PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF MANAGEMENT

Max Marks: 100   Max Time: 180 Mins   Weightage: 40 %

ENDTERM FINAL EXAMINATION

I Semester AY 2017-18   Course: **FIN305 Financial Derivatives**   13 DEC 2017

_____

Instructions:
  i.   Write legibly
  ii. Scientific and non programmable calculators are permitted

_____

Part A

[4 Q x 5 M= 20 Marks]

1. Differentiate between Interest Rate Swaps and Currency Swaps with an example.

2. What is meant by Hedging? Explain how a Futures contract can be used to create a Long Hedge and a Short Hedge.

3. List out the advantages and disadvantages of Derivative markets.

4. What are Option Greeks ? Explain any four such Option Greeks.

Part B

[5 Q x 8 M= 40 Marks]

5. More Company & Less Company are offered the following rates per annum on a $ 50 million 2 year loan :

Company	Fixed Rate Loan	Floating Rate Loan
More Company	14.00%	LIBOR + .50%
Less Company	15.40 %	LIBOR + .90%

More Company requires a floating rate loan and Less Company requires a fixed rate loan.
  a. Design a swap such that the benefit is shared in the ratio of 60:40 between More and Less respectively.
  b. Indicate their effective borrowing costs considering the swap.
  c. Show the Cash flows occurring to Less Company if the LIBOR at the end of Year 1 is 12.75% and at the end of Year 2 it is 13.75%.

6. Mr Rana is a Portfolio Manager managing a Stock Portfolio worth ₹ 50Crs with a Beta of 1.45. He expects that Nifty Market Index would fall in the next 1 month by 10% from the existing level of ₹10100. He wants to insure his portfolio using Nifty Futures contract. The 1 month Nifty Index Futures contract is now trading at ₹10150. The lot size of Nifty is 75 units per contract. Using the above information :

    a) Calculate how many contracts of the Nifty Futures need to be used to create a 75% hedge.
    b) If the Index Value at the end of the Month is assumed to be 9450, what would be the Portfolio Value considering the hedge?

7.

    i)   The 3 month US Interest rate is 3.50% and a 3 month German Interest rate is 2.00%. The Currency Futures contract has 90 days to expire. The Spot Price of the Currency is 1 DEM = 0.60 USD. Based on the above, calculate the 90 Day Futures price of USD/DEM contract.

    ii)   A trader intends to go long on 2 Month Nifty Futures and wants to verify whether the quoted Futures Price is fairly valued. The Spot Nifty is at 10100. The quoted Nifty Futures Price is 10166. Annual Dividend Yield on Nifty Index is 3% and the Risk Free Interest Rate is 6% pa. Using the information, calculate the Fair Value of the 2 Month Futures Contract.

8.

    i)   A one month Put Option on $ with an exercise price of ₹ 65, is trading at a premium of 52 paise. The Spot Exchange Rate is Rs 64.45 per $. If Risk Free Rate of Interest is 6% pa, using the Put Call Parity equation, find the premium on a ₹64, one month Call option.

    ii)   A one month Call Option on a stock with an exercise price of ₹580, is trading at a premium of Rs 28. The spot price is ₹550. If risk free rate of interest is 6% pa, using the Put Call Parity equation, find the premium on a ₹540, one month Put Option.

9. A trader sold 5 contracts (Size per Contract is 50) of December Nifty Index Futures contract on 22st December 2017 for a price of ₹10150 when the spot price of Nifty was ₹10100. The expiry of the contract was on 28th December 2017. The initial margin was fixed at ₹450 per Index and maintenance margin was ₹350 per Index. The closing prices for the period of holding of the contract is as follows :

Date	Closing Futures Price ₹	Closing Spot Price ₹
21.12.2017	10180	10150
22.12.2017	10300	10280
26.12.2017	10450	10430
27.12.2017	10500	10480
28.12.2017	10280	10250

The trader did not square up his contract and let the futures contract to expire. Considering the information:

a) Prepare a margin statement showing the margin calls ; and
b) Determine the Profit / Loss to the trader on the contract
c) Determine the final payout to the trader on expiry of the contract (assume that there was no other pay out to the trader during the period of holding)

Part C

[2 Q x 20 M= 40 Marks]

10. The Stock Price of ACC Ltd. is currently ₹1700. The price of the stock in Year 1 can move up to ₹1950 or move down to ₹1450. In year two, the stock can move up to ₹2250 or move down to ₹1750. The risk-free interest rate in the economy is 6% pa. Using the Two-step Binomial Model, find out the price of :

a) 2 Year American Call option with an Exercise Price of ₹1800 and

b) 2 Year European Put option with an Exercise Price of ₹1750

11. Das Ltd, and Maas Ltd. had entered into a Fixed for Fixed Currency Swap. Under the swap, Das delivered $1 million @ 4.5% pa in exchnage for €0.85 million @ 3.5% for a period of 5 Years, of which 1 year has just completed. With 4 years remaining, Das Ltd. intends to cancel the swap now and therefore wants you to find the value of the swap so as to determine the amount that they have to receive or pay on the Swap. Further details of the Swap are as follows :

Remaining Life of the Swap	4 Years
Cash Flow Frequency	Annual
Present Market Quote for a 4 year $/€ Swap	3.50% for $ as against 2.5% for €
Present Exchange Rate	1$ = .80 €

With the above information, find the Value of the Currency Swap for Das Ltd.

****

| Max Marks: 60 | Max Time: 120 Mins | Weightage: 20 % |

2016 MBA III Semester
MID TERM EXAMINATION

I Semester AY 2017-2018   Course**: FIN 305 Financial Derivatives**   14th Oct'17

_____

Part A

(5 Q x 2 M= 10 Marks)

1. Classify various Derivative contracts.
2. What are European Options?
3. State any two advantages of Derivative markets.
4. What are Interest Rate Swaps?
5. List out the Option strategies that are suited when a trader expects big volatility either side with uneven probability.

Part B

(6Q x 5M= 30 Marks)

6. Premium is the cost of purchasing an option. It is a price of an option which fluctuates due to various factors. In this regard explain the factors that influence the premiums of Option contracts.

7. Distinguish between the Long Straddle and Long Strangle as strategies in times of high volatility.

8. Differentiate between Exchange Traded and OTC Derivative contracts.

9. Describe the various types of participants in a Derivatives market and their roles.

10. Given below are the Quotations of Option contracts with an expiry of 31st October 17 when the Spot Price of the asset was Rs 500.

Strike Price	Call Premiums (in Rs.)	Put Premiums (in Rs)
450	56	6
460	48	9
470	40	12
480	42	15
490	34	19
500	**26**	**25**
510	20	33
520	16	44
530	11	48
540	8	50
550	5	55

a) What is the Time Value of Rs 480 Call Option
b) What is the Intrinsic Value of the 540 Put Option
c) Which of the Option Contracts would you use to create a Bear Put Spread
d) Which of the Put Option contracts are Deep in the Money
e) Which Option Contracts would you use to create a Short Straddle

11. An Indian manufacturer exported goods worth $ 15 Million, the payment of which is expected in 3 months. The current rupee – dollar exchange rate is Rs 66/$. The exporter wants to hedge his foreign exchange risk using the following option contracts :

Strike Price (Rs.)	Option Type	Premium (Rs.)
66.00	Call	.25
66.00	Put	.35

The company is thinking of two alternatives :
i)   Write a Call Option
ii)   Buy a Put Option

You are required to find the realization per dollar of these alternatives if the closing price at the end of 3 months is either Rs 66 or Rs 58. Suggest the best alternative for hedging the risk.

Part C

(1Q x 20 M= 20 Marks)

12. A trader expects that the price of a stock would move from the current levels of Rs. 120 to Rs. 180 during the next 2 months. The available option contacts and their premiums are as follows :

Strike Price (Rs.)	2 Month Call Premium (Rs.)	2 Month Put Premium (Rs.)
60	66	1
80	48	3
100	30	7
120	12	10
140	6	28
160	4	46
180	2	64

The trader is has following alternative strategies:
i)   Bull Call Spread
ii)   Bull Put Spread

You are required to explain both the strategies showing the maximum profit, maximum loss, break even points and the profit that the trader will make if the closing price at the end of the month is either Rs.158 or Rs92.