

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

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE**

**DIPLOMAN IN INFORMATION TECHNOLOGY**

 **DIT 0304: ELECTRONIC CONSTRUCTION**

**DATE: DECEMBER 2015 TIME: 1 ½ HOURS**

**INSTRUCTIONS: ANSWER QUESTION COMPULSORY AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (20 MARKS)**

1. Define the following terms and state the units of measurement for each:
2. Resonance [2 marks]
3. Reactance [2 marks]
4. Frequency [2 marks]
5. Inductance [2 marks]
6. Impendence [2 marks]
7. List any THREE passive electronic components and any THREE

 active component. [6 marks]

1. Define the following terms as applied in electronic engineering:
2. Conductors [2 marks]
3. Semi-conductors [2marks]

**QUESTION TWO (20 MARKS)**

1. i) With the aid of a diagram briefly describe the Neil’s bohrmodel

 of the atomic theory. [6 marks]

ii) State the Pauli excursion principle. [2 marks]

ii) What is the maximum number of electrons that can be held

 at a fourth shell? [2 marks]

1. Explain the behavior of the P-N junction when:
2. Forward biased (use illustration) [5 marks]
3. Reverse biased is applied across it. [5 marks]

**QUESTION THREE (20 MARKS)**

1. Sketch the forward and reverse voltage (current) characteristics for

a P-N junction diode and explain the shape of the curve. [16 marks]

1. List any FOUR uses of capacitors. [4 marks]

**QUESTION FOUR (20 MARKS)**

1. i) In the figure below determine the current through the ammeter (A). [3 marks]

ii) Give the values and the tolerance of the resistors below if

 the codes are:

 a) Gold, Orange, Black, Red [3 marks]

 b) Silver, Yellow, Brown, Green [3 marks]

 c) No band, Red, Violet, Blue [3 marks]

1. With reference to the electrons describe the difference between

conductors and non-conductors and give example. [4 marks]

1. Name any THREE conducting materials in their order of conductivity. [4 marks]

**QUESTION FIVE (20 MARKS)**

1. List any THREE passive electronic components and any THREE

active components.

1. Define the following terms as applied in electronic engineering
2. Conductors [2 marks]
3. Semi-conductors [2 marks]
4. List any FOUR uses of capacitors [4 marks]
5. List any SIX uses of resistors [6 marks]