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QUESTION PAPER

B.M.S COLLEGE FOR WOMEN AUTONOMOUS
BENGALURU – 560004

END SEMESTER EXAMINATION – OCTOBER 2022

M.Com – II Semester

Risk Management and Derivatives

Course Code: MCM202T **QP Code: 21013**
Duration: 3 Hours **Max marks: 70**

SECTION A

1. Answer any SEVEN of the following. Each question carries TWO marks. (7x2=14)

a. What is a credit derivative? Give an example.
b. A stock is currently quoted at Rs 75/- what will be its future value after 6 months; R_f = 10%
c. If a put option is bought with an exercise price of Rs 200@5 and if the market price becomes Rs 205, then what will be the profit or loss amount?
d. What is the application of normal distribution curve?
e. What is ORM? Give an example.
f. What is a simulation model?
g. Name any 4 NBFCs which are using financial modelling extensively.
h. Which financial statement is highly resistant to manipulation? Why?
i What is VAR model? Where is it used?
j What are swaps? Classify.

SECTION B

Answer any FOUR of the following. Each question carries FIVE marks. (4x5=20)

2. What is a derivative? Explain the different types of derivatives.
3. Calculate NPV and conclude about the projects.

Particulars	**Project A**	**Project B**
Initial Outlay	Rs. 10,000	Rs. 20,000
Cash inflows after taxes		
Year-end 1	8,000	8,000
2	7,000	9,000
3	Nil	7,000
4	Nil	6,000
Service life (years)	2	4
Required rate of return	0.10	

Reinvestment done in project A at the end of 2nd year.

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4. An investor took short position in 10 future contracts of commodity at an excise price of Rs 28.75/kg. The size of one future contract is 100 kg. The Initial margin for this contract is 20% and the maintenance margin is 85% of initial margin. The future price for the 1st 10 days of the contract are given below. Prepare a margin a/c for the 1st 10 days assuming that all margin calls are honored immediately

Day	1	2	3	4	5	6	7	8	9	10
Price	28.9	29.75	29.10	28.85	29.65	30.15	31.25	31.50	32.25	36.60

5. A stock is currently quoted at 60/- per share. It is expected to give a dividend of Rs 2 /- per share, 3 months from now and another dividend of Rs 1/- per share, 6 months from now. If the length of the contract is 9 months and continuously compounded risk free rate of return (CCR_f) is 14%, then what is the value of this future contract if the lot size is 100?

6. An investor has short position of 500 shares at Rs. 412 each. Expecting a rise in the market he decides to hedge his position by way of buying call option contracts at Rs 410 by way of paying Rs 5 premium. Each contract consists of 250 shares. How will this position performs in case of different shares below and above Rs 410? Price range is Rs 390 to 430 with a gap of Rs 5.

7. Consider a portfolio consisting of Rs 3,00,00,000 investment in share ABC and same amount in XYZ. The daily standard deviation of both shares is 2% and that the coefficient of correlation between them is 0.5. You are required to determine the 8 day 99% VaR for the portfolio.

SECTION C

Answer any TWO of the following. Each question carries TWELVE marks. (2x12=24)

8. An investor invests in two avenues, mainly

X	2,00,000	SD = 20%
Y	3,00,000	SD = 15%
Correlation between the stocks is 0.7		

Calculate 1 day VaR of portfolio at 95% confidence level.
Also calculate the benefit of diversification

9. Perform Scenario analysis considering the following data.

Particular	**Pessimistic (Rs in million)**	**Expected (Rs in million)**	**Optimistic (Rs in million)**
Investment (Rs in million)	24	20	18
Sales (Rs in million)	15	18	21
Variable costs as a percent of sales	70%	66.67%	65%
Fixed Costs	1.3	1.0	0.8

Straight line method of depreciation is used. Tax is 33.33%. Discount rate is 12%. Time period is 10 years.

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10. Explain the concepts of stress testing and back testing.
11. Why are the credit risk assessment and credit risk management have emerged in the corporate world? Briefly explain the applications with examples.

Compulsory question carries TWELVE marks. **(1x12=12)**

12. Calculate the value of call option using Black and Scholes model considering the below information:

Current market price of the share is Rs 243.
Exercise price Rs 250. Volatility (standard deviation) 0.54
Time of expiry 65 days. Risk free rate of interest 9%p.a.
If the investor wants to buy a Put option with the same exercise price and expiry date as call option, what will be the value of put option?

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