Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Commodity Trading & Price Risk Management **Semester: III**
Programme: MBA (International Business) **Course Code:INTB-8005**
Time: 03 hrs. **Max. Marks: 100**
Instructions: The students can ask for graph sheets

SECTION A **2x10=20**

S. No.		Marks	CO
Q 1	**Explain the following in not more than 2 lines** 1.) Trade Compression 2.) Straddle 3.) Limit order 4.) Price risk 5.) Hedger 6.) Hedge Ratio 7.) Insider Trading 8.) Monte Carlo simulation 9.) Vanilla swap 10.) Put option	**20**	**CO 1,2,3**

SECTION B **4x5=20**

Q 1.	Differentiate between the following: a.) American and European option b.) Contango and Backwardation	**5**	**CO 2,3**
Q 2.	Explain the concept of Mark to market while settling the daily transactions.	**5**	**CO 2**
Q 3.	Explain how basis risk can arise in a hedging transaction.	**5**	**CO 1**
Q 4.	An electronic trading system allows the trading members to enter orders with various conditions attached to them as per their requirements. Explain carefully different type of orders?	**5**	**CO 2,3**

SECTION-C **15x2=30**

Q 1.	Analyse a strategy with the help of an example in which the investor is expecting big price movements in underlying asset price with decrease in price more likely than an increase.	**15**	**CO 2,3**
Q 2.	Consider a case of Interest rate swaps involving two companies Company A and Company B which requires 5 million dollars to expand its operations. Co. A's main aim is to take loan at variable rate of interest and Co. B wants loan at fixed rate of interest. Co. A visits Bank A which is ready to provide loan at LIBOR and a fixed rate of 7%.	**15**	**CO 2**

	Co. B visits Bank B which is ready to provide loan at LIBOR+1% and at a fixed rate of 10%. Now a swap bank approaches the two companies asking Co. A & B to take loan from Bank A & Bank B at a fixed and variable rate of interest respectively. Swap Bank entered into a swap contract with Co. A wherein Co. A has to pay $5 million at LIBOR to the swap bank and in return would receive the amount at 8% fixed rate of interest from the swap bank. Similarly Swap bank entered into a swap contract with Co. B wherein Co. B has to pay $5 million at 8.5% fixed rate of interest to the swap bank and in return would receive the amount at LIBOR from the swap bank. Analyze the situation above and answer the following questions: 1.) How is the swap contract beneficial to Company A? 2.) How is the swap contract beneficial to Company B? 3.) Explain the role of swap bank in the whole transaction and the profit earned by it		
	SECTION-D		
Q1.	**Refer the case "Sumitomo Derivatives Losses" below and answer the questions in the end of the case study.** This case explains the causes of the losses and the impact on the financial world due to the Sumitomo Copper Derivatives trades caused by excessive manipulation by one of its key and trusted employees Yasuo Hamanaka. He was believed to be an expert in Risk Management. He had a star trader status and was vested with executive decision-making powers by the firm. Sumitomo owned large amounts of copper that was warehoused and stored in factories as well as numerous futures contracts. Hamanaka controlled 5% of the worlds copper supply, which may sound like a very small and insignificant amount, but given the fact that copper is illiquid because it is physical in nature and the logistics of buying and selling it are not as simple as financial commodities, a five percentage holding is quite significant. Sumitomo also benefitted from the commissions on the other copper transactions that were handled by the company. Commissions were handled by the percentage of the value of the commodity being sold and delivered. **Causes of the Losses** There were some losses that Sumitomo had incurred just when Hamanaka had taken charge. He tried to recover the losses by taking huge positions in copper commodity futures on the London Metal Exchange. He tried to use the firm's large cash reserves to both corner and squeeze the market and kept the price artificially high for the entire decade leading up to 1995 and garnished premium profits on the sale of Sumitomo's physical assets.	**2 X 15 = 30**	**CO 1,2,3**

This of course attracted the attention of the exchange and it gave a warning to Hamanaka who then struck a deal via Merrill Lynch for USD 150 million, which enabled him to trade at LME. He borrowed money from several banks without any authorization from his seniors. He used the funds either to buy copper or pay for the collateral he was required to deposit at the LME to cover loss making positions. By 1990 he was reporting huge trading profits to the top management by showing invoices of the fictitious options trades which he had created through some nexus with some brokers. Whenever anyone attempted to short the market he would pour more cash into positions thereby sustaining the price and outlasting the shorts, simply because he had more cash. The long cash positions forced anyone shorting copper to deliver the goods or close out their position at a premium.

Unlike the US, the LME had no mandatory position reporting and no statistics showing open interest. Basically traders knew the price was too high, but they did not have the exact figures of how much Hamanaka controlled and how much money he had in reserve. In the end most cut their losses and had Hamanaka have his way. Nearly a decade after this market manipulation took place in 1995 due to the resurgence of the mining in China the price of copper started to revive which further inflated the prices. Sumitomo was exposed to losses because the market was headed for a big drop and shorting the positions then would result in an even bigger loss at a faster rate.

Analysts felt that the debacle was a result of Sumitomo's poor managerial, financial and operational control systems, which enabled Hamanaka to carry out unauthorized trading activities undetected by the top management. There was a lack of effective monitoring and supervision of his trading activities.

The sorts of risks that cause this loss are market risk, operational risk – supervision and fraud – market manipulation.

The Aftermath

Analysts were concerned about the Sumitomo losses as it came after two major corporate disasters – Barings and Daiwa and felt that it would lead to a serious introspection among various financial regulators and trading firms to improve existing regulation and trading procedures.

Sumitomo was able to overcome the losses since it had a net worth of $6bn and another $8bn in hidden reserves. The losses estimated to be $2.6bn amounted to only 10 per cent of Sumitomo's annual sales. Sumitomo was also able to prevent further escalation of losses by aggressive liquidation of its uncovered position under its new president Miyahara. Hamanaka was of course transferred out of his trading post.

Hamanaka was charged with forging one of his supervisor's signatures on a form and convicted. Sumitomo's reputation was tarnished as many people believed that the

	company could not have been ignorant of Hamanaka's hold on the copper market, especially because it profited for years from it. Traders argued that Sumitomo must have known of Hamanaka's wrongdoing because the company threw more money at Hamanaka every time speculators tried to shake his price. Sumitomo responded by implicating JPMorgan Chase and Merrill Lynch as funders of the scheme, revealing that the banks had granted loans structured as future derivatives. Sumitomo, JPMorgan Chase and Merrill Lynch all were found guilty to some extent. As a result, JPMorgan Chase's case on a similar charge, related to the Enron scandal and Mahonia Energy, was hurt. Meanwhile, Hamanaka served his sentence without comment. Since the copper market manipulation, new protocols have been added to the LME to make a repeat less likely. Q1. Explain the causes of the losses and the impact on the economy due to the Sumitomo Copper Derivatives trades? Q2. Which hedging strategies should the company must have applied in order to avoid occurrence of these losses.		**CO-1,2,3** **CO-1,2,3**