Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – MAY 2025

Date: 23-05-2025 **Time:** 01:00 pm –04:00 pm

School: SOM-PG	**Program:** MBA	
Course Code : MBA3097	**Course Name:** Derivatives and Risk Management	
Semester: IV	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	19	31	31	19	-

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 3marks. **10Q x 3M=30M**

1.	Differentiate between exchange traded and OTC financial derivatives	**3 Marks**	**L2**	**CO1**
2.	Distinguish between hedgers and speculators	**3 Marks**	**L2**	**CO1**
3.	Outline the meaning of Marking to Market?	**3 Marks**	**L1**	**CO2**
4.	Define Contango and market Backwardation	**3 Marks**	**L1**	**CO2**
5.	Explain financial derivatives contracts	**3 Marks**	**L2**	**CO1**
6.	Recall the difference between buying a put option and writing a call option	**3 Marks**	**L1**	**CO3**
7.	An Investor purchases put option involving 300 shares with an exercise price of Rs. 180 for Rs. 9.5. 1 What is the maximum loss that the investor could possibly incur? 2 What is the maximum profit which could accrue to him? 3. Find the BEP of stock price.	**3 Marks**	**L1**	**CO3**
8.	Explain the benefits of credit derivatives	**3 Marks**	**L2**	**CO4**
9.	Illustrate straddle, strips and straps combination strategies.	**3 Marks**	**L2**	**CO4**
10.	What is a Credit Default Swap ?	**3 Marks**	**L1**	**CO4**

Part B

Answer the Questions. **Total Marks 40M**

<table>
<tr><td>11.</td><td>a.</td><td>The Settlement price of Sensex future contracts on a particular day was Rs. 4700/-. The initial margin is set at Rs. 12,000/-, while the maintenance margin is fixed at Rs. 9,000/-. The multiple of each contract is 50. The settlement prices of all 5 days are as follows:-

<table><tr><th>Day</th><th>Settlement Price</th></tr><tr><td>1</td><td>4700</td></tr><tr><td>2</td><td>4600</td></tr><tr><td>3</td><td>4750</td></tr><tr><td>4</td><td>4850</td></tr><tr><td>5</td><td>4800</td></tr></table>Demonstrate the mark to market, Cash flows and the daily closing balances in the account of an investor who has gone long.</td><td>10 Marks</td><td>L 2</td><td>CO1</td></tr>
<tr><td colspan="6">Or</td></tr>
<tr><td>12.</td><td>a.</td><td>Distinguish between forward contracts and futures contracts. Discuss their key features, advantages and limitations from the perspective of both hedgers and speculators.</td><td>10 Marks</td><td>L 2</td><td>CO1</td></tr>
<tr><td>13.</td><td>a.</td><td>A certain share index provides a divided yield of 3.5% p.a. The current value of index is 1003. The continuously compounded risk free rate is 8%.

i) Show the value of a month’s future contract on the given index.

ii) Show the value of a 1 month future contract assuming that each contract has 200 units.</td><td>10 Marks</td><td>L 2</td><td>CO2</td></tr>
<tr><td colspan="6">Or</td></tr>
<tr><td>14.</td><td>a.</td><td>Compare and contrast systematic and unsystematic risk. Do you agree that hedging with stock index futures contracts controls both these types of risk?</td><td>10 Marks</td><td>L 2</td><td>CO2</td></tr>
<tr><td>15.</td><td>a.</td><td>You are a junior derivatives analyst in a financial firm. Compute the price a European call option using Binomial Model.
Current stock price (S_O) = $100
Strike price (E) = $105
Time to expiration = 6 Months
Up factor (u) = 1.2</td><td>10 Marks</td><td>L3</td><td>CO 3</td></tr>
</table>

		Down factor (d) = 0.8 Risk-free rate = 5% per annum, compounded continuously			
		Or			
16.	**a.**	"Call writers and put buyers exhibit bearish sentiments". Do you agree? Explain.	**10 Marks**	**L2**	**CO 3**

17.	**a.**	Illustrate how a credit default swap and Total return swap can be used to manage credit risk in a loan portfolio.	**10 Marks**	**L2**	**CO 4**
		Or			
18.	**a.**	Explain how interest rate swap and currency swap help a company hedge against fluctuations in interest rates and currency exchange rates	**10 Marks**	**L2**	**CO 4**

Part C

Answer all the Questions. Each question carries 15marks **2Q x 15M=30M**

19.	**a.**	An investor provides the following data on shares of an Information Technology Company and a call option on the stock: Price of the share Rs.66 Exercise price Rs.64 Time to expiration 3 months Continuously compounded risk free rate of return 8% p.an Standard deviation 0.6 i) Calculate the value of call option using Black and Scholes Model ii) If this option is priced at Rs.8.00, what investment strategy would you suggest? iii) Use your answer in part (i) to calculate the value of a put option	**15 Marks**	**L4**	**CO 3**

20.	**a.**	On 1st Jan 2020, an investor has portfolio consisting of 8 securities as shown below.	**15 Marks**	**L4**	**CO 2**

Security	Price	No. of shares	Beta
A	29.4	400	0.59

B	318.7	800	1.32
C	660.2	150	0.87
D	5.2	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.

The investor fears fall in the prices he approaches you for advice.

1) You are required to calculate Beta of the portfolio
2) Calculate the theoretical value of future contract for the contract expiring in i) Feb ii) March.
3) Calculate no. of units of SNP CNX Nifty that he would have to sell. If he desires to hedge until March 90% of his Portfolio
4) Determine the number of futures contract, the investor should trade. If he desires to reduce the Beta of his Portfolio to .6

Assumptions:-

i) The current SNPCNX Nifty value is 1900.
ii) SNP CNX NIFTY futures can be traded in the units of 200 only.
iii) The Feb futures are currently quoted at 2100 and the March futures are quoted at 2,200.