JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

V TRIMESTER (Batch 2020-22)

END TERM EXAMINATIONS

SET – II

Course Name	Financial Derivatives & Risk Management (FDRM)	Course Code	FIN404
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 question.**

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

Symbol	Underlying Value (October 8th 2021)	Volume Freeze Quantity	Annualized (Implied)Volatility
HCL Tech	1259.05	21,001	36.28

INSTRUMENT TYPE	EXPIRY DATE	OPTION TYPE	STRIKE PRICE	OPEN PRICE	HIGH PRICE	LOW PRICE	CLOSE PRICE	PREV. CLOSE
Stock Futures (HCL Tech) October 8th 2021	28-OCT-2021	-	-	1,230.00	1,258.40	1,215.30	1256.00	1,228.00

Market Lot: 700 shares

10 years Government Bond yield is 6.14%.

OPTION CHAIN

CALLS						STRIKE PRICE	PUTS					
LTP	CHNG	BID QTY	BID PRICE	ASK PRICE	ASK QTY	STRIKE PRICE	BID QTY	BID PRICE	ASK PRICE	ASK QTY	CHNG	LTP
80.75	15.75	700	80.45	84.8	1,400	1,180.00	700	7	7.15	2,100	-6.9	7.05
66.8	13.5	700	63.7	90.95	1,400	1,190.00	1,400	8.5	8.7	2,800	-7.55	8.6
67	19.2	700	65.8	66.8	700	1,200.00	1,400	10.55	10.7	700	-8.85	10.6
59.4	18.3	700	57.6	58.85	700	1,210.00	700	12.65	12.95	700	-9.75	13.85
52	16.35	700	50.75	51.6	1,400	1,220.00	2,800	15.45	15.85	1,400	-11.85	15.5
45.6	14.4	700	44.9	45.6	700	1,230.00	700	19.35	19.7	1,400	-13.5	19.25
40	12.15	1,400	39.7	40.35	700	1,240.00	700	24.1	24.45	700	-15.25	23.85
35.55	10.85	700	35.15	35.6	700	1,250.00	1,400	29.3	29.85	1,400	-17.25	29
31.35	9.55	11,900	31	31.3	700	1,260.00	700	35.1	35.8	700	-18.55	35
27.7	8.35	700	27.3	27.75	700	1,270.00	1,400	41.5	42.35	700	-19.7	41.15
24.15	7.05	1,400	24.05	24.25	1,400	1,280.00	700	47.8	48.55	700	-23	47.85
21.2	5.7	700	20.95	21.15	700	1,290.00	700	54.9	55.9	1,400	-20.75	54.9
18.5	4.4	1,400	18.35	18.5	700	1,300.00	1,400	62.25	63.1	700	-25.55	62.05
16.6	3.85	700	16.5	16.7	1,400	1,310.00	700	69.7	72.65	700	-20.75	72.6
14.9	3.35	700	14.75	14.95	1,400	1,320.00	1,400	77.6	80.65	1,400	-24.7	79.65
13.4	2.8	700	13.3	13.5	1,400	1,330.00	2,800	85.25	88.45	700	-19.35	92.3
12.15	2.5	700	11.95	12.05	700	1,340.00	700	94.65	97.15	1,400	-24.85	94.8
10.85	2.25	700	10.7	10.85	700	1,350.00	700	82.95	114.65	700	-13.2	115.6
10.05	1.95	1,400	9.75	10	700	1,360.00	2,800	111.45	117.15	2,800	-27.15	113.2

Q1. In order to protect against the fall in value of the HCL Tech share the trader decides to take position in Future. If on Oct 28th, 2021, Spot value and Future, value becomes Rs. 1250 and Rs. 1195 respectively. Compute the basis risk exist and estimate the value for the trader.   (6 marks)

Q2. Evaluate the arbitrage opportunities exist in the lower bound value of an OTM call option of HCL Tech and determine the arbitration profit and loss if call becomes (i) ITM and (ii) remains OTM at expiry. (6 marks)

Q3. Compute and compare the value of gamma for an ITM and OTM call option of HCL Tech with 28th Oct 2021 expiry. (6 marks)

Q4. Explain how an aggressive bear spread can be created using put options of HCL Tech.   (6 marks)

Q5. Determine the value of a European put option today with a strike price of 1230? Evaluate the arbitration opportunities and suggest a strategy to receive arbitration benefits. (6 marks)

Q6. Explain the arbitration opportunities in HCL tech call option with a strike price of 1300 by using Black–Scholes–Merton stock option pricing model. (6 marks)

Q7. A direct and positive relationship is observed between the level of foreign trade flows and turnover in the forex (currency) derivative market. Explain and justify your answer with an example. (4 marks)