2 per equity share, which is expected to grow at 5% p.a. forever. Assume a 35% corporate tax rate. Required:

   I.   Compute weighted average cost of capital (WACC) of the company based on the existing capital structure.

   II.   Compute the new WACC, if the company raises an additional ₹20 lakhs debt by issuing 12% debentures. This would result in increasing the expected equity dividend to ₹2.40 and leave the growth rate unchanged, but the price of equity share will fall to

₹16 per share.

III. Comment on the use of weights in the computation of weighted average cost of capital. **[3+3+(2+2)]**

5 (b). Nine Gems Ltd. has just installed Machine R at a cost of ₹2,00,000. The machine has a five-year life with no residual value. The annual volume of production is estimated at 1,50,000 units, which can be sold at ₹6 per unit. Annual operating costs are estimated at ₹2,00,000 (excluding depreciation) at this output level. Fixed costs are estimated at ₹3 per unit for the same level of production.

Nine Gems Ltd. has just come across another model called Machine — S capable of giving the same output at an annual operating cost of ₹1,80,000 (exclusive of depreciation). There will be no change in fixed costs. Capital cost of this machine is ₹2,50,000 and the estimated life is for five-years with nil residual value.

The company has an offer for sale of Machine — R at ₹1,00,000. But the cost of dismantling and removal will amount to ₹30,000. As the company has not yet commenced operations, it wants to sell Machine — R and purchase Machine — S. Nine Gems Ltd. will be a zero-tax company for seven years in view of several incentives and allowances available. The cost of capital may be assumed at 14%.
P. V. factors for five years are as follows:

Year	1	2	3	4	5
PVF	0.877	0.769	0.675	0.592	0.519

I. Advise whether the company should opt for the replacement.
II. Will there be any change in your view, if Machine — R has not been installed but the company, is in the process of selecting one or the other machine?

Support your view with necessary workings. **[6+4]**

5 (c). A company is engaged in evaluating an investment project, which requires on initial cash outlay of ₹2,50,000 on equipment. The project's economic life is 10 years and its salvage value ₹30,000. It would require current assets of ₹50,000. An additional investment of ₹60,000 would also be necessary at the end of five years to restore the efficiency of the equipment. This would be written off completely over the last five years. The project is expected to yield Annual (before tax) Cash Inflow of ₹1,00,000. The company follows sum of year's digit method of depreciation. Income tax is assumed to be 40%. Should be project be accepted if the minimum required rate of return is 20%? **[10]**
Note: PVs of ₹1at 20% discount rate are as follows:

Year	1	2	3	4	5	6	7	8	9	10
PVF	0.833	0.694	0.579	0.482	0.402	0.335	0.279	0.233	0.194	0.162