

FINAL EXAMINATION

June 2018

P-14(SFM)
Syllabus 2016

Strategic Financial Management

Time Allowed: 3 Hours

Full Marks: 100

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

Working Notes should form part of the respective answers.

Wherever necessary, candidates may make appropriate assumptions and clearly state them.

No present value factor table or other statistical table will be given in addition to this question paper.

Candidates may use the values tabulated at the relevant portions of this question paper.

This paper contains two sections, A and B. Section A is compulsory and contains question 1 for 20 marks. Section B contains questions 2 to 8, each carrying 16 marks.

Answer any five questions from Section B.

SECTION – A

Answer all the questions. Each question carries two marks.

1. Choose the correct option from the four alternatives given: (One mark is for the correct choice and one mark is for the justification/workings. You may present only the Roman numeral, your choice and the reason/working, without copying the question). 2×10=20

- (i) A company has ₹ 7 crore available for investment. It has evaluated its options and has found that only four investment projects given below have positive NPV. All these investments are divisible and get proportional NPVs.

Project	Initial Investment (₹ crore)	NPV (₹ crore)	PI
W	6.00	1.80	1.30
X	3.00	0.60	1.20
Y	2.00	0.50	1.25
Z	2.50	1.50	1.60

Which investment projects should be selected?

- (A) Project W in full and X in part
(B) Project Z in full and W in part
(C) Project W in full and Z in part
(D) Project Z and Y in full and X in part

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(ii) An investor is bullish about X Ltd. which trades in the spot market at ₹1150. He buys two call option contracts with three months (one contract is 100 shares) with a strike price of ₹1195 at a premium of ₹ 35 per share. Three months later, the share is selling at ₹ 1240. Net profit/loss of the investor on the position will be

- (A) ₹1000
- (B) ₹16000
- (C) ₹11000
- (D) ₹ 2000

(iii) Duhita Ltd. intends to buy an equipment. Quotes are obtained for two different makes A and B as given below:

	Cost (₹ Million)	Estimate life (years)
A	4.5	10
B	6.00	15

Ignoring the operations and maintenance costs which will be almost the same for A and B, which one would be cheaper? The company's cost of capital is 10%

[Given: PVIFA (10%, 10 yrs.)=6.1446 and PVIFA (10%, 15 years)=7.6061]

- (A) A will be cheaper
 - (B) B will be cheaper
 - (C) Cost will be the same
 - (D) They are not comparable and therefore nothing can be said about which is cheaper.
- (iv) BLC Ltd. a valued customer engaged in import business, is in need to remit EURO 1 million to his European exporter. The spot rate of ₹/US\$ is ₹ 65.47/65.57 and that of US\$/EURO is \$ 0.8053/0.8057. What rate will a banker quote to BLC Ltd. if the bank's margin is 0.50%?

- (A) ₹ 53.09
- (B) ₹ 53.067
- (C) ₹ 53.01
- (D) ₹ 52.99

(v) Given for a project:

Annual Cash inflow = ₹ 80,000, Useful life = 4 years

Undiscounted Pay-Back period = 2.855 years

What is the cost of the project?

- (A) ₹ 1,12,084
- (B) ₹ 2,28,400
- (C) ₹ 9,13,600
- (D) None of the above

(vi) A project had an equity beta of 1.4 and is to be financed by a combination of 25% Debt and 75% Equity. Assume Debt Beta as zero, $R_f=12\%$ and $R_m=18\%$.

Hence, the required rate of return of the project is

- (A) 16.72%
- (B) 18.30%
- (C) 17.45%
- (D) 12.00%

(vii) An Indian Company is planning to invest in the US. The annual rates of inflation are 8% in India and 3% in USA. If the spot rate is currently ₹ 60.50/\$, what spot rate can you expect after 5 years, assuming the inflation rates will remain the same over 5 years?

- (A) ₹ 88.89
- (B) ₹ 54.95
- (C) ₹ 76.68
- (D) ₹ 76.10

(viii) Which of the following securities is most liquid?

- (A) Money Market instruments
- (B) Capital Market instruments
- (C) Gilt-edged securities
- (D) Index futures

- (ix) While plotting a graph with risk on X-axis and expected return on Y-axis, a line drawn with co-ordinates $(0, r_f)$ and (β, r_m) is called
- (A) Security Market Line
 - (B) Characteristic Line
 - (C) Capital Market Line
 - (D) CAPM Line
- (x) If the RBI intends to reduce the supply of money as part of anti-inflation policy, it might
- (A) Lower the bank rate
 - (B) Increase the Cash Reserve Ration
 - (C) Decrease the SLR
 - (D) Buy Government securities in the open market.

SECTION – B

Answer any *five* questions out of the following seven questions. Each question carries **16 marks**.

2. (a) Electronics Pvt. Ltd. is considering a proposal to replace one of its machines. In this connection, the following information is available:

The existing machine was purchased 3 years ago for ₹ 20 Lakh. It was depreciated 20 per cent per annum on reducing balance basis. It has remaining useful life of 5 years, but its maintenance cost is expected to increase by ₹ 1 Lakh per year from the end of sixth year of its installation. Its present realizable value is ₹ 12 Lakh. The company has several machines having 20% depreciation.

The new machine costs ₹ 30 Lakh and is subject to the same rate and basis of depreciation. On sale after 5 years, it is expected to realize ₹ 18 Lakh. With the new machine, the annual pre-tax operating costs (excluding depreciation) are expected to decrease by ₹ 2 Lakh. In addition, the machine would increase productivity on account of which net pre-tax revenues would increase by ₹ 3 Lakh annually (reckoned at year end). The tax rate applicable to the company is 40% and the cost of capital is 10 per cent.

Advise the company on the choice of the machine from a financial perspective on the basis of NPV.

PV Factors (10%)

Year	1	2	3	4	5
PV Factor	0.909	0.826	0.751	0.683	0.621

Present an incremental analysis of using the existing machine versus replacing the machine with a new one. Present annual discounted cash flows in your answers with separate calculation showing annual discounted cash flows on account of incremental depreciation without netting off capital asset outflows or inflows. Calculations are to be presented to the nearest rupee. P.V. factors with above decimal places should be used. 10

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

	Spot Rate	2-Months Forward
₹ /US \$	₹ 66.00/ ₹ 66.25	₹ 67.00/ ₹ 67.50

(i) How many US Dollars should a firm sell to get ₹ 50 Lakh after two months?

(ii) How many Rupees is the firm required to pay to obtain US \$ 3,00,000 in the spot market?

(iii) Assume that the firm has US \$ 1,19,000 earning no interest. ROI on Rupee Investment is 8% p.a. Should the firm encash the US \$ now or 2 months later? 6

3. (a) The following quotes are available for 3-months options in respect of a share of P Ltd. which is currently traded at ₹ 310.

Strike Price	₹ 300
Call option	₹ 30
Put option	₹ 20

An investor devises a strategy of buying a call and selling the share and a put option. Risk free interest rate is 10% per annum.

Using Put-call parity theory

(i) Find out profit/loss of the investor.

(ii) What would be the position if the strategy adopted is selling a call and buying the put and the share? 8

$$(e^{0.025} = 1.0253; e^{0.25} = 1.2840)$$

- (b) The Stock Research Division of Bharati Investment Services Ltd. has developed ex-ante probability distribution for the likely economic scenarios over the next one year and estimates the corresponding one period rates of return on Stock A, B and Market Index as follows:

Economic scenarios	Probability	One period rate of return %		
		Stock A	Stock B	Market
Recession	0.15	-15	-3	-10
Low growth	0.25	10	7	13
Medium growth	0.45	25	15	18
High growth	0.15	40	25	32

The expected risk free real rate of return and the premium for inflation are 3.0% and 6.5% p.a. respectively.

As a financial analyst in the Research Division you are required to calculate the following for stock A and stock B:

- (i) Expected return
- (ii) Covariance of returns with the market returns
- (iii) Beta

2+4+2=8

4. (a) X Ltd. has imported goods from USA worth US \$ 10 million and it requires 90 days to make the payment. The USA supplier has offered a 60 days interest free credit period and for additional credit for 30 days interest is to be charged at 8% per annum. (Consider 360 days p.a.)

The banker of X Ltd. Offers a 30 days loan at 10% per annum and its quotes for foreign exchange are as follows:

Spot 1 US \$	₹ 64.50
60 days forward rate for 1 US \$	₹ 65.10
90 days forward rate for 1 US \$	₹ 65.50

You are required to evaluate the following options:

- (i) Pay the USA supplier in 60 days or
- (ii) Avail the supplier's offer of 90 days' credit. Advise X Ltd. accordingly.

(b) Your client holds the following securities:

Particulars of Securities	Cost (₹)	Dividends (₹)	Market Price (₹)	BETA
Equity Shares:				
Co. T	8,000	800	8,200	0.8
Co. Q	10,000	800	10,500	0.7
Co. M	16,000	800	22,000	0.5
Co. P	34,000	3,400	32,300	0.2

Assuming a Risk-free rate of 6%, calculate the expected rate of return in each, using the Capital Asset Pricing Model (CAPM). Assume equal proportion of securities for market portfolio as also for the client. Calculations should be presented up to two decimal places. 6

5. (a) XYZ Ltd. is considering acquisition of an additional computer to supplement its computer services to its clients. It has two options:

(i) To purchase the computer for ₹ 22,00,000.

(ii) To lease the computer for 3 years from a leasing company for ₹ 5,00,000 as annual year end lease rent. The agreement also requires as additional one time lump sum lease rent payment of ₹ 6,00,000 at the end of the third year. Lease rents are payable at the year ends and the computer is returned to the lessor after the lease period.

The company estimates that the computer considered for purchase now will be worth ₹ 10 lakhs at the end of the third year and proceeds are taxable at the end of the third year at the usual 50% tax rates. Forecast pre-tax year end revenues are:

Year	₹
1	22,50,000
2	25,00,000
3	27,50,000

Annual year end pre-tax operating costs (excluding depreciation/lease rent of computer) are estimated at ₹ 9,00,000 with an additional ₹ 1,00,000 for start-up and training costs at the beginning of the first year, the tax benefit of which can be claimed at the end of the first year. These costs are to be borne by XYZ Ltd. XYZ Ltd. will borrow at 16% interest to finance the acquisition of the computer and the repayments are to be made according to the following schedule:

Year-end	Principal (₹)	Interest (₹)	Total (₹)
1	5,00,000	3,52,000	8,52,000
2	8,50,000	2,72,000	11,22,000
3	8.50,000	1,36,000	9,86,000

The company depreciates the computer at 60% of cost in the first year and the remaining at the end of the second year. Consider these at year ends. The Management of XYZ Ltd. approaches you, as a Management Accountant, for advice. Will the computer's use be justified? Which alternative would you recommend and why? Support your advice with relevant calculations. Present annual discounted cash flows to the nearest rupee, for each option using PV factors up to the decimals provided. Indicate inflows by '+' and outflows by '-' or '()'

Note: Present value factor at 8% and 16% rate of discount:

Year	1	2	3
8%	0.926	0.857	0.794
16%	0.862	0.743	0.641

10

(b) A Portfolio Manager has the following four stocks in his portfolio:

Security	No. of shares	Market price (₹) per share	β = Beta
ADU	12,000	40	0.9
DVU	6,000	20	1.0
NDU	10,000	25	1.5
SVU	2,000	225	1.2

Compute the following:

- (i) Portfolio Beta (β)
- (ii) If the Portfolio Manager seeks to reduce the portfolio Beta to 0.8, how much risk-free investment should he bring in? Consider that he disposes the riskier securities first and replaces them with risk free investment. Present the revised portfolio. 6
6. (a) Y, a British firm with a US subsidiary, seeks to refinance some of its existing British pound debt to include floating rate obligations. The best floating rate it can obtain in London is LIBOR + 2.0%. Its current debts are as follows:

US\$ 10 million owed to CT Bank at 9.5% (fixed annually); and

£ 5 million owed to MD Bank at 9.5% (fixed) annually.

HRS Company wishes to finance exports to Britain with £ 3 million of pound denominated fixed rate debt for six months. HRS is unable to obtain a fixed interest rate in London for less than 13.5% interest because of its lack of credit history in the UK. However, Lloyds Bank is willing to extend a floating rate British pound loan at LIBOR + 2%. HRS, however, cannot afford to pay more than 12%.

Assume that Y is in a strong bargaining position and can negotiate the best deal possible, but HRS will not pay over 12%. Assume further that transaction costs are 0.5% and exchange rates are stable.

Can Y and HRS help each other by an interest rate swap? If so, how? Compute the amount of gains for Y, HRS and the Swap Dealer.

Illustrate the effective post-swap interest rates of each party with a diagram. What are the effective interest rates for each party over the six months period of the swap? 8

- (b) A manager is trying to decide which of the three mutually exclusive project X, Y or Z to undertake. Each of the projects could lead to varying net profits which are classified as outcomes I, II and III. The manager has constructed the following pay-off table or matrix (a conditional profit table).

Outcomes	Probability	Project		
		X	Y	Z
		Net Profit (₹)		
I (Worst)	0.2	5,00,000	7,00,000	9,00,000
II (Most likely)	0.5	8,50,000	7,50,000	10,00,000
III (Best)	0.3	13,00,000	14,00,000	11,00,000

(i) Which project should be undertaken using Expected Value Criterion?

(ii) Which project should be chosen, if minimax regret rule is applicable?

8

7. (a) Bharat Oil Corporation (BOC) imports crude oil for its requirements on a regular basis. Its requirements are estimated at 100 tonnes per month. Of late, there has been a surge in the prices of oil. The current price (month of June) of crude oil is ₹ 5,500 per barrel. The firm expects the price to rise in the coming months to ₹ 5,800 by August. It wants to hedge against the rising prices for some of its requirements of the month of August.

Multi Commodity Exchange (MCX) in India offers futures contracts in crude oil. The contract size is 100 barrels and August contract is currently traded at ₹ 5,668 per barrel.

BOC would like to hedge half its exposure in futures and leave the other half to market conditions. While hedging, the number of futures contracts dealt with should be rounded off to the next higher integer. Then, how many contracts should it book?

Compare the hedged and exposed parts regarding the effective price per barrel and also compute the effective price per barrel for the whole requirement of August,

if in August,

(i) The spot price is ₹ 5,570 and futures price is ₹ 5,788,

(ii) The spot price is ₹ 5,417 and futures price is ₹ 5,455?

Ignore marking-to-market and initial margin on futures contracts.

Given that 1 tonne = 7.33 barrels.

10

- (b) 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 one month European call option with a strike price of ₹ 592 with the help of a Binomial Model. (Given that $e^{0.007}=1.00702$)

6

8. Answer **any four** out of the following five questions:

- (a) State the type of risk in the following situation: (You may present only the question Roman numeral and the type of risk in your answer)

4

- (i) The risk of loss arising from sovereign State freezing foreign currency payments.
- (ii) The risk that stock prices or stock indices values and/or their implied volatility may change.
- (iii) The risk arising from the people, system and processes through which a company operates.
- (iv) Changes in currency exchange rates.

- (b) You are required to present Columns I, IV and V after filling up the contents of columns IV and V. 4

Sl. No.	Situation	Option Type	_____ the money (Fill up In/At/Out of)	Action: (Exercise/Lapse/ Indifferent)
Column	II	III	IV	V
(i)	CMP < EP	Call		
(ii)	CMP < EP	Put		
(iii)	CMP > EP	Call		
(iv)	CMP > EP	Put		

EP=Exercise Price; CMP=Current Market Price

- (c) Identify the following financial instruments: (You may present only the Roman numeral and the name of the instrument in your answers) 4

- (i) X is a negotiable instrument issued in US \$ and issued by a US Depository Bank for the benefit of a non US company that wishes to raise money in the US. X is listed on NYSE and NASDAQ. Issue of X offers access to both institutional and retail markets in the US.
- (ii) Y is an instrument issued abroad by authorized overseas corporate bodies against shares or bonds of Indian companies held with nominated domestic custodial banks. An Indian company intending to issue Y will issue the corresponding number of shares to an overseas depository bank. Y is freely transferable outside India and dividend in respect of the shares represented by Y are paid in Indian rupees. Y is traded on OTC basis (Over the Counter). Y is listed on the London Stock Exchange.
- (iii) Z is a zero – interest bond sold at a discount and redeemed at face value on maturity. Investors in Z are not looking for immediate return. Z is issued by the issuer to meet the long term requirements spanning 20 – 30 years. Z can also be traded in the market.

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- (iv) W is a negotiable certificate issued by a company or the Government, entitles the holder to repayment of principal and interest. Interest is paid periodically at predetermined intervals and the principal is repaid at a specified maturity date.
- (d) A certain project is expected to generate year and annual net cash inflows of ₹ 5,00,000 for four years. The cost of capital (real discount rate is 10%). Inflation rate is 5% p.a.
- (i) What are the nominal cash flows and real cash flows of the second year's inflows which occur at the end of year 2?
 - (ii) What is the present value of the inflow of the second year that you would use in determining the NPV of the project? 4
- (You are not required to calculate the values. You are only required to substitute the values in appropriate formulae for the answers).
- (e) Explain the concept of 'option' in relation to a capital budgeting decision. What would be the value of the option? 4
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