

College Name: _____

Seat No: _____ Student's Name: _____

Copy No: _____

KARACHI UNIVERSITY BUSINESS SCHOOL
UNIVERSITY OF KARACHI
FINAL EXAMINATION, JUNE 2017; AFFILIATED COLLEGES
Basic Mathematics; BA(BS)-511
BBA – V

Date: July 6, 2017

Max Time: 90 Mins
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 500,000 is made which earns interest at the rate of 10 percent per year, if interest is compounded continuously

- a) Determine the exponential function which states the compounded amount as a function of years of investment 't'
- b) What will be the amount Rs 500,000 grow to if it is invested for 5 years?
- c) Solve equation $\ln(x^2 + 3) - \ln x^2 = 1$

Q2

- a) Determine the domain of the function $f(x) = \sqrt{10 - x}$
- b) Given $f(x, y) = x^2 - 6xy + 2y^2$ determine $f(5, 10)$
- c) Exponential function $f(x) = x^2 + 3x - 4e^x$ Compute $f(0)$ and $f(-3)$
- d) Determine the average rate of change in the value of y in moving from $x = -1$ to $x = 2$
 $Y = f(x) = 2x^2 + 6x + 3$

Q3

- a) Find the derivative of x (by using product rule) $f(x) = (x^3 - 2x^5)(x^4 - 3x^2 + 10)$
- b) Evaluate $\int (x^4 - 2x^2)^4 (4x^2 - 4) dx$

Q4

- a) Find the inverse of A, and show that $A^{-1}A = I$

$$A = \begin{pmatrix} 3 & 5 \\ 2 & 4 \end{pmatrix}$$

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

$$A = \begin{pmatrix} 2 & 3 & 4 \\ 6 & 1 & 2 \end{pmatrix} \quad B = \begin{pmatrix} 0 & 1 & 3 \\ 4 & 2 & 1 \\ 6 & 2 & 5 \end{pmatrix}$$

Q5

- a) For the quadratic equation $y = x^2 - 4x - 21$ determine followings:
 - i. Which way the parabola opens?
 - ii. The vertex
 - iii. The roots
- b) Find the determinant of matrix B

$$B = \begin{pmatrix} 1 & -3 & 2 \\ 3 & 2 & -1 \\ 3 & -1 & 1 \end{pmatrix}$$

END OF SUBJECTIVE PAPER