GL BAJAJ
Institute of Management & Research
Greater Noida

FIND YOUR SPARK

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306
POST GRADUATE DIPLOMA IN MANAGEMENT (2024-26)
MID TERM EXAMINATION (TERM -IV)

Subject Name: **Financial Derivatives**	Time: **01.00 hrs**
Sub. Code: **PGF41**	Max Marks: **20**

Note: All questions are compulsory.

Read the following case and answer the following questions: **10×2 = 20 Marks**

Kindly write the all the course outcomes as per your TLEP in the box given below:

CO1- Apply the concepts of forward contracts by evaluating their trading mechanisms, valuation techniques, and settlement processes

CO2- Apply the pricing models for futures contracts, assess their relationship with spot prices, and execute hedging strategies using optimal hedge ratios

CO3- Analyze the pricing of options using the Black-Scholes model and Put-Call Parity, and evaluate arbitrage opportunities in options markets

CO4- Evaluate and implement advanced hedging strategies using vanilla and exotic options to mitigate risks and generate income in real-world financial scenarios

CO5- Create a detailed swap valuation model for various types of swaps (interest rate, currency, commodity), and design risk management strategies using swaps in financial markets

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Case Study: Aves Motors' Aluminium Hedging Dilemma

Background:

Aves Motors Pvt. Ltd. is a mid-sized automotive component manufacturer based in Pune, India. A key raw material for their production process is high-grade aluminium. In early October 2025, the company's procurement manager, Ms. Priya Sharma, secured a large order that requires the delivery of finished components in three months. To fulfill this order, Aves Motors will need to purchase **100 metric tons (100,000 kg)** of aluminium in mid-January 2026.

The current spot price for aluminium on the Multi Commodity Exchange (MCX) is **₹215 per kg**. However, the market has been volatile due to global supply chain disruptions and fluctuating energy prices. Ms. Sharma is concerned that a potential price increase in aluminium over the next three months could significantly erode the profitability of the new order. She is exploring derivative instruments to hedge this price risk.

Market Information (as of October 7, 2025):

➢ **Current Spot Price (Aluminium):** ₹215 per kg.

➢ **Three-Month Forward Contract Price:** A commodity supplier is offering a customized forward contract to deliver 100 metric tons of aluminium in three months at a locked-in price of **₹218 per kg**.

MCX Aluminium Futures (January 2026 Expiry):

✓ Current Futures Price: **₹220 per kg**.

✓ Contract Size: 5 metric tons (5,000 kg).

✓ Initial Margin: 8% of contract value.

Ms. Sharma needs to analyze her options and recommend a course of action to the management.

Question 1 (CO1)

Aves Motors is considering using the over-the-counter forward contract offered by their supplier. Assume that in mid-January 2026, the spot price of aluminium has risen to **₹225 per kg**.

(a) Calculate the total cost for Aves Motors to purchase 100 metric tons of aluminium if they **do not hedge** their position.

(b) Calculate the total cost for Aves Motors if they **enter into the forward contract** at ₹218 per kg.

(c) Based on this outcome, explain the primary advantage that the forward contract provided to Aves Motors in this specific scenario.

Question 2 (CO2)

As an alternative to the forward contract, Ms. Sharma is evaluating a hedging strategy using the January 2026 Aluminium futures contracts on the MCX. To execute the hedge, she would take a long position in the futures market. Assume that when she closes her position in mid-January, the aluminium spot price is ₹225 per kg, and the January futures price is **₹226 per kg**.

(a) Determine the number of futures contracts Aves Motors must buy to hedge its 100 metric ton requirement.

(b) Calculate the total profit or loss from the futures position.

(c) Calculate the **effective price** per kg that Aves Motors ultimately pays for the aluminium after accounting for the outcome of the futures hedge. Explain how basis risk affected the outcome of this hedge.

Kindly fill the total marks allocated to each CO's in the table below:

COs	Marks Allocated
CO1	10 Marks
CO2	10 Marks