

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2014/2015

**YEAR I SEMESTER I EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY/ BACHELOR OF COMPUTER MATHEMATICS**

**HBC 2103: MATHEMATICS FOR BUSINESS**

**DATE: AUGUST 2015 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND**

**ANY OTHER TWO QUESTIONS.**

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**QUESTION ONE (30 MARKS)**

(a) Define the following terms and give an example for each:

i) A square matrix (2 marks)

ii) Exponential function (2 marks)

iii) Linear equation (2 marks)

(b) Solve the following equations:

i)  (3 marks)

ii) 4x2 + 7x + 3 = 0 (5 marks)

(c) Explain the following terms as they are used in set theory.

i) Union of set (2 marks)

ii) Union of set (2 marks)

iii) Complement of a set (2 marks)

iv) Intersection of a set (2 marks)

(d) Given A =  and B =  Find:

i) A + B (2 marks)

ii) A – B (2 marks)

iii) AB (3 marks)

(e) Evaluate  (3 marks)

**QUESTION TWO (20 MARKS)**

(a) Given the series 100, 80, 60 find: (10 marks)

i) 5th term

ii) 7th term

iii) 9th term

iv) Sum of the first six terms

(b) Using elimination method solve

r – s = 1 (4 marks)

-r – s = 13

(c) Explain briefly the application of functions in business and

economics. (6 marks)

**QUESTION THREE (20 MARKS)**

(a) Use the following Venn diagram to answer the questions below:

i) Name all the sets

ii) Name all the subsets

iii) Which is the universal set? Give a reason.

(b) Explain the use of set theory in business and economics. (5 marks)

(c) Find the determinant of A=using row reduction method.(5 marks)

**QUESTION FOUR (20 MARKS)**

(a) Find the roots of the equations. (10 marks)

i) 4x2 + 7x – 5 = x2 – 9

ii) 1 – 6x2 = x

(b) Explain the use of matrix in business and economics. (5 marks)

(c) Give A = [red, blue, green pink] and B = {1, 2, green} and

i) A\B

ii) A

iii) A (5 marks)

**QUESTION FIVE (20 MARKS)**

(a) Evaluate:

i)  (3 marks)

ii)  (3 marks)

(b) Explain the application of inequalities in business and

economics. (5 marks)

(c) Solve:

i) Log10 2x + 5 = 2 (3 marks)

ii) 4x2+3x= (3 marks)

(d) Explain the following terms: (3 marks)

i) Series

ii) Guadratic equation