IV Semester M.B.A. Degree Examination, July 2016
(CBCS)
MANAGEMENT
4.2.3 : Risk Management and Derivatives

Time : 3 Hours   Max. Marks : 70

SECTION – A

Answer **any five** of the following questions. **Each** question carries **five** marks.   **(5×5=25)**

1. What are 'Derivatives' ? Explain the differences between Forwards and Futures, with examples.

2. List out and briefly explain the various techniques for measuring and managing capital budgeting risk.

3. A company employs certainty-equivalent approach in the evaluation of risky investments. The capital budgeting department of the company has developed the following information regarding new project.

Year	Expected Cash Flow After Taxes	Certainty-equivalent Quotient
0	(2,00,000)	1.0
1	1,60,000	0.8
2	1,40,000	0.7
3	1,30,000	0.6
4	1,20,000	0.4
5	80,000	0.3

The firm, cost of equity is 18%. Its cost of debt is 9% and the riskless rate of interest in the market on the government securities is 6%. Should the project be accepted ?

4. Suppose Mr. Naga Sinha bought 1 contract of Andhra Bank Futures (each underlying 8000 equity shares) for Rs. 63.80 per share. The initial margin is 50% and the maintenance margin is 40%. Suppose that the stock price drops to Rs. 57.00 per share.

i) Does Naga Sinha need to put additional funds to his account ? If yes, how much ?

ii) What is the break-even price Andhra Bank can fall before X receives a margin call ?

iii) Suppose the price rises to Rs. 70, what is Naga Sinha's rate of return on investment ?

5. The current market price of an equity share of Penchant Ltd., is Rs. 420. Within a period of 3 months the maximum and minimum price of it is expected to be Rs. 500 and Rs. 400 respectively. If the risk free rate of interest be 8% per annum, what should be the value of a '3 Month Call Option' under the Risk Neutral Method at the strike rate of Rs. 450 ? Given $e^{0.02} = 1.0202$.

6. What are the factors affecting price of an option ?

7. Outline briefly the various commodity exchanges of India and list out the major commodities traded in those exchanges.

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks. (3×10=30)

8. What is 'Risk' ? Explain the various types of risk a business enterprise is exposed to, with examples.

9. Explain about portfolio hedging with index futures with examples.

10. On April 1, 2016, an investor has a portfolio consisting of eight securities as shown below :

Security	Market Price	No. of Shares	β Value
A	29.40	400	0.59
B	318.70	800	1.32
C	660.20	150	0.87
D	5.20	300	0.35
E	281.90	400	1.16
F	275.40	750	1.24
G	514.60	300	1.05
H	170.50	900	0.76

The cost of capital for the investor is 20% p.a. continuously compounded. The investor fears a fall in the prices of the shares in the near future. Accordingly, he approaches you for the advice to protect the interest of his portfolio.

You can make use of the following information :

i) The current NIFTY value is 8500.

ii) NIFTY futures can be traded in units of 25 only.

iii) Futures of May are currently quoted at 8700 and Futures for June are being quoted at 8850.

You are required to calculate :

i) The beta of his portfolio.

ii) The theoretical value of the futures contract for contracts expiring in May and June. Given ($e^{0.03} = 1.03045$, $e^{0.04} = 1.04081$, $e^{0.05} = 1.05127$).

iii) The number of NIFTY contracts that he would have to sell if he desires to hedge until June in each of the following cases :

a) His total portfolio

b) 50% of his portfolio

c) 120% of his portfolio.

11. The initial investment outlay for a capital investment project consists of Rs. 100 lakh for plant and machinery and Rs. 40 lakh for working capital. Other details are summarised below :

Sales (lakh units per annum for years 1 to 5)	1
Selling price (per unit)	120
Variable cost (per unit)	60
Fixed overheads (excluding depreciation) (lakh per annum for years 1 to 5)	15
Rate of depreciation on plant and machinery (per cent on WDV)	25
Salvage value of plant and machinery (Equal to the WDV at the end of year 5)	40
Applicable tax rate (per cent)	
Time horizon (years)	5
Post-tax cut off rate (per cent)	12

Required :

i) Indicate the financial viability of the project by calculating the net present value.

ii) Determine the sensitivity of the project's NPV under each of the following conditions :

a) Decrease in selling price by 10 per cent

b) Increase in variable cost by 10 per cent.

SECTION – C

12. Case Study : **Compulsory.** 15

A company is trying to decide whether to invest in a new project. Two mutually exclusive projects are available, each requiring an investment of Rs. 3,00,000. Project A is expected to generate cash inflows of Rs. 2,00,000 per year in the next 2 years. It is estimated that the cash inflows associated with project B would either be Rs. 1,80,000, or Rs. 2,20,000 (each with 0.5 probability of occurrence) next year. If Rs. 1,80,000 is received in the first year, the cash inflow for the second year is likely to be Rs.1,50,000 (probability of 0.3), Rs. 1,80,000 (probability of 0.4) and Rs. 2,00,000 (probability of 0.3). In case the first year's cash inflow is Rs. 2,20,000, the second year's likely cash inflow would be Rs. 1,80,000 and Rs. 2,70,000 (each with 0.3 probability), and Rs. 2,20,000 (probability 0.4).

The firm uses a 14 per cent minimum required rate of return for deciding whether to invest in projects comparable in risk to the ones under consideration.

i) Calculate the risk adjusted expected NPV for projects A and B.

ii) Identify the best and the worst possible outcomes for B.

iii) Which of the projects, if any, would you recommend ? Why ?