Name:

Enrolment No:

School of Business
UPES
End Semester Examination December, 2024

Program: MBA (OG) – B1, B2 | **Semester: 3rd**
Subject/Course: Energy Derivatives and Risk Management | **Max. Marks: 100**
Course Code: OGOG 7015P | **Duration: 3 Hrs**

IMPORTANT INSTRUCTIONS

1. **Any Calculator is Allowed**
2. **Any Communication Device is not Allowed**
3. **Smart Watches are not allowed**

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q1.	A long call gives the holder a right to buy the underlying asset/contract at the strike price. (True/False)	2	CO1
Q2.	Which of the following is the utility of Swaps. a) Swaps can be used to lower borrowing costs and generate higher investment returns. b) Swaps can be used to transform floating rate assets into fixed rate assets, and vice versa. c) Swaps can transform the currency behind any asset or liability into a different currency d) All of the Above	2	CO2
Q3.	A Bull Spread is when the investor subsequently enters into Long Call and Short Call at the same strike price. (True/False)	2	CO2
Q4.	What is the impact of the Current Stock Price on the Price of an European Call Option.	2	CO1
Q5.	What are American Options?	2	CO2
Q6.	Discuss the Monte Carlo Method of calculating Value at Risk.	2	CO2
Q7.	What is Backwardation?	2	CO1
Q8.	Discuss the importance of Price Risk Management.	2	CO1
Q9.	Basis Risk increases as the time difference between the Hedge Expiration and the Delivery Month Increases. (True/False)	2	CO1
Q10.	Discuss the benefit of trading Options.	2	CO1

<table>
<tr><td colspan="4">SECTION B
4Qx5M= 20 Marks</td></tr>
<tr><td>Q11.</td><td>What are the reasons for the existence of Basis while entering a hedge?</td><td>5</td><td>CO2</td></tr>
<tr><td>Q12.</td><td>Discuss the factors affecting the price of an Option.</td><td>5</td><td>CO3</td></tr>
<tr><td>Q13</td><td>A 2 year swap is initiated between A and B. A agrees to pay to B a principal of INR 100,000 at a fixed interest of 5.75% per annum payable annually. B agrees to swap this at the prevailing repo rate of 6.5% further increasing by 0.5% every year.
Calculate the net cash flows for A.</td><td>5</td><td>CO3</td></tr>
<tr><td>Q14</td><td>Mr. X has invested INR 70,00,000 for a period of 1 month. The Standard Variation is 10%.
At a 5% significance level, calculate Mr. X's Value at Risk.
Value of z at 5% level of significance is 1.65.</td><td>5</td><td>CO2</td></tr>
<tr><td colspan="4">SECTION-C
3Qx10M=30 Marks</td></tr>
<tr><td>Q15.</td><td>On the basis of their utility, differentiate between Strip Hedge and Stack & Roll Hedge.</td><td>10</td><td>CO3</td></tr>
<tr><td>Q16.</td><td>Discuss in detail the working of Butterfly Spread.</td><td>10</td><td>CO4</td></tr>
<tr><td>Q17.</td><td>An investor is facing uncertainty in the stock market and is anticipating upward or downward movement in the stock prices of ABC Co Limited. However, study suggests that the following future prices may be possible.
1. INR 65
2. INR 75
3. INR 85
The investor decides to implement the following strategy:
1. Buys for INR 20 a 3-month European call with a strike price of INR 70 and
2. Sells for INR 12 a 3-month European call with a strike price of INR 80.
3. Buys for INR 12 a 3-month European Put with a strike price of INR 80 and
4. Sells for INR 20 a 3-month European Put with a strike price of INR 70.
Calculate his net profit or loss at the possible stock prices.</td><td>10</td><td>CO3</td></tr>
<tr><td colspan="4">SECTION-D
1Qx30M= 30 Marks</td></tr>
<tr><td>Q18.</td><td>Light Refineries Limited enters into a Forward Contract on 31st October 2024 to buy 50000 bbl of crude oil to be delivered over on 1st October 2025. The price has been agreed at $75/bbl.
Futures Contracts are available for maturity on the following dates:

a. 31st December 2024
b. 31st March 2025
c. 30th June 2025
d. 30th September 2025</td><td>15</td><td>CO4</td></tr>
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	Given the prevailing market conditions, Light Refineries Limited is anticipating the market will be in Contango. Discuss in detail the Risk Management Strategy for Light Refineries Limited.		
Q19	Mr. Bull if facing a strange market scenario where the commodities market doesn't seem to move significantly. Mr. Bull knows that a significant upward or downward movement will be a disaster for him and therefor he enters into the following trades: 1. Enters into a Long Call priced at INR 20, Strike Price is INR 95 2. Enters into a Long Call priced at INR 10, Strike Price is INR 105 3. Enters into 2 Short Calls priced at INR 14 each, Strike Price is INR 100. Calculate the following: 1. Payoff from Trading the Spread 2. Profit/Loss from Trading the Spread If the prevailing market prices are: 1. INR 90 2. INR 98 3. INR 115	**15**	**CO4**