

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

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2016/2017**

SECOND YEAR UNIVERSITY EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

**DIT 0409: INTRODUCTION TO DIGITAL ELECTRONICS**

**DATE: AUGUST, 2017 TIME: 1 ½ HOURS**

INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY)AND ANY OTHER

 TWO QUESTIONS

**QUESTION ONE: 30 MARKS**

a. State and explain how data is represented in each of the following:-

 i. Electronic circuits (3 marks)

 ii. Magnetic media (3 marks)

 iii. Optical media (3 marks)

b. Convert the following numbers

 i. From decimal to binary 121 (4 marks)

 ii. From binary to decimal 101101.012 (4 marks)

c. Discuss the following codes stating at least one of their functions in each case

 i. BCD (4 marks)

 ii. ASCII (4 marks)

d. Differentiate between Register, RAM and ROM (5 marks)

**QUESTION TWO: 15 MARKS**

a. Define the term Booiran Algebra (2 marks)

b. State the three basic operations of the Boolean calculus and their denotation

 (6 marks)

c. Describe any two laws of the Boolean Algebra (7 marks)

**QUESTION THREE: 15 MARKS**

a. What is a logic gate? (2 marks)

b. State any three devices that include logic circuits (3 marks)

c. Define the term solid state switches (2 marks)

d. State any two applications of solid state switch applications with examples (4 marks)

e. State and explain any two implementation of logic gates (4 marks)

**QUESTION FOUR: 15 MARKS**

a. State any three logic gates (3 marks)

b. Draw the following logic gates and their truth toddle:-

 i. AND gate (4 marks)

 ii. OR gate (4 marks)

 iii. Not gate (4 marks)

**QUESTION FIVE: 15 MARKS**

a. Explain the term LED (2 marks)

b. State any three advantages of LED (3 marks)

c. With the aid of a diagram, explain the seven- segment display (10 marks)