COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)
SHIVAJI NAGAR, PUNE - 411 005

END Semester Examination

Foundation of Finance (CT OE 14009)

Course: B.Tech

Branch: Information Technology & Computer Engineering

Semester: Sem VII

Year: 2014-2015

Max.Marks:60

Duration: 3 Hours   _2 to 5 p.m._

Date:Nov 2014 2 0 NOV 201

Instructions: MIS No. ☐☐☐☐☐☐☐☐☐

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of anything like stationery, calculator is not allowed.
5. Assume suitable data if necessary.
6. Write your MIS Number on Question Paper

Q1	a.	Suppose that you own 5,000 shares worth $25 each. How can put options be used to provide you with insurance against a decline in the value of your holding over the next 4 months. Assume contract size is 100.	4
	b.	When first issued, a stock provides funds for a company. Is the same true of a stock option? Discuss	3
	c.	An investor believes that there will be a big jump in a stock price, but is uncertain as to the direction. Identify 3 different trading strategies using options that the investor can follow and explain the differences among them	6
	d.	When is it appropriate for an investor to purchase a butterfly spread?	3

Q2 a. Construct a table showing the payoff from a bull spread when puts   8
        with strike prices K1 and K2, with K2 > K1, are used
    b. Explain any 2 trading strategies involving a stock and an option with   8
        an example. Describe the profits/losses from the position for
        different prices of the underlying stock.

Q3 a. You own a $1,000 portfolio, p, whose expected rate of return has a   10
        mean of 10% and a standard deviation of 20%. You are considering
        buying a security q that has a mean of 15% and a standard
        deviation of 60%. The correlation between the rates of return on p
        and q is 20%.
        1. What is the covariance between the rate of return of p and q?
        2. What is the beta between the rate of return on p and q?
        3. Consider purchasing $500 in q. What would the portfolio risk be?

        A new security, named n has appeared. It has a mean of 150% and
        a standard deviation of 500%, and the same 20% correlation with
        p.
        1. What is the covariance between the rate of return of p and n?
        2. What is the beta between the rate of return on p and n?
        3. Consider purchasing $500 in n. What would the portfolio risk be?

        q and n have equal correlation with portfolio p. Does it follow that
        they would both be equal risk-contributors, if added to the portfolio?

    b. Explain the significance of diversifying a portfolio with appropriate   6
        example

Q4 a. Are correlation and diversification related for a portfolio? Explain   4

    b. The risk-free rate is 4%. The expected rate of return on the market   4
        is 7%. A corporation intends to issue publicly-traded bonds that
        promise a rate of return of 6% and offer an expected rate of return
        of 5%. What is the implicit beta of the bonds?

    c. Is the real-world SML with historical data a perfect straight line?   4
        Explain

Q5 a. Suppose that call options on a stock with strike prices $100 and   6
        $110 cost $9 and $5,respectively. How can the options be used to
        create a bull spread ? Construct a table that shows the profit and
        payoff for this spread. At what position does the trader make zero
        profit?

    b. Explain the significance of CAPM model?   6

    c. What is an ACF plot? What does it signify   4

OR
Q6 a. Explain AR models?   8

    b. Explain any statistic measure for goodness of fit in a stationary   8
        model.