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P.E.S. College of Engineering, Mandya - 571 401
 (An Autonomous Institution affiliated to VTU, Belgaum)
Fourth Semester –Master of Business Administration (MBA)
Semester End Examination; June/July - 2015
Risk Management

Time: 3 hrs

Max. Marks: 100

Note: Answer FOUR full questions from PART – A and PART – B (Case Study) is compulsory.

PART – A

- 1 a. “Futures contracts are improvised forward contracts.” Do you agree? Explain. 10
 b. Explain the different features of financial derivatives. 10

OR

- 2 a. Write a detailed note on uses of financial derivatives. 10
 b. Differentiate between the following: i) Commodity futures and financial features 10
 ii) Futures contracts and Forward contracts. 10
- 3 a. What is a financial futures contract? Discuss the growth of financial features in our country. 10
 b. On December 15th ABC Ltd establish a long position in 200 shares of TISCO on January 1st at a futures price Rs. 600 per share. Initial margin for contract is Rs. 30,000 and maintenance margin is Rs. 20,000. Draw a table showing margin and marking –to- market for ABC on 1st January with the following information | 10

Date : December 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 27, 31 January 1

Future Prices : 600, 550, 650, 600, 605, 590, 580, 600, 620, 630, 640, 660, 690

OR

- 4 a. A forward contract on 200 shares, currently trading at Rs. 112 per share, is due in 45 days. If the annual risk free rate of interest is 9%. Calculate the value of the contract price. 10
 How would the value be changed if a dividend of Rs. 4 per share is expected to be paid in 25 days before the due date?
- b. On January 1, 2003 an investor has as portfolio of 5 shares as given here:

Security	Price	No. of Shares	Beta
A	59.50	5,000	1.05
B	81.85	8,000	0.35
C	101.10	10,000	0.80
D	125.15	15,000	0.85
E	140.25	1,500	0.75

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The cost of capital to the investor is 12.5% per annum. You are required to :

- i) Calculate the beta of his portfolio
 - ii) Calculate the theoretical value of the NIFTY futures for February
 - iii) If its current value is 1005 and NIFTY futures have a minimum trade lot requirement of 200 units, obtain the number of contracts of NIFTY he needs to sell in order to get a full hedge. Until February for his portfolio. Assume that the futures are trading at their fair value.
 - iv) Calculate the number of futures contracts the investor should trade if he desires to reduce the beta of his portfolio to 0.7.
- 5 a. Assume that a market – capitalization weighted index contains only three stocks, A,B and C as shown below. The current value of the index is 1056

Company	Share Price (Rs)	Market Capitalization(Rs Crores)
A	120	12
B	50	30
C	80	24

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Calculate the price of a futures contract with expiration in 60 days on his index if it is known that 25 days from today. Company A would pay a dividend of Rs. 8 per share. Take the risk – free rate of interest to be 15% per annum. Assume the lot size to be 200 units.

- b. A portfolio manager owns three securities, as detailed below:

Security	No. of Shares	Price per share (Rs)	Beta
1	15,000	40	1.2
2	25,000	20	1.8
3	15,000	60	0.8

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Calculate the beta value for this portfolio.

OR

- 6 a. Explain the following hedging strategies :

- i) Short stock long call
- ii) Long stock long put
- iii) Long stock short call
- iv) Short stock short put

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- b. A put option on share PQR has the following details.

Exercise Price = Rs 110

Expiration Month = March 2003

Size of contract= 2000 shares

Underlying share’s price = Rs 112

Price of put option on the date of contract = Rs 7.50

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Investor A writes a put option contract and receives a premium of Rs. 15,000 on it from B who buys the option. How much does each of these investors stand to gain/lose in case of price movements?

- 7 a. Discuss the various factors affecting the price of a stock option. 10
- b. A butterfly spread is created when large price changes are not expected but instead small changes are anticipated. Consider the following data about call options on BHEL (Prices taken from the Economic Times, April 9, 2009) for which one contract involves 1100 shares.

Share Price	Premium
Rs 170	Rs 21.10
Rs 180	Rs 14.00
Rs 190	Rs 8.00

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Help an investor to build a butterfly spread. Find the pay-off for him at various ranges of stock prices. Illustrate by taking stock price as Rs 168, Rs176, Rs185, Rs 189 and Rs 198.

OR

- 8 a. Using the data given below, Calculate the theoretical values of (i) call and (ii) put options on futures :

Futures contract price = 1725

Exercise price of the option = 1730

Time to expiration of the option = 56 days

Risk-free interest rate = 8%

Volatility, $\sigma = 28\%$

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- b. The current price of a share is Rs 50, and it is believed that at the end of one month the price will be either Rs 55 or Rs 45. What will be a European call option with an exercise of Rs 53 on this share be valued at, if the risk free rate of interest is 15% per annum? Also calculate the hedge ratio?

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PART – B

Case Study (Compulsory)

9. From the following data, calculate the values of call and put options using Black and Scholes model:

Current price of the share = Rs 486

Exercise Price = Rs 500

Time to expiration = 65 days

Standard deviation = 0.54

Continuously compounded rate of interest = 9% p.a.

Dividend Expected = Nil

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Calculate the derivatives for the call and put options values and provide a brief interpretation of each of these.