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.

This paper consists of 4 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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SECTION A (40 marks)

*Answer **All** the questions in this section*

1. Define the following as used in basic electronics

   i. Cache Memory (2 Marks)

   ii. Doping (2 Marks)

2. Highlight any **two** advantages and **two** disadvantages of cache memory (4 Marks)

3. Highlight f**our** advantages of using Integrated Circuits (4 Marks)

4. Outline any **four** Characteristics of Auxiliary Memory (4 Marks)

5. Explain the **two** types of RAM (4 Marks)

6. Explain any **two** types of ROM (4 Marks)

7. Differentiate between the following (4 Marks)

   a) A.C and D.C currents

   b) Electrolyte and Electrode

8. Explain the following as used in electronics. (6 Marks)

   a) Hole current

   b) Current

   c) Voltage

9. Explain the following as used in atomic structure. (6 Marks)

   a) Atom

   b) Proton

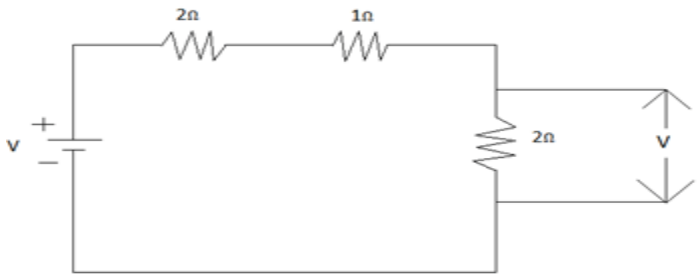
   c) Neutron

SECTION B (60 marks)

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

10. 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 R_1, R_2 and R_3 in series and V is total voltage and I is total current then Voltage across R_2 is? (2 Marks)

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

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

b) Convert the following Binary number to its decimal equivalent

i) $11010_{2.}$ (2 Marks)

ii) 10110.001. (4 Marks)

c) Convert $(152A.25)_{16}$ to octal. (2 Marks)

d) Convert $27FB_{16}$ to decimal. (3 Marks)

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

f) Add $10111_2 + 110001_{2.}$ (2 Marks)

12. 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)

13. 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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