FINAL EXAMINATION

December 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 your answers.
Wherever necessary, candidates may make appropriate assumptions and clearly state them.
No present value factor table or other statistical table will be provided in addition to this question paper.
Candidates may use relevant values from tables given at the end of the question paper.

*This paper contains two sections, **A** and **B**. **Section A** is compulsory and contains question No. 1 for 20 marks. **Section B** contains question Nos. 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 : (1 mark is for the correct choice and 1 mark is for the justifications/workings. You may present only the Roman numeral, your choice and the reasons/workings, without copying the question.). 2×10=20

(i) M buys a call option contract for a premium of ₹ 200. The exercise price is ₹ 25 and the current market price of the share is ₹ 22. If the share price after three months reaches ₹ 30, what is the profit made by M on exercising the option? A contract is for 100 shares. Ignore transaction charges.

(A) ₹ 200

(B) ₹ 300

(C) ₹ 100

(D) ₹ 600

(ii) You are a forex dealer in India. Rates of rupee and pound in the international market are US $ 0·01386952 and US $ 1·3181401 respectively. What will be your direct quote of £ (pound) to your customer?

(A) ₹ 54·6987

(B) ₹ 71·1408

(C) ₹ 95·0386

(D) ₹ 0·0105

(iii) 'Bank rate' published by the Reserve Bank refers to

(A) the repo rate transacted by RBI.

(B) the rate at which housing or other long term loans shall be sanctioned by scheduled banks to their customers.

(C) the rate at which RBI is willing to buy or rediscount bills of exchange or other commercial paper.

(D) the rate which RBI uses as cut-off for auction of Government securities.

(iv) An investor has invested in a mutual fund when the NAV was ₹ 15·50 per unit. After 90 days the NAV was ₹ 14·45 per unit. During the period the investor got a cash dividend of ₹ 1·35 per unit and capital gain distribution of Re 0·20. The annualized return based on 360 days year count will be

(A) 3·23%

(B) 12·92%

(C) 0·8075%

(D) 16·45%

(v) Initial investment of a project is ₹ 25 lakh. Expected annual cash flows are ₹ 6·5 lakh for 10 years Cost of capital is 15%. The annuity factor for 15% for 10 years is 5·019. The Profitability Index of the project will be

(A) 1·305

(B) 3·846

(C) 0·26

(D) 0·7663

(vi) Rate of inflation = 5·1%, β = 0·85, Risk premium = 2·295%, Market return = 12%. The real rate of return will be

(A) 4·2%

(B) 11·70%

(C) 6%

(D) 5·95%

(vii) In a constant dividend model, the following estimates the difference between the required rate of return and the growth rate:

(A) Earnings Retention ratio

(B) Leverage ratio

(C) Dividend Pay-out ratio

(D) Dividend yield ratio

(viii) Presently, a company's share price is ₹ 120. After 6 months, the price will be either ₹ 150 with a probability of 0·8 or ₹ 110 with a probability of 0·2. A call option exists with an exercise price of ₹ 130. What will be the expected value of call option at maturity date?

(A) ₹ 20

(B) ₹ 16

(C) ₹ 12

(D) ₹ 10

(ix) A stock is currently selling at ₹ 270. The call option to buy the stock at ₹ 265 costs ₹ 12. What is the Time Value of the option?

(A) ₹ 5

(B) ₹ 17

(C) ₹ 7

(D) None of (A), (B) or (C)

(x) A Ltd., an export customer requested his banker B to purchase a bill for USD 80,000. Calculate the rate to be quoted to A Ltd., if B wants a margin of 0·08%, given that the inter bank rate is ₹/$ 71·50/10.

(A) ₹ 71·1569

(B) ₹ 71·0431

(C) ₹ 71·5572

(D) ₹ 71·4428

SECTION – B

Answer *any five* questions.

2. (a) The distribution of return of security 'S' and the market portfolio 'M' is given below:

Probability	Return %	
	S	M
0·30	30	– 10
0·40	20	20
0·30	0	30

You are required to calculate:

(i) the expected return of security 'S' and the market portfolio 'M',

(ii) the covariance between the market portfolio and security, and

(iii) beta for the security. 8

(b) Shares of N Limited are being quoted at ₹ 600. Three months' futures rate is ₹ 636 per share with a lot size of 500 shares. The company does not expect to distribute any dividend in the interim period and the risk free return is 9% p.a. continuously compounded.

(i) Compute the Theoretical Forward Price.

(ii) What is the recommended action for a trader in shares in the spot and futures market? Substantiate your conclusion with logical steps and compute the gains per contract if any, due to futures.

(iii) What would be the recommended action and gains, if the three months' future rate is ₹ 600 per share? 8

3. (a) An Indian exporter has sold handicraft items to an American business house. The exporter will be receiving US dollar 1 lakh in 90 days. Premium for a dollar put option with a strike price of ₹ 71·00 and a 90 days settlement is ₹ 1. The exporter anticipates the spot rate after 90 days to be ₹ 69·50.

(i) Should the exporter hedge its account receivable in the options market?

(ii) If the exporter is anticipating a spot rate to be ₹ 70·50 or ₹ 71·50 after 90 days, how would it affect the exporter's decision? 8

(b) A company operating in USA has on 1st September 2018 invoiced sales in $ to an Indian company, the payment being due on 1st December 2018. The invoice amount is $ 13,750. At spot rate on 1/9/2018 it is equivalent to ₹ 10,18,875. The 3 months forward rate is presently quoted at $ 0·01340 per rupee. The importer wants to hedge half his exposure by a forward contract. Explain the hedging transaction by forward contract that he will enter into and calculate the pay outs and the net gain or loss due to hedging if the spot rates are as follows on 1st December 2018 :

(i) $ 0·01338

(ii) $ 0·01352

Present your calculations using ₹/$ upto two decimal places. Ignore transaction cost. 8

4. (a) A company wishes to acquire an asset costing ₹ 1,00,000. The company has an offer from a bank to lend @ 18%. The principal amount is repayable in equal 5 year end instalments. A leasing company has also submitted a proposal to the company to acquire the asset on lease at year end rentals of ₹ 280 per ₹ 1,000 of the asset value for 5 years. The asset's life is estimated at 5 years with residual value of ₹ 10,000 and the cost net of residual value is depreciated equally each year over its life. Assume that this is the only asset of its class so that at the end of the 5th year there will be a capital gain or loss with 20% tax effect when the asset is sold. The tax rate of the company is 50%.

For what minimum sale value of the asset at the end of the 5th year will the decision to borrow and own the asset be preferred to leasing? Present annual cash flows and arrive at the discounted cash flows for each year showing salvage value separately. Use PV factors as provided. Round off calculations to the nearest rupee. Assume cash flows on interest and taxes also at year ends. 8

(b) A Ltd. has an investment proposal, requiring an outlay of ₹ 5 lakh. 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 ₹ 3 lakh and 0·6 probability that cash inflow after tax will be ₹ 4 lakh. The probability assigned to cash inflow after tax for year 2 are as follows:

Cash inflow for year 1 (₹)	3 Lakh		4 lakh	
Cash inflow for year 2 (₹)	₹	Probability	₹	Probability
	1·50 lakh	0·2	2·40 lakh	0·4
	1·92 lakh	0·3	3·00 lakh	0·5
	2·64 lakh	0·5	3·60 lakh	0·1

The company uses 10% 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), giving the break up of each path of the decision tree.

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

(iv) What is the probability of having a negative NPV?

(v) Will the project be accepted?

Use pv factors as given in the table. Present calculations to the nearest rupee. 8

5. (a) The returns on stock S and market portfolio M for a period of six periods in excess of the risk free rate of 6% are given as follows:

Period	Return on stock S %	Return on market portfolio %
1	12·0	8·0
2	15·0	12·0
3	11·0	11·0
4	2·0	– 4·0
5	10·00	9·5
6	– 12·0	– 2·0

Additional details that may be used optionally:

Variance $(\%)^2$	82·93	40·15
Mean (%)	6·33	5·75
Covariance $(\%)^2$	48·27	

(i) Determine the equation for the characteristic line of the stock-S.

(ii) What would be the return on stock S if the market return is 17·5%?

(iii) Is your finding in (ii) above compatible with the data given? Why? Comment on the correlation coefficient. 8

(b) Sagar owns a portfolio in three stocks as detailed below:

Stock	No. of shares	Price (₹/share)	Beta
X	400000	400	1·3
Y	800000	300	1·2
Z	1200000	100	1·1

The index futures is traded at ₹ 10,250. Assume that the index factor is 100.

(i) Compute the existing portfolio beta upto two decimals.

(ii) Find out the number of contracts (rounded off to the nearest integer) of stock index futures to be bought or sold in order to:

(A) Decrease the portfolio β to 0·8

(B) Increase the portfolio β to 1·5. What will be the proportion of market value of investments in X to the value of total investments plus 10% margin on futures? 8

6. The following are the data on five mutual funds:

Mutual Fund	Return	Standard Deviation	Beta
A	15	7	1·25
B	18	10	0·75
C	14	5	1·40
D	12	6	0·98
E	16	9	1·50

(i) Compute the Sharpe Ratio and Treynor's Ratio and rank these funds assuming the risk free rate as 6%.

(ii) Compute the unsystematic risk of these funds.

(iii) Which of the two measures in (i) is more appropriate? Why?

(iv) Assuming that the risk free rate is not known, would you still be able to rank the funds using the Sharpe's and Treynor's ratios? Why? 16

7. (a) Saptarshi Ltd. has just installed Machine–M at a cost of ₹ 2,10,000. The machine has a five year life with no residual value. The annual volume of production is estimated at 150000 units, which can be sold at ₹ 6 per unit in the first two years and at ₹ 7, 8 and 9 in the third, fourth and fifth years. The first year's 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. The second year's cost will be the same as in the first year. Thereafter, costs (operating and fixed) will increase over the first year's cost by 10%, 20% and 25% respectively in the third, fourth and fifth years.

Saptarshi Ltd. has just come across another model called Machine–N capable of giving the same output at the same fixed and operating costs as in the first year of Machine-M. There will be no change over the first year's costs in the next four years also. Capital cost of this machine is ₹ 2,50,000 and the estimated life is five years with nil residual value.

The company has an offer for sale of Machine – M at ₹ 1,10,000. But the cost of dismantling and removal will amount to ₹ 40,000. As the company has not yet commenced operations, it wants to sell Machine – M and purchase Machine – N.

Saptarshi Ltd. will be a zero-tax company for seven years in view of several incentives and allowances available.

The cost of capital is 15%.

(i) Advise whether the company should opt for the replacement. Present calculations of discounted annual cash flows to the nearest rupee without netting off.

(ii) Will there be any change in your view, if machine-M has not been installed, but the company is in the process of selecting one or the other machine?

Support your view with necessary workings. Cash flows of revenue and cost may be taken at year ends. 8

(b) From the following project details, calculate the sensitivity of the

(i) Project cost

(ii) Cash inflows

(iii) Which variable is more sensitive?

Project cost	₹ 12,000	Salvage value	Nil
Life of the project	4 years	Cost of capital	14%
Nil salvage value			

Cash inflows after tax:

end of year 1 : ₹ 5,000

end of year 2 : ₹ 5,000

end of year 3 : 10% increase over year 1 inflow

end of year 4 : 10% increase over year 1 inflow

(iv) Would you conclude that cost of capital is more sensitive than (i) or (ii) above? 8

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

(a) Compare commodity futures and financial futures with respect to the following aspects: 4

(i) Valuation

(ii) Delivery and settlement

(iii) Contract features and life

(iv) Supply and consumption pattern

(b) State the type of risk in each of the following independent situations: 4
(You may present only the question Roman numeral and type of risk without copying the situations into your answer books).

(i) The owner of a house property wants to sell it, but he is not able to find buyers.

(ii) The risk of recession anticipated by the automobile industry

(iii) The risk of loss in value of investment that cannot be eliminated by an investor through diversification

(iv) The risk of a bank which has given a car loan to a person who has now defaulted two instalments of EMIs.

(c) Classify the following items under the appropriate category – whether Money Market (MM) or Capital Market (CM): (You may choose to write only the Roman numeral under the appropriate head. Do not use brackets for the Roman numerals.)

i. Inter Bank Participation Certificate

ii. Equity Shares

iii. SWAPS

iv. REPOS

v. RBI and government are participants

vi. Commercial paper

vii. Global Depository Receipts (GDRs)

viii. Deep Discount Bonds (DDBs) 4

You may use the following format in your answer books:

MM	CM

(d) Write short notes on 'repo' and 'reverse repo'. 4

(e) What is 'credit default risk' and 'counter party risk'? 4

Values for use by candidates.

$e^{0.0225}$	1·0228
$e^{0.225}$	1·2523
$e^{.25}$	1·2840

PV factor table

End of year / Rate	1	2	3	4	5
18%	0·847	0·718	0·609	0·516	0·437
9%	0·917	0·842	0·772	0·708	0·650
15%	0·870	0·756	0·658	0·572	0·497
14%	0·877	0·769	0·675	0·592	0·519
10%	0·9091	0·8264	0·7513	0·6830	0·6209
16%	0·877	0·769	0·675	0·592	0·519
17%	0·855	0·731	0·624	0·534	0·456
25%	0·8	0·64	0·512	0·410	0·328
26%	0·794	0·630	0·500	0·397	0·315
26·6%	0·790	0·624	0·493	0·389	0·307
26·65%	0·790	0·623	0·492	0·389	0·307
15·4%	0·867	0·751	0·651	0·564	0·489
12·6%	0·888	0·789	0·700	0·622	0·552

Annuity Factors

4 yrs	5 yrs
2·69	3·127
3·239	3·889
2·856	3·353
2·913	3·432