**Milele College Nakuru**

**SCHOOL: DEPARTMENT OF ICT**

**PROGRAM: CRAFT CERTIFICATE IN INFORMATION**

**COMMUNICATION TECHNOLOGY**

**COURSE CODE: ELE 001**

**COURSE TITLE: BASIC ELECTRONICS**

**STUDENTS: 3 STUDENTS**

**SEMESTER: NOVEMBER 2018**

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**INSTRUCTIONS:**

1. **Read the instructions on ANSWER BOOKLET carefully:**
2. **Answer Question ONE and any other TWO Questions**
3. **Time allowed is TWO hours**

**QUESTION ONE (30 MARKS)**

1. Write the equation for Ohms law showing the relationship between voltage, current and resistance in an electrical circuit. (3 Marks)
2. Convert 34C16 to octal. (4 marks)
3. Every material has its own characteristic resistivity. For example, rubber has a far larger resistivity than copper. What is the reason for this? (3 marks)
4. Junction field effect transistors like BJTs are three lead semiconductor devices. Give three uses of JFETs (3 marks)
5. Define the following terms as used in electronics: (8 marks)

* Conductor
* P-type
* MOSFET
* Impedance

1. List three applications of photo resistors. (3 marks)
2. There are two basic groups or classifications that can be used to define the different semiconductor types. Discuss these classifications in terms of their significance to electric current flow. (6 marks)

**QUESTION TWO (15 MARKS)**

1. List and explain the different types of RAM that exist (8 marks)
2. Which type of arithmetic do binary numbers perform? (1 mark)
3. If a positive voltage (>0.6V) is applied to the base of an npn transistor, the pn junction between the base and emitter becomes forward-biased. During forward bias, escaping electrons are drawn to the positive base. Describe the process of forward biasing. (6 marks)

**QUESTION THREE (15 MARKS)**

1. Using a diagram, describe how passive components are used in AC circuits. (6 marks)
2. Which category of diodes do solar cells belong? Why do you think they yield more power than most other devices of the same category? (5 marks)
3. What is the main difference between electrical power and electrical energy? (4 marks)

**QUESTION FOUR (15 MARKS)**

1. Why do we consider binary codes so important in computing? (4 marks)
2. What is the difference between a DRAM and VRAM? Use examples. (5 marks)
3. Analyze the two types of electrical devices that are associated with opto electrics. (6 marks)

**QUESTION FIVE (15 MARKS)**

1. Using schematic diagram(s), explain two ways in which electricity can flow through a circuit (6 marks)
2. Convert 1011001012 to the corresponding base-ten number. (3 marks)
3. List any six electrical quantities with their corresponding symbols and units. (6 marks)