

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

## JOMO KENYATTA UNIVERSITY

**OF AGRICULTURE AND TECHNOLOGY**

# University Examinations 2016/2017

**YEAR ONE SEMESTER ONE/YEAR ONE SEMESTER TWO EXAMINATIONS FOR THE CERTIFICATE ININFORMATION TECHNOLOGY**

**DIT 0205: ELEMENTARY MATHEMATICS AND DECISION MAKING**

**DATE: APRIL 2017 TIME: 1.5 HOURS**

**INSTRUCTIONS: ATTEMPT ANY THREE QUESTIONS. FINANCIAL MATHEMATICAL TABLES MAY BE USED**

QUESTION ONE (20 MARKS)

a) Define the following concepts precisely and give one example for each;

i) A null set (2 marks)

ii) An infinity set (2 marks)

iii) Relative complement of a set (2 marks)

iv) Absolute complement of a set (2 marks)

v) A universal set (2 marks)

b) In a company of 60 employees there are 44-employees who are degree holders but not diploma, 8-who are diploma but not degree an 2 who are neither degree nor diploma holders;

Required;

How many employees in the company are degree holders (10 marks)

QUESTION TWO (20 MARKS)

a) A firm rents its premises and the rental agreement provides for a regular annual increase of &2650 rent in the 1st year is &8500, what the rent is in the tenth year (10 marks)

b) A company has 60-employees in the ICT department, 68 employees in the accounting department, and 76-employees in the purchasing department and so on in the same increasing pattern. If the company has 20 department, how many employee are in the company (10 marks)

QUESTION THREE (20 MARKS)

a) Solve the following simultaneous equation by paper I Cramer’s rule;

i) 3x-2y=12

2x+4=-7y

ii) 12x-3=y

-2y+5x=10

b) A bill for &74 was paid with &5 and &1, a total of 50 notes being used. How many &5 notes were there (10 marks)

QUESTION FOUR (20 MARKS)

a) What is the gradient of a line passes through A(1,3) and B(5,7)

b) Find the equation of the line having if-intercept 3 and gradient 2

c) Show that if a line passes through (x0, y0) and M is its gradient then the equation of the line is y=m (x-x0)+y0. Hence use this concept to find the equation of a line which m=3 and passes through (1,4)

QUESTION FIVE (20 MARKS)

a) How much will sh10000 amount to at 8% p.a. compound interest over 15 years (use mathematical table) (10 marks)

b) What compound rate of interest will be required to produce sh5000 after five years with an initial investment of 4000 (10 marks)