

**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**
**PGDM / PGDM (M) / PGDM (SM)**
**V TRIMESTER (Batch 2021-23)**
**END TERM EXAMINATIONS**
**SET - I**

Course Name	Financial Derivatives & Risk Management (FDRM)	Course Code	20223
Max. Time	2 Hours	Max. Marks	40

**INSTRUCTIONS:**

- Attempt all Questions. This is an open book exam. All questions need to be done in an excel file with separate sheets for each question.

**Data for Q1 to Q3**

Underlying Index: **TATASTEEL 100.70** As on 18-Oct-2022

CALLS						PUTS						
LTP	CHNG	BID QTY	BID PRICE	ASK PRICE	ASK QTY	STRIKE PR	BID QTY	BID PRICE	ASK PRICE	ASK QTY	CHNG	LTP
9.25	1.3	4,250	8.95	9.5	29,750	92	7,01,250	0.2	0.3	2,16,750	-0.25	0.25
8.2	-1.45	17,000	6.35	8.85	21,250	93	4,250	0.25	0.35	17,000	-0.3	0.3
6.5	0.15	4,250	7.25	7.55	8,500	94	2,80,500	0.35	0.4	17,000	-0.45	0.35
6.4	0.85	4,250	6.3	6.55	4,250	95	8,500	0.45	0.5	17,000	-0.55	0.45
5.6	0.8	29,750	5.4	5.8	4,250	96	55,250	0.6	0.65	4,250	-0.55	0.65
4.85	0.75	4,250	4.05	5.55	4,250	97	4,250	0.8	0.9	8,500	-0.65	0.9
4	0.55	4,250	4	4.15	4,250	98	4,250	1.05	1.15	8,500	-0.85	1.05
3.35	0.5	4,250	3.4	3.45	4,250	99	4,250	1.3	1.5	12,750	-0.85	1.5
2.85	0.45	8,500	2.8	2.85	25,500	100	46,750	1.75	1.8	29,750	-1.1	1.75
2.35	0.4	17,000	2.25	2.35	4,250	101	8,500	2.25	2.35	8,500	-1.1	2.35
1.85	0.25	12,750	1.8	1.9	34,000	102	8,500	2.75	2.9	4,250	-1.2	2.9
1.6	0.25	21,250	1.45	1.6	29,750	103	38,250	2.05	4.7	8,500	-1.3	3.5
1.25	0.15	46,750	1.2	1.25	25,500	104	4,250	4.1	4.3	8,500	-1.35	4.25
0.95	-	25,500	0.95	1	29,750	105	4,250	4.8	5.1	4,250	-1.35	5.1
0.8	0.05	1,78,500	0.75	0.8	34,000	106	12,750	5.55	5.9	12,750	-1.4	5.95
0.65	-	80,750	0.6	0.65	89,250	107	17,000	5.4	7	17,000	-	-
0.5	-0.05	3,06,000	0.5	0.55	1,65,750	108	4,250	7.2	7.65	4,250	-1.35	7.7
0.45	-	1,70,000	0.4	0.5	4,250	109	8,500	7.1	8.75	8,500	-3.95	9.4

**MARKET LOT: 2000 SHARES. Expiry date : 27<sup>th</sup> October 2020.**

Q1. Analysts offering long term price targets for Tata Steel Ltd. Tata Steel Ltd. has an average target of 118.00. The consensus estimate represents an upside of 17.24% from the last price of 100.65 on October 18th 2022. Tata steel is a strong performer with high durability and valuation scores and midrange momentum. It is considered under the radar for investors and potential value stocks with a volatility of 16.72% in comparison to 91days treasury bill rate of 6.31%. This will affect the future predictions to Tata Steel. To take the advantage of future changes, select a best option trading strategy using option chain of Tata steel. Justify your strategy, keeping in mind the recommendations for Tata steel performance.

(CLO 2; BT Level III, V; Marks: 2 X3=6)

Q2. Evaluate the arbitrage opportunities exist in the lower bound value of an ITM call option and determine the arbitrage profit and loss with respect to stock price upward and downward movement.

(CLO 3; BT Level V; 2 X 3= 6 marks)

Q3. You want a low-cost short position strategy. Suppose you are holding a short position in 200 OTM PUTS. Illustrate how will you make your portfolio delta neutral. (CLO 3; BT Level II; 6 marks)

**Data for Q4 and Q5**

Symbol	Underlying Value (October 18 <sup>th</sup> 2022)	Traded Value (lacs)	Annualized (Implied)Volatility
MARUTI	8,807.35	32,646.01	11.75%

Maruti Suzuki India Limited - MARUTI

Get Underlying Quote | Option Chain

Index Derivatives Derivatives

Stock Derivatives

Currency

Instrument Type: Stock Futures

Symbol: MARUTI

Expiry Date: 27OCT2022

Option Type: Strike Price:

Get Data

8,823.05	Prev. Close	Open	High	Low	Close
▲ 90.40 1.04%	8,732.65	8,771.95	8,889.20	8,768.25	0.00

Fundamentals

Historical Data

	Print	Order Book	Intra-day	Future v/s Index
Traded Volume (contracts)	5,849	Buy Qty.	Buy Price	Sell Price
Traded Value * (lacs)	51,681.41	200	8,817.05	8,824.00
VWAP	8,835.94	100	8,817.00	8,824.75
Underlying value	8,805.10	100	8,811.00	8,825.00
Market Lot	100	100	8,810.15	8,825.55
Open Interest	29,91,800	100	8,810.10	8,826.35
Change in Open Interest	-42,200	20,700	Total Quantity	
% Change in Open Interest	-1.39			1,54,900

Q4. You are planning to sell Maruti Suzuki share on October 27th 2022. Determine the risk associated with your investment and suggest a hedging strategy with the help of Maruti future contract. Further, assess the risk and return in your position at expiry if stock price jumps by 8% and future contract jumps by 9.5%. (CLO 2; BT Level V; 2 X 3= 6 marks)

Q5. Evaluate the arbitrage opportunities in the future contract of Maruti Suzuki. Considering 91 days treasury bill rate of 6.31%. (CLO 3; BT Level V; 6 marks)

Q6. Suppose that you enter into a short futures contract to sell July silver for \$17.20 per ounce. The size of the contract is 5,000 ounces. The initial margin is \$4,000, and the maintenance margin is \$3,000. Determine change in the futures price will lead to a margin call? Explain what happens if you do not meet the margin call? (CLO 1; BT Level V; 5 marks)

Q7. Direct access to fixed-rate markets is difficult for companies with a high credit risk. Do you advise such businesses to take advantage of interest rate swaps or current swap agreements? Do you think it raises or lowers the risk of a swap portfolio held by a financial intermediary? Justify your answer with an example. (CLO 1; BT Level V; 5 marks)