

**Jagan Institute of Management Studies**  
**End-Term Examination, December, 2016 – January, 2017**  
**Trimester V – PGDM (IB) 2015-17**

***Financial Derivatives***  
***ET\_IB\_FD\_2912***

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) Difference between a call option and a put option.
  - b) Futures or forwards, which is more liquid and why?
  - c) Explain with an example a short hedge.
  - d) Is perfect hedging possible in the real world or not
  - e) What is the intrinsic value of a call option and a put option?

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- Q 2** The following are the prices of Apollo Tyres Futures and Apollo tyres Spot. The underlying prices represent the prices of the spot market and close refer to the future prices

Symbol	Date	Expiry	Close	Underlying Value
APOLLOTYRE	15-Nov-16	29-Dec-16	187.85	186.75
APOLLOTYRE	16-Nov-16	29-Dec-16	186.05	184.2
APOLLOTYRE	17-Nov-16	29-Dec-16	187.5	185.6
APOLLOTYRE	18-Nov-16	29-Dec-16	190.2	189.2
APOLLOTYRE	21-Nov-16	29-Dec-16	182.3	181.55
APOLLOTYRE	22-Nov-16	29-Dec-16	184.65	183.6
APOLLOTYRE	23-Nov-16	29-Dec-16	179.15	177.95
APOLLOTYRE	24-Nov-16	29-Dec-16	178.9	178.05
APOLLOTYRE	25-Nov-16	25-Jan-17	183.2	180.85
APOLLOTYRE	28-Nov-16	25-Jan-17	184.25	181.9

The lot size of each contract is 500 shares. The initial and maintain margin for each contract is Rs. 5000. Suppose an investor buys 3 future contracts on 15<sup>th</sup> November and sells 1 contract on 18<sup>th</sup> November and sells another 5 contracts on 22<sup>nd</sup> November. Find his Marked to market margin position and what are the profit/ loss he makes in the entire transaction.

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- Q 3** A farmer is growing rice on his land and expects a total production of 800 Kgs of rice. The current spot price for rice is Rs. 60 ( $S_0$ ) and the

current future price of rice is Rs. 63( $F_0$ ). The future expiry is of 2 months period when the farmer expects his crop to be ready. The lot size of one contract of rice future is 40 Kgs. If after two months the following prices exist what is the price the farmer will realize with hedging and without hedging.

a)  $S_t = \text{Rs}90$   
 $F_t = \text{Rs} 90.5$

b)  $S_t = \text{Rs} 20$   
 $F_t = \text{Rs} 20.2$

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**Q 4 a)** The following are the option contracts and their premium. Find the intrinsic value of the options and time and volatility value.

OPTION TYPE	EXERCISE PRICE	ASSET PRICE	PREMIUMS
CALL	120	130	15
PUT	450	430	30
PUT	235	200	55
PUT	655	665	10
CALL	145	155	15

**b)** The following are the transaction that took place in the following days, find the open interest on the 6<sup>th</sup> of August.

3 <sup>rd</sup> August	A purchases 3 contracts and B sells 3 contracts
4 <sup>th</sup> August	C purchases 4 contracts and A sells 1 and D sells 3 contracts
5 <sup>th</sup> August	B buys two contracts and E sells 2 contracts
6 <sup>th</sup> August	A seals 1 contract and B buys 1 contract

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**Q 5** The current spot price of 10grams of gold is Rs 28000. The risk free rate of interest is 12 percent per annum and it is assumed that both borrowing and lending are available at risk free rate. The storage cost of gold is assumed to be zero. Two months Gold futures for 10 grams of gold are trading for Rs 29000.

What is the intrinsic value of the gold Futures? Is the gold Futures correctly priced, if not how it will achieve its correct price through arbitrage?

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**Q 6** A steel manufacturer has to deliver steel to an automobile firm after two months. The price which the steel manufacturer will get depends upon the price prevailing after two months. What is the risk the steel manufacturer faces and how can he overcome this risk with the use of options.

The current spot price for steel is Rs 180/Kg. The following options are available

Call option with an exercise price of Rs 180 with a premium of Rs 5 with expiry two months

Put option with an exercise price of Rs 180 with a premium of Rs 5 with

expiry two months

Which of the above two option he should take and why. How is this strategy different from future hedging?

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**Q 7** Read the case and answer the question that follows:

The following are the options available on the stock of Tata Motors.

The Tata stock is currently trading at Rs 130 and the option is

Put Option	Exercise Price	Expiry Date	Option Premium	Put Option	Exercise Price	Expiry Date	Option Premium
K	130	25 <sup>th</sup> Jan 17	3	K	130	25 <sup>th</sup> Jan 17	3
K	130	23 <sup>rd</sup> Feb 17	5	K	130	23 <sup>rd</sup> Feb 17	5
K	110	25 <sup>th</sup> Jan 17	23	K	110	25 <sup>th</sup> Jan 17	1
K	115	23 <sup>rd</sup> Feb 17	20	K	115	23 <sup>rd</sup> Feb 17	3
K	150	25 <sup>th</sup> Jan 17	1	K	150	25 <sup>th</sup> Jan 17	23
K	160	23 <sup>rd</sup> Feb 17	1	K	160	23 <sup>rd</sup> Feb 17	37

If the Investor expects the prices to go up Rs. 25 by the end of February and he wants to benefit from this expectations. There is also a slight chance that the stock may go down and therefore the investor wants to protect it. What is the strategy that the investor should follow and how this strategy different from buying the stock

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