PG – 1296

II Semester M.Com. Degree Examination, Aug./Sept. 2025
(CBCS) (2020-21)
COMMERCE
Paper – 2.2 : Risk Management and Derivatives

Time : 3 Hours | Max. Marks : 70

SECTION – A

Answer **any seven** questions out of ten. **Each** question carries **two** marks. **(7×2=14)**

1. a) Define the term 'Risk Management'.
   b) Write the concept of Agri Risk Management.
   c) What is a Credit Metrics Model ?
   d) What is KMV Model ?
   e) What do you mean by Quadratic Model ?
   f) Define the term 'Operational Risk Management (ORM)'.
   g) Mention the types of Derivatives.
   h) What is a swap contract ?
   i) What is meant by Cost of Carry Model ?
   j) What is meant by a flat yield curve ?

SECTION – B

Answer **any four** questions out of six. **Each** question carries **five** marks. **(4×5=20)**

2. Explain in brief the role of risk management in business and finance.
3. Discuss the principles of credit risk management.
4. Write a note on Monte Carlo Simulation.
5. Explain the types of participants in the derivatives market.
6. Consider a three month call option on ABC Company's stock with an exercise price of ₹ 45. If ABC is currently selling at ₹ 50 and the risk-free interest rate is 5%, what will be the price of the option ? Apply the Black-Scholes model to find call option value by assuming the standard deviation of the rate of return of ABC stock to be 0.4.

P.T.O.

7. Consider the call option on the stock of RDX Company. The stock currently trades for Rs. 22.75 per share. The option has one month to expiration and an exercise price of Rs. 20. The riskless interest rate is 5% (annually), and the variance of RDX's stock is 0.45.
   a) What is the value of the call option ?
   b) The prices exceeds Rs. 2.75. Why ?
   c) Suppose the risk free interest rate was 7% instead of 5%. Find the option's value. Is this result consistent with your expectation ?

SECTION – C

Answer **any two** questions out of four. **Each** question carries **twelve** marks. **(2×12=24)**

8. Explain in detail the different credit risk models used by banks and financial institutions.

9. Explain the key factors contributing to the growth of the derivatives market. Also discuss the recent trends and developments in the Indian derivatives market.

10. An investor has a Portfolio consisting of seven securities as shown below :

Security	No. of Shares	Share Price (Rs.)	Beta
ABC Ltd.	3,000	250	1.21
XYZ Ltd.	5,000	120	0.88
LMN Ltd.	4,000	180	1.12
PQR Ltd.	3,000	200	0.67
STU Ltd.	2,500	190	0.78
UVW Ltd.	2,000	150	1.09
DEF Ltd.	3,500	140	1.37

The cost of capital for the investor is given to be 10% P.A. The investor fears a fall in the prices of the shares in the near future. Accordingly, he approaches you for advice. You are required to :

a) Calculate total portfolio value

b) Calculate portfolio beta

c) If index future is trading at 28,000, lot size 100, how many contracts must be shorted to hedge ?

11. Given the following information, 7.25 cash bond is to be hedged; the two future instruments are used as the hedging investment, find the two instruments hedge ratio.

Instruments	Yield	Coupon	Convexity
7.5 due in ten years	7.225	6.99	61.88
5 years T-note futures	6.860	4.22	19.99
T-bond futures	7.500	11.52	185.92

SECTION – D

12. Answer the following question. **(1×12=12)**

XYZ bank is seeking fixed rate funding. It is able to finance at a cost of six month LIBOR + $^1/_4$% for $100 million for 5 years. The bank is able to swap into a fixed rate at 8.50% versus six month LIBOR. Treating 6 months as exactly half a year :

a) Set out the cash flows involved. What will be the all in cost of funds to XYZ bank ?

b) Another possibility being considered is the issue of 'hybrid' instrument which pays 8.50% for the first 3 years and LIBOR – $^1/_4$% for the remaining 2 years. Given a 3 years swap rate of 9% indicate in general terms the method by which the bank would achieve fixed rate funding.

c) In principle, without calculating the cash flows involved, does this deal seem attractive ?

d) Briefly outline the risks which would be involved for the bank in such funding operation.