

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

## JOMO KENYATTA UNIVERSITY

**OF AGRICULTURE AND TECHNOLOGY**

# University Examinations 2016/2017

**YEAR ONE SEMESTER ONE EXAMINATIONS FOR THE DIPLOMA IN INFORMATION TECHNOLOGY**

**DIT 0106: BASIC MATHEMATICS FOR INFORMATION TECHNOLOGY**

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

**INSTRUCTIONS: ANSWER ANY THREE QUESTIONS**

QUESTION ONE (20 MARKS)

a) Express the following in standard form

i) 8,200,000 (1 mark)

ii) 0.000729 (1 mark)

b) Simplify

i) (2 marks)

ii) (3 marks)

c) Write in the form 

where a and b are rational constants (5 marks)

d) The function ax2+bx+c has a gradient function 4x+2 and a stationary value of 1. Find the values of a,b and c (8 marks)

QUESTION TWO (20 MARKS)

a) Given that and Evaluate the following without using mathematical tables or calculator.

i)  (3 marks)

ii) (3 marks)

b) Solve the following equation without using tables

log(x+24)-2log3=log (9-2x) (4 marks)

c) Four business persons took their computers to an auction. John had two more computers then Otieno. Musyoka had three times as many computers as John and Wairimu had 10 computers less than John and Musyoka;

i) Write an algebraic expression with one variable, representing the total number of computers (3 marks)

ii) Three retailers bought all computers and shared them equally. If each retailer got 17 computers, how many did Wairimu sell to the retailers? (5 marks)

d) Solve -3)2w-7)-10=9-2(5w+4) (2 marks)

QUESTION THREE (20 MARKS)

a) Solve for x given 2x =256 (2 marks)

b) Simplify  (2 marks)

c) Simplify . Hence given that evaluate to 3 s.f (5 marks)

d) Simplify  (4 marks)

e) Evaluate the following

i)  (4 marks)

ii) (3 marks)

QUESTION FOUR (20 MARKS)

a) Find the sum of the positive even numbers less than or equal to 100

(5 marks)

b) The 3rd and 6th terms of a G.P are 5 and -40 respectively. Find the 8th term of this sequence (5 marks)

c) If Ksh 7500 is invested for 4 years at compound interest. At what rate will the money amount to Ksh 9116.30 (5 marks)

d) State three characteristics of a decision theory problem (3 marks)

e) Convert the following into radians

i) 3000 (1 mark)

ii) -5400 (1 mark)