College Name: _____

Student Name: _____ Seat No: _____

Copy No: _____

KARACHI UNIVERSITY BUSINESS SCHOOL
UNIVERSITY OF KARACHI
FINAL EXAMINATION DECEMBER 2016; AFFILIATED COLLEGE
BASIC MATHEMATICS BA(BS) – 511 (PART B)
BBA – V

Date: January 6, 2017 **Max. Time: 1:40 Hrs**
Max Marks: 30

INSTRUCTIONS:

1. **Attempt any 3 Questions. Do not write anything on the question paper.**
2. **Mobile Phone(s) or any other communicating device will not be allowed in the examination room. Students will have to remove the batteries of these devices before entering the examination hall.**

Q1 An investment of Rs 200,000 is made which earns interest at the rate of 8 percent per year, if interest is compounded continuously

i. Determine the exponential function which states the compounded amount as a function of years of investment 't'
ii. What will be the amount Rs 200,000 grow to if it is invested for 5 years?
iii. Solve equation $\ln(x^2 + 3) - \ln x^2 = 1$

Q2 a) An individual invests Rs 25,000 in a money market fund which is expected to yield interest at a rate of 12 percent per year compounded quarterly, if the interest remains stable, to what amount should be the Rs 25,000 grow over the 5 years? How much interest will be earned during this period?

b) Compute $(A \times B)^t$ where

$$A = \begin{bmatrix} 0 & 1 & -2 \\ 3 & 2 & 4 \end{bmatrix} \qquad B = \begin{bmatrix} 1 & 2 & 5 \\ 3 & 2 & -1 \\ 4 & 3 & 0 \end{bmatrix}$$

Q3 Solve the following equations by using (***Gaussian Method or Cramer's Rule)***

$$x_1 + x_2 + x_3 = 6$$
$$2x_1 - x_2 + 3x_3 = 4$$
$$4x_1 + 5x_2 - 10x_3 = 13$$

Q4 a) For the quadratic equation $y = x^2 - 4x + 3$ determine followings:

i. Which way the parabola opens?
ii. The vertex
iii. The roots

b) Solve the following equations with the help of matrix

$$4x + 3y = 4$$
$$-2x - y = 0$$

Q5 a) Find the derivative of x $f(x) = (x^3 - 2x^5)(x^4 - 3x^2 + 10)$

b) Determine the average rate of change in the value of y in moving from $x = -1$ to $x = 2$

$$Y = f(x) = x^2 - 2x + 3$$

END OF SUBJECTIVE PAPER