

Jagan Institute of Management Studies
End-Term Examination, September-October, 2017
Trimester IV – PGDM (IB) 2016-18

Financial Derivatives
ET_IB_FD_2609

Time: 3 Hrs.

M. Marks: 70

INSTRUCTIONS: Attempt any FIVE questions including Q1 & Q7 which are compulsory.

Q 1 Write short notes on the following:

- a) Define a call option. Who buys a call option?
- b) What is the difference between a future contract and an option?
- c) What are derivatives?
- d) What is basis risk?
- e) Define liquidity. Physical gold or Shares, which is more liquid and why? **15**

Q 2 a) The following are the contracts given on futures of DLF. Calculate day wise open Interests

Day		
1	A buys 4 contracts	B sells 2 and C sells 2
2	X buys 5 contracts	D sells 4 and A sells 1
3	E buys 4 contracts	X sells 2 F sells 2
4	D buys 1 and Y buys 3	A sells 2 and X sells 2
5	B buys 2 and C buys 1and F buys 1	E sells 4

- b)** The spot price of firm X is trading at ₹ 340 and one year future contract for X is trading at ₹ 380. If the market rate of interest is 12% per annum, what is the true value of the future contract? If the above future is not correctly priced, how does it attain its true price? **7**

Q 3 The following are the future prices for Titan industries. The lot size of each contract is 40 shares. The initial margin and maintenance margin are both the same and equal to ₹ 3000 for each contract. An investor sells 3 contracts on 26th July and buys 5 on 4th August. Show the profits he makes in the entire process.

Symbol	Date	Expiry	Close
TITAN	26-Jul-17	28-Sep-17	539.75
TITAN	27-Jul-17	28-Sep-17	535.3
TITAN	28-Jul-17	28-Sep-17	533

12

TITAN	31-Jul-17	28-Sep-17	547.9
TITAN	1-Aug-17	28-Sep-17	546.95
TITAN	2-Aug-17	28-Sep-17	558.05
TITAN	3-Aug-17	28-Sep-17	563.35
TITAN	4-Aug-17	28-Sep-17	615.15
TITAN	7-Aug-17	28-Sep-17	618.4
TITAN	8-Aug-17	28-Sep-17	615.3
TITAN	9-Aug-17	28-Sep-17	622.75
TITAN	10-Aug-17	28-Sep-17	615.3
TITAN	11-Aug-17	28-Sep-17	608.35
TITAN	14-Aug-17	28-Sep-17	635.05
TITAN	16-Aug-17	28-Sep-17	631.35
TITAN	17-Aug-17	28-Sep-17	626.35
TITAN	18-Aug-17	28-Sep-17	625.9
TITAN	21-Aug-17	28-Sep-17	621.1
TITAN	22-Aug-17	28-Sep-17	617.75
TITAN	23-Aug-17	28-Sep-17	612
TITAN	24-Aug-17	28-Sep-17	611.3

- Q 4 a)** A wheat farmer is growing rice on his plot. He expects a good crop. He expects the output to be around 500kgs. He is frightened that the price of rice may fall in future. To hedge his risk he wants to take a future contract. He will take a long hedge or a short hedge and why. What is the risk associated with hedging. 5
- b)** In the above question the farmer takes a decision to grow rice in the month of June expecting the crop to be ready by October end. The October future is trading at ₹ 45/Kg and the the current spot price of rice is Rs40/Kg. The crop is ready by 13th October to be sold in the market. On 13th October the following situation prevails. The futures are trading at ₹ 23/Kg and the spot price is ₹ 21/Kg. The lot size of each future is 60kgs. Compare the farmer's situation when he hedges his produce, with un hedged position. 7
- Q 5 a)** Calculate the margin deposited by the investor who writes 5 put options contract on a stock. The option price is ₹ 9, the strike price is ₹ 105 and the stock price is 108. Each contract consists of 100 shares. 6
- b)** A trader buys a call option with a strike price of Rs80 and a put option with a strike price of ₹ 70. Both options have same maturity. The call option price is ₹ 4 and the put option price is ₹ 2.5. Show the profit which the trader makes. 6
- Q 6 a)** Portfolio A consists of a call option and money deposited in a bank that

pays K at the time T (which is the maturity period for Call option).
 Portfolio B consists of a put option and a share. Which of the above two portfolio is more valuable? What is put call parity. 6

- b)** The stock price is 120. The call and put option maturing in a year have an exercise price of 122. The call option premium is 10 and the put option premium is 15. If the rate of interest is 10 percent per annum, is there any arbitrage opportunity available. What is the correct price of put option? 6

- Q 7 a)** A trader expects the market to be highly volatile in the next three months. However he is not sure about the direction of volatility, what should he do to exploit his expectations? 9

- b)** The stock price is currently trading at ₹ 145 and the following call and put options are available

Strike Price	Call Premium	Put Premium
140	4	12
145	8	8
150	12	4

The trader knows that the market will be volatile without being sure about the side of movement. However he attaches higher probability for a bullish market than bearish. How can he exploit this expectation? 10

For both the parts draw the diagram and payoffs.
