College Name: _____

Student Name: _____ Seat No: _____

Copy No: _____

KARACHI UNIVERSITY BUSINESS SCHOOL
UNIVERSITY OF KARACHI
FINAL EXAMINATION JULY 2017; AFFILIATED COLLEGES
BUSINESS MATHEMATICS: BA (M) – 531
MBA – I

Date: January 7, 2017 **Max Time: 02 Hrs**
Max Marks: 40

INSTRUCTIONS:

1. **Attempt any 04 Questions. Start each new question on a new page. 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.**

Question 01

An investment of Rs 200,000 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 200,000 grow to if it is invested for 5 years?
c) Solve equation $\ln(x2 + 3) - \ln x2 = 1$

Question 02

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

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

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

$$\begin{bmatrix} 1 & -1 \\ 2 & -3 \end{bmatrix}$$

Question 03

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) Find the determinant of matrix B

$$B = \begin{pmatrix} 2 & 3 & 1 \\ 3 & 2 & 4 \\ 4 & 5 & 2 \end{pmatrix}$$

Question 04

(a) Determine **f'(x)** for the following:

(i**)** $f(x) = (x^2-5)(x - x^3)$ (ii) $f(x) = e^x / x$

(b) Integrate the following:

i. $\int x^{-1}\, dx$

ii. $\int (x^2 - 2x)^5 (x-1)dx$

iii. $\int 2xe^{x2}\, dx$

Question No 05

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

$Y = f(x) = 2x^2 + 6x + 3$

END OF SUBJECTIVE PAPER