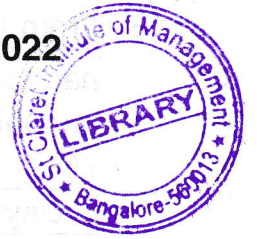**OP – 265**

IV Semester M.B.A. Degree Examination, November 2022
(CBCS – 2014-15 and Onwards)
MANAGEMENT
Paper – 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. Briefly explain the various measures of risk analysis under capital budgeting.

2. What are commodity derivatives ? Write a brief note on commodity exchanges in India.

3. Differentiate between forward contracts and future contract with suitable examples.

4. 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 tax)	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

5. Consider a three month maturity forward contract on a non-dividend paying stock. The stock is available for Rs. 250/- with continuously compounded risk free rate of interest of 8% per annum. What would be the price of forward contract ? Given $e^{0.02} = 1.0202$.

P.T.O.

6. From the following information prepare the margin account of the trader who had taken long position in one contract, number of units per contract if 50, price per unit on Day 1 is Rs. 700/-, initial margin is 12% and maintenance margin is 75%.

Day	1	2	3	4	5	6	7	8
Price	693	682	663	648	623	610	633	638

7. The current price of a share is Rs. 50/- and it is believed that at the end of one month the price will be either Rs. 55/- or 45/-. What will a European Call option with an exercise price of Rs. 53/- on this share be valued at if the risk free rate of interest is 15% per annum ?

SECTION – B

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

8. What are derivatives ? Explain different types of derivatives.

9. On January 1, 2021, Mr. Raj has a portfolio consisting of five securities as shown below :

Security	Number of Shares	Share Price	Beta
A	500	349.30	1.15
B	700	480.50	0.4
C	800	593.52	0.9
D	1000	734.70	0.95
E	200	824.85	0.85

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

　i)　Beta of his portfolio.

　ii)　The theoretical value of the NIFTY futures for February 2021.

　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 portfolio to 0.6.

　　　No. of days in a year 365. Given $e^{(0.01585)} = 1.01598$.

10. Nirmal Ltd. has an investment proposal, requiring an outlay of Rs. 40,000/-. The investment proposal is expected to have 2 years economic life with no salvage value. In year 1, there is 0.4 probability that cash inflow will be Rs. 25,000/- and 0.6 probability that cash inflow will be Rs. 30,000/- . The probabilities assigned to cash inflows after tax for the year are as follows :

Cash inflow in year 1 Rs. 25,000/-   Cash inflow in year 1 Rs. 30,000/-

Cash inflow in year 2	Probability	Cash inflow in year 2	Probability
12,000/-	0.2	20,000/-	0.4
16,000/-	0.3	25,000/-	0.5
22,000/-	0.5	30,000/-	0.1

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

SECTION – C

Compulsory.   (1×15=15)

12. Ajeet Corporation is considering the risk characteristics of a certain project. The firm has identified that the following factors, with respective expected values, have a bearing on the NPV of this project.

Initial Investment	Rs. 30,000
Cost of Capital	10%
Quantity manufactured and sold annually	1,400
Price per unit	Rs. 30/-
Variable cost per unit	Rs. 20/-
Fixed costs	Rs. 3,000/-
Depreciation	Rs. 2,000/-
Tax Rate	50%
Life of the project	5 years
Net Salvage value	Rs. Nil

Assume that the following underlying variables can take the values as shown below :

Underlying Variable	Pessimistic	Optimistic
Quantity manufactured and sold	800	1800
Price per unit	Rs. 20/-	Rs. 50/-
Variable cost per unit	Rs. 40/-	Rs. 15/-

a) Calculate the sensitivity of NPV to variations in
   i) Quantity manufacture and sold
   ii) Price per unit
   iii) Variable cost per unit.

b) Calculate the accounting break-even and the financial break-even.