PG – 887

IV Semester M.B.A. Degree Examination, July 2017
(CBCS Scheme)
MANAGEMENT
4.2.3 : Risk Management and Derivatives

Time : 3 Hours Max. Marks : 70

Instruction : *Answer* ***all*** *Sections.*

SECTION – A

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

1. Briefly explain the meaning of the following Option Greeks – Delta, Gamma, Rho, Vega and Theta.
2. List and briefly explain the various measures of Risk Analysis under Capital Budgeting.
3. Outline briefly the various commodity exchanges of India and list out the major commodities traded in those exchanges.
4. RK Ltd., is considering investment in one of the two mutually exclusive proposals. Project A, which involves an outlay of Rs. 1,70,000 and Project B, which has an outlay of Rs. 1,50,000. The Certainty Equivalent Approach is employed in evaluating investment. The current yield on treasury bills is 5% and the company uses this as riskless return. Expected values of net cash flows with their CEs are :

Year	Project A		Project B	
	Cash Flow	C.E.	Cash Flow	C.E.
1	90,000	0.8	90,000	0.9
2	1,00,000	0.7	90,000	0.8
3	1,10,000	0.5	1,00,000	0.6

   a) Which project should be acceptable to the company ?
   b) Which project is riskier ? How do you know ?
   c) If the company was to use the risk adjusted discounted method which project would be analysed with higher rate ?

P.T.O.

5. An investor buys 500 shares of SB Ltd., @ Rs. 210 per share in the cash market. In order to hedge, he sells 300 futures of AS Ltd. @ Rs. 195 each. Next day, the share price and futures decline by 5% and 3% respectively. He closes his positions next day by counter transactions. Find out his profit or loss.

6. The share price of XYZ Ltd., is selling for Rs. 104. ABC buys a 3-months call option at a premium of Rs. 5. The exercise price is Rs. 105. What is ABC's pay-off if the share price is Rs. 100 or Rs. 105 or Rs. 110 or Rs. 115 or Rs. 120 at the time the option is exercised ? What is the pay-off of the seller of the call option ? Draw the pay-off diagram.

7. RK Ltd., quotes at Rs. 100. The price in the next six months may jump to Rs. 115 or fall to Rs. 90. What is the value of a six month call option with an exercise price of Rs. 100 and a CCFRI of 20%. Use risk neutral approach.

SECTION – B

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

8. What is an Option Contract ? Explain the following terms with examples
   a) Call and Put Option.
   b) Stock Option and Index Options.
   c) American and European Options.
   d) In-the-Money, At-the-Money and Out-of-the-Money Options.

9. A tender is called for a fly-over for Rs. 10 Crores. The cost of tender is Rs. 2 Crores. There is a 50-50 chance of a tender being awarded. The fly-over can be built by our self at a cost of Rs. 5 Crores or through sub-contractors at a total cost of Rs. 4 Crores. But, if the sub-contract is unsatisfactory, we may have to spend a further Rs. 2 Crores to rectify defects. The probability of a sub-contract work being unsatisfactory is 0.4.

   Draw a decision tree to show the situation and decide the sequence of decisions.

10. On January 1, 2017 an investor has a portfolio of 5 shares as given below :

Security	Price (Rs.)	No. of Shares	Beta
A	349.30	5000	1.15
B	480.50	7000	0.40
C	593.52	8000	0.90
D	734.70	10000	0.95
E	824.85	2000	0.85

The cost of capital to the investor is 10.5% per annum. You are required to calculate :

i) The Beta of his portfolio.

ii) The theoretical value of the NIFTY futures for February 2017.

iii) The number of contracts of NIFTY the investor needs to sell to get a full hedge until February for his portfolio if the current value of NIFTY is 5900 and NIFTY futures have a minimum trade lot requirement of 200 units. Assume that the futures are trading at their fair value.

iv) The number of future contracts the investor should trade if he desires to reduce the beta of his portfolios to 0.6.

No. of days in a year be treated as 365. Given $e^{(0.015858)} = 1.01598$.

11. Write a brief note on commodity exchanges of India. Briefly discuss the major commodities traded on the exchange.

SECTION – C

12. Case Study. **(1×15=15)**

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

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

Required :

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

b) Determine the sensitivity of the project's NPV under each of the following conditions.

i) Decrease in selling price by 5%

ii) Increase in variable cost by 10%

iii) Increase in cost of plant and machinery by 10%.