

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA
PGDM / PGDM (M) / PGDM (SM)
V TRIMESTER (Batch 2023-25)
END TERM EXAMINATIONS (MAIN EXAM: SET – II)

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 done in an excel file with separate sheets for each question.

Data for Q1 to Q5

Underlying Index: **RELIANCE LTD = 1,249.85 as on 6th Jan 2025.**

CALL						PUTS						
LTP	Chng	Bid Qty	Bid	Ask	Ask Qty	Strike	Bid Qty	Bid	Ask	Ask Qty	Chng	LTP
-	-	1,500	143.05	150.9	1,500	<u>1,090.00</u>	1,500	1.35	1.4	1,000	0.45	<u>1.35</u>
<u>141</u>	-15.3	500	135.2	138.05	500	<u>1,100.00</u>	7,000	1.75	1.8	3,000	0.75	<u>1.75</u>
-	-	500	124.25	131.05	1,500	<u>1,110.00</u>	1,500	2.05	2.1	1,500	0.8	<u>2.05</u>
<u>117.3</u>	-	500	117.1	119.1	500	<u>1,120.00</u>	4,500	2.5	2.55	6,000	1.1	<u>2.5</u>
<u>115.05</u>	-47.45	500	107.1	109.95	500	<u>1,130.00</u>	9,500	3.05	3.15	4,500	1.35	<u>3</u>
<u>107.5</u>	-1.2	500	97.95	100.8	500	<u>1,140.00</u>	8,500	3.85	3.9	5,500	1.8	<u>3.85</u>
<u>92</u>	-16.7	1,500	89.95	90.45	1,000	<u>1,150.00</u>	1,000	4.85	4.9	3,500	2.25	<u>4.85</u>
<u>82.05</u>	-16.15	500	81.2	81.8	500	<u>1,160.00</u>	4,500	6	6.05	4,000	2.85	<u>6</u>
<u>75.65</u>	-13.95	5,000	72.6	73.1	500	<u>1,170.00</u>	11,000	7.3	7.4	8,000	3.45	<u>7.3</u>
<u>66.15</u>	-13.7	500	64.45	64.8	500	<u>1,180.00</u>	10,500	8.9	9	6,500	4.2	<u>8.95</u>
<u>59.1</u>	-12.6	500	56.45	56.9	1,000	<u>1,190.00</u>	3,500	10.95	11.05	5,500	5.1	<u>11</u>
<u>49.2</u>	-13.8	1,000	49.2	49.4	1,000	<u>1,200.00</u>	2,000	13.45	13.55	1,500	6.2	<u>13.45</u>
<u>42.2</u>	-12.35	1,500	41.75	42.05	1,000	<u>1,210.00</u>	4,000	16.2	16.3	1,500	7.35	<u>16.3</u>
<u>35.65</u>	-11.35	2,000	35.55	35.75	2,000	<u>1,220.00</u>	3,500	19.75	19.9	1,500	8.75	<u>19.95</u>
<u>29.85</u>	-10.15	500	29.85	30	1,500	<u>1,230.00</u>	3,500	23.9	24	500	10	<u>24</u>
<u>24.75</u>	-8.7	500	24.75	24.8	500	<u>1,240.00</u>	1,000	28.6	28.75	1,000	11.35	<u>28.8</u>
<u>20.05</u>	-7.6	3,500	20.15	20.3	3,500	<u>1,250.00</u>	1,000	33.95	34.2	6,000	12.45	<u>34</u>
<u>16.2</u>	-6.3	2,500	16.2	16.35	6,000	<u>1,260.00</u>	500	40	40.2	1,000	13.9	<u>40.2</u>
<u>13</u>	-5.2	3,500	12.95	13.1	6,000	<u>1,270.00</u>	1,000	46.7	46.95	500	15.05	<u>46.9</u>
<u>10.35</u>	-4.25	8,000	10.3	10.4	3,500	<u>1,280.00</u>	500	53.8	54.25	500	14	<u>52.45</u>
<u>8.2</u>	-3.4	17,500	8.15	8.25	3,500	<u>1,290.00</u>	500	61.75	62.1	500	17	<u>62</u>
<u>6.6</u>	-2.65	18,500	6.6	6.7	12,500	<u>1,300.00</u>	500	69.9	70.25	1,500	17.3	<u>69.9</u>
<u>5.2</u>	-1.95	7,500	5.15	5.2	1,500	<u>1,310.00</u>	500	78.4	78.95	500	15.45	<u>75.75</u>
<u>4.05</u>	-1.5	1,500	4.05	4.1	7,000	<u>1,320.00</u>	500	87.1	87.8	500	15.1	<u>83.9</u>
<u>3.1</u>	-1.2	12,000	3.1	3.2	8,000	<u>1,330.00</u>	1,500	95.05	97.45	500	12	<u>89.65</u>

2.5	-0.9	13,500	2.45	2.55	12,000	1,340.00	500	104.45	106.5	500	12.1	99.05
2.1	-0.65	7,000	2.1	2.15	5,000	1,350.00	500	114.9	115.9	500	16.25	112.4
1.7	-0.5	7,000	1.65	1.75	9,000	1,360.00	500	123	125.6	500	20.55	118.05
1.4	-0.35	1,500	1.35	1.4	2,000	1,370.00	500	131.6	137.25	500	-30.65	110
1.2	-0.25	4,500	1.15	1.2	1,500	1,380.00	500	141.55	147.3	1,000	-3	117
1.1	-0.15	2,000	1.05	1.1	1,500	1,390.00	1,500	150.3	156.3	1,500	-	-
0.9	-0.15	2,50,000	0.9	0.95	89,000	1,400.00	2,000	162.1	164.55	500	13.7	157

INSTRUMENT TYPE (Future)	EXPIRY DATE	OPTION TYPE	STRIKE PRICE	OPEN PRICE	HIGH PRICE	LOW PRICE	LTP	CLOSE PRICE
(RELIANCE LTD)	30-Jan-2025	-	-	1,250.00	1,266.50	1,241.75	1,255.85	1,248.60

MARKET LOT: 500 SHARES. Expiry date: 30th Jan 2025.

Q1. Mukesh Ambani, the billionaire chairman of Reliance Industries (RIL), announced during the company's annual general meeting (AGM) in August 2024 that the conglomerate is on track to become one of the world's top 30 most valuable companies in the near future. RIL, with a market capitalization of nearly Rs 21 lakh crore. The intrinsic value of one RELIANCE stock under the Base Case scenario is 1079.86 INR. Compared to the current market price of 1240 INR, Reliance Industries Ltd is overvalued by 24%. Looking ahead, the company anticipates a return to robust growth, leveraging enhanced technology and operational efficiencies. In the latest quarter, Reliance Industries generated INR 258,000 crores in revenue, a slight 0.8% increase year-over-year, while EBITDA fell 2% to INR 44,000 crores. Profit after tax (PAT) also declined by 2.8% to INR 19,323 crores, mainly due to weaker O2C performance, with EBITDA down 24%. Digital services thrived, achieving 18% growth in revenue, driven by strong 5G uptake and having annual volatility of 25.82% in comparison to 364-day treasury bills was 6.630% per annum on December 18, 2024 (assume as continuous compounding rate). This will affect the future predictions to RELIANCE LTD. However, RIL's market capitalization has dropped by over Rs 4.4 lakh crore since its peak in July, with shares falling nearly 21% from their highest point of Rs 1,608.95. This will affect the future predictions to the company.

To take the advantage of RELIANCE volatility, risk and future predictions, Select a best option trading strategy using option chain of RELIANCE and Estimate the payoffs according to market predictions for RELIANCE (consider minimum 10 price movements). Justify your strategy, keeping in mind the RELIANCE performance. (CLO 2; BT Level I, V; Marks: 3 X 2=6)

Q2. Evaluate the arbitrage opportunities exist in the ITM put option of Reliance Ltd using lower bound and determine the arbitrage profit and loss with respect to stock price upward by 10% and downward movement 20%. (CLO 3; BT Level V, III; 2 X 3= 6 marks)

Q3. Suppose you are currently holding a short position in 500 ITM 1300 PUT. Illustrate how you will make your portfolio perfectly hedged as per BSM, making it delta neutral. (CLO 3; BT Level IV; 8 marks)

Q4. Suppose you are planning to sell Reliance Ltd on 30th January 2025. Determine the risk associated with your investment and suggest a hedging strategy using a Reliance future contract for expiry. Also, analyse the risk and return in your position at expiry if the stock price increase by 10%

and the future contract increase by 10%, as well as determine the direction and impact of basis movement for your hedging position.

(CLO3; BT Level II,

IV; 2 X 4= 8 marks)

Q5. Evaluate the arbitrage opportunities in the future contract of Reliance Ltd as on 6th January 2024 and determine the arbitrage profit and loss with respect to stock price upward and downward movement. Moreover, if standard deviation of reliance share is 25.82% and Future volatility is 27.65% and the co-efficient of correlation between the two is placed at 0.65. In order to hedge spot position on the company, examine what ratio of futures contract would be optimal.

(CLO 3; BT Level V, III; 6 marks)

Q6. Company A is not happy with interest rate fluctuations and wants to be fixed in its liability. On the other hand, Company B thinks it is paying too much and thinks the interest rate will go down. They want a floating rate of interest and are looking for a swap to reduce their costs. They also contacted the swap dealer who agreed to create a swap deal charging a total 10 bps (basis points) from the deal. Determine an appropriate interest rate swap strategy to fulfil their objective and reduce costs. The notional principal amount is 100 Crores.

(CLO 3; BT Level III; 6 marks)

	Fixed Market	Floating Market
Company A	8%	LIBOR + 0.5%
Company B	7%	LIBOR + 0.3%