JAIPURIA INSTITUTE OF MANAGEMENT
LUCKNOW NOIDA JAIPUR INDORE

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

V TRIMESTER (Batch 2019-21)

END TERM EXAMINATIONS

SET – I

Course Name	Financial Derivatives & Risk Management (FDRM)	Course Code	FIN402
Max. Time	2 Hours	Max. Marks	40

INSTRUCTIONS:

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

Case: Please read the data carefully and answer below mentioned questions (Q1 to Q6)

Symbol	**Underlying Value (Jan 13th 2021)**	Volume Freeze Quantity	Annualized (Implied)Volatility
HDFCBANK	1,468.90	33,001	38.69

INSTRUMENT TYPE	EXPIRY DATE	OPTION TYPE	STRIKE PRICE	OPEN PRICE	HIGH PRICE	LOW PRICE	**CLOSE PRICE**	PREV. CLOSE
Stock Futures (HDFC BANK)	28-Jan-2021	-	-	1,493.55	1,497.15	1,468.25	**1,485.30**	1,485.30

Market Lot: 550 shares

OPTION CHAIN

CALLS							PUTS					
LTP	CHNG	BID QTY	BID PRICE	ASK PRICE	ASK QTY	STRIKE PRICE	BID QTY	BID PRICE	ASK PRICE	ASK QTY	CHNG	LTP
-	-	2,750	232.95	278.05	12,650	1,220.00	1,650	0.45	1.8	1,100	-	-
-	-	1,100	230	235.15	1,100	1,240.00	1,650	1	1.2	550	-0.2	0.9
-	-	2,750	193.5	237.15	2,750	1,260.00	1,100	1.25	1.5	1,100	-0.05	1.25
-	-	2,750	173.45	217.45	2,750	1,280.00	1,100	1.75	1.85	550	0.15	1.75
177.9	-10.55	1,650	175.05	177.55	4,400	1,300.00	550	2.7	2.8	550	0.3	2.7
-	-	550	154.9	158.1	550	1,320.00	550	3.6	3.75	1,100	0.5	3.65
140	-5	2,200	135.95	138.75	550	1,340.00	3,850	4.95	5.15	4,950	0.8	5.05
124	-6.15	1,650	118.7	121.6	2,200	1,360.00	1,100	6.9	6.95	1,100	1.45	6.9
104	-8.85	1,100	102.35	103.1	550	1,380.00	550	9.7	9.85	550	2.1	9.8
88	-8.5	1,100	87.5	87.85	1,650	1,400.00	550	13.9	14	550	2.95	13.9
73	-7.5	550	72.6	73.15	550	1,420.00	2,750	19.2	19.4	2,750	3.6	19.1
60.05	-6.6	550	60.05	60.4	550	1,440.00	550	26.5	26.65	2,750	4.9	26.5
49.1	-5.25	1,100	49	49.3	1,100	1,460.00	550	35.3	35.5	2,200	6.1	35.4
39.8	-4.65	550	39.75	40.05	1,650	1,480.00	550	45.8	46.1	1,100	7.2	46
32	-3.4	550	32	32.1	550	1,500.00	550	57.85	58.8	550	8.05	57.85
25.1	-2.4	7,150	25	25.2	1,650	1,520.00	550	70.75	71.95	550	9.85	70.85

Q1. Suppose you need to buy HDFC bank shares on 28th Jan. Determine the risk and suggest a hedging strategy by using a future contract. Also determine your position on 28th Jan if stock price becomes 1470 and future contract becomes 1490. (6 marks)

Q2. Determine the put-call parity relationship between a call and a put with strike price 1400. Evaluate the arbitrage opportunities available if stock price is above than 1400 (i.e., 1450) and below than 1400 (i.e., 1350). (6 marks)

Q3. If you are holding a short position in 200 puts with strike price 1500. Illustrate how your portfolio will become delta and gamma neutral by using a call with strike price 1440 and a stock. (6 marks)

Q4. Suppose stock will increase to 15% and decrease to 10% at expiry. Risk free rate is 5.5% continuously compounding. Determine the value of a European call option today with a strike price of 1300? Explain the arbitration opportunities and suggest a strategy to receive the arbitration benefits. (6 marks)

Q5. Explain the arbitration opportunities in European put option on a non-dividend-paying stock with a strike price of 1460 by using Black–Scholes–Merton stock option pricing model. Risk free rate is 5.5% continuously compounding. (6 marks)

Q6. Determine how appropriately call and put can be used to create a long straddle for a bullish market; show its payoffs, and profit/loss with the help of a diagram. (6 marks)

Q7. An MNC firm wants to fixed an exchange rate in the foreign currency dominated fixed rate borrowings. Do you suggest firm to enter into an interest rate swap or current swap agreement to take comparative advantages and reduce exchange rate risk? Justify your answer with an example. (4 marks)

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END TERM EXAMINATIONS

SET – II

Course Name	Financial Derivatives & Risk Management (FDRM)	Course Code	FIN402
Max. Time	2 Hours	Max. Marks	40

INSTRUCTIONS:

- **Attempt all Questions. This is an open book exam**

Case: Please read the data carefully and answer below mentioned questions

Symbol	**Underlying Value (Jan 13th 2021)**	Volume Freeze Quantity	Annualized (Implied)Volatility
TATACHEM	540.55	1,00,001	44.34

INSTRUMENT TYPE	EXPIRY DATE	OPTION TYPE	STRIKE PRICE	OPEN PRICE	HIGH PRICE	LOW PRICE	**CLOSE PRICE**	PREV. CLOSE
Stock Futures (TATACHEM)	28-Jan-2021	-	-	531.40	552.00	528.15	525.80	525.80

MARKET LOT: 2000 SHARES

Option chain

CALLS							PUTS					
LTP	CHNG	BID QTY	BID PRICE	ASK PRICE	ASK QTY	STRIKE PRICE	BID QTY	BID PRICE	ASK PRICE	ASK QTY	CHNG	LTP
50.2	14	8,000	49.45	50.55	2,000	500	4,000	8.1	8.3	4,000	-2.1	8.15
46.3	13.6	4,000	44	48.65	2,000	505	48,000	1.85	9.75	10,000	-1.9	9.15
43	13.5	2,000	43.2	44.25	2,000	510	8,000	10.25	10.4	2,000	-3.35	10.35
40	13.65	2,000	38.1	41.6	2,000	515	4,000	11.75	12	4,000	-3.95	11.95
36.55	12.7	2,000	35.55	36.55	2,000	520	2,000	13.55	13.75	2,000	-4.55	13.7
34.05	12.65	2,000	32.25	34.2	10,000	525	2,000	15.4	15.55	2,000	-5.25	15.35
30	10.95	6,000	29.4	30.35	2,000	530	4,000	17.3	17.5	2,000	-5.9	17.4
28	11.15	2,000	26.85	27.6	2,000	535	10,000	18.5	20.9	12,000	-108.35	20.5
24.9	9.8	8,000	24.5	24.75	2,000	540	2,000	21.95	22.15	2,000	-6.35	22.2
22.5	9.15	2,000	22.35	22.65	2,000	545	4,000	24.4	24.85	4,000	-92.9	24.7
20.35	8.5	2,000	20.1	20.35	4,000	550	6,000	27.1	27.7	6,000	-94.55	27.7
18.4	7.8	2,000	18.1	18.3	4,000	555	6,000	26.55	32.8	6,000	-	-
16.3	6.95	4,000	16.25	16.45	2,000	560	12,000	31.5	35.3	12,000	-	-

Q1. Evaluate the arbitrage opportunities exist in the lower bound value of a call option with strike price 520 and determine the arbitration profit and loss if stock price is above than 520 (i.e., 550) and below than 520 (i.e., 450). (6 marks)

Q2. In order to protect against the fall in value of the TATACHEM share the trader decides to take position in Future. If on Jan 28, 2021, Spot value and Future, value becomes Rs. 490 and Rs. 510 respectively. Compute the basis risk exist and estimate the value for the trader. (7 marks)

Q3. Assess the importance of Delta and Gamma and compute the value of both Greek letters for at-the-money call and put options with January expire. Risk free rate is 5.5% continuously compounding. (6 marks)

Q4. If you are holding, short position in 200 Calls with strike price 530. Illustrate how your portfolio will become delta neutral by using a stock. (8 marks)

Q5. Suppose stock will increase to 600 and decrease to 500 at expiry. Risk free rate is 5.5% continuously compounding. Determine the value of a European PUT option today with a strike price of 540? Evaluate the arbitration opportunities and suggest a strategy to receive arbitration benefits. (7 marks)

Q6. Evaluate the arbitration opportunities in European call option on a non-dividend-paying stock with a strike price of 555 by using Black–Scholes–Merton stock option pricing model. Risk free rate is 5.5% continuously compounding. (6 marks)