**061006T4ICT**

**ICT LEVEL 6**

**IT/OS/ICT/CC/01**

**APPLY BASIC ELECTRONICS**

**Time: 3 hours**

**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**WRITTEN ASSESSMENT**

**3 hours**

**INSTRUCTIONS TO CANDIDATE**

*Marks for each question are indicated in the brackets*

*The paper consists of* ***two*** *sections:* ***A*** *and* ***B****.*

*Answer* ***ALL*** *questions in Section* ***A*** *and any* ***Three*** *from section* ***B****.*

*A separate answer booklet will be provided.*

***Candidate should answer the questions in English.***

SECTION A (40 marks)

*Answer All the questions in this section*

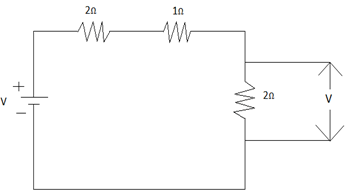
1. Define the following as used in basic electronics
2. Cache Memory (2 Marks)
3. Doping (2 Marks)
4. Highlight any **two** advantages and **two** disadvantages of cache memory (4 Marks)
5. Highlight f**our** advantages of using Integrated Circuits (4 Marks)
6. Outline any **four** Characteristics of Auxiliary Memory (4 Marks)
7. Explain the **two** types of RAM (4 Marks)
8. Explain any **two** types of ROM (4 Marks)
9. Differentiate between the following (4 Marks)
10. A.C and D.C currents
11. Electrolyte and Electrode
12. Explain the following as used in electronics. (6 Marks)
13. Hole current
14. Current
15. Voltage
16. Explain the following as used in atomic structure. (6 Marks)
17. Atom
18. Proton
19. Neutron

**SECTION B** (60 marks)

*Answer* ***any******THREE*** *questions in this section*

1. a) Explain the **two** types of Electric Circuits. (4 Marks)

b) Calculate Voltage across 2Ω Resistor where supply v= 10volts. (4 Marks)



If there are 3 Resistors R1, R2 and R3 in series and V is total voltage and I is total current then Voltage across R2 is? (2 Marks)

c) Discuss any **five** electronic components and their functions. (10 Marks)

1. a) List **four** types of number systems used in computers. (4 Marks)

b) Convert the following Binary number to its decimal equivalent

1. 110102.  (2 Marks)
2. **10110.001. (4 Marks)**

c) Convert (152A.25)16to **octal. (**2 Marks)

d) Convert27FB16 **to decimal. (3 Marks)**

e) Convert binary number 1101010 to hexadecimal number. (3 Marks)

f) Add 101112 + 1100012. (2 Marks)

1. a) Define semiconductor. (2 Marks)

b) Outline **five** differences Between *Intrinsic* and *Extrinsic* Semiconductors (10 Marks)

c) Explain the **two** types of extrinsic semiconductor. (4 Marks)

d) With aid of a sketch, outline the PN junction diode showing the flow of current and depletion region formation. (4 Marks)

1. a) With aid of a sketch, outline the configurations of PN junction diode showing both the input signal and output. (8 Marks)

b) Discuss any **six** challenges of emerging trends in electronic manufacturing. (12 Marks)

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