



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION WITH
INFORMATION TECHNOLOGY**

CITY CAMPUS

ABA 205: MANAGEMENT MATHEMATICS II

Date: 12th June, 2017

Time: 5.30 - 8.30 pm

INSTRUCTIONS:

- Answer question ONE and any other THREE questions.
- Question ONE carries 25 marks and the rest 15 marks each.



QUESTION ONE (Compulsory)

a) Explain the role played by management mathematics in the training of business leaders [15 Marks]

b) If a scalar matrix is given by $A = \begin{bmatrix} x & 0 \\ 0 & x \end{bmatrix}$ and B is any other matrix, $B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$

Show that: $A.B = x.B$

[10 Marks]

QUESTION TWO

a) Explain how matrix algebra aids in business management [6 Marks]

b) If matrix A is given by $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$

Show that its inverse is given by $A^{-1} = \frac{1}{ad-bc} \begin{bmatrix} d & b \\ -c & a \end{bmatrix}$ [9 Marks]

QUESTION THREE

a) Explain how Markov's process assists in business analysis [6 Marks]

b) Assume that two products Gleeme and Sparkle currently share the market with shares of 60% and 40% each respectively. Each week some brand switching takes place. Of those who bought Gleeme the previous week 70% buy it again. Of those who bought sparkle the previous week 80% buy it again.

Required: Determine the eventual market shares, assuming all factors are held constant. [9 Marks]

QUESTION FOUR

a) State the basic assumptions of Input – Output analysis [5 Marks]

b) Derive the Input-Output model from first principles [6 Marks]

c) The Input-Output coefficients for a two sector economy are given below:

	1	2	D	X
1	0.2	0.1		
2	0.3	0.4		

Required: Interpret the entries in row 1

[4 Marks]

QUESTION FIVE

- a) Explain the basic characteristics of problems that can be solved using Linear Programming methods [6 Marks]
- b) A firm produces two products X and Y with contribution of sh.8 and Sh. 10 per unit respectively.

Production data are (per unit):

	Labour Hrs	Mat. A	Mat. B
X	3	4	6
Y	5	2	8
Total Available	500	350	800

Required: Formulate the Linear Programming model in a standardized manner [9 Marks]