Učo : Group: Date:

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**Name**:

**IV. NOTICE:** [ ] fill in the units in the square brackets

**Task: Measuring the voltage and frequency of electric signals with the oscilloscope**

Key words: electron, electromagnetic force, voltage, frequency

|  |  |  |  |
| --- | --- | --- | --- |
| n. | Y | S | U voltage [ ] |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| n. | N | X | T | f frequency [ ] |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| 5. |  |  |  |  |

Example of U value and f value calculation:

Discussion

Importance for the medicine / connection with the health and illness:

Possible errors and accuracy:

Conclusion:

Učo : Group: Date:

Month:

Year:

**Name**:

**Task: Frequency dependence of tissue and tissue model impedance.**

Key words: resistance, impedance, capacitance, Ohm law, capacitor

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model Rn** | input | Ug |  | output | Ur |  | R= [ ] |
| frequency (Hz) | defl. fact.  S | divisions  Y | Voltage (V)  U=S\* Y | defl. fact.  S | divisions  Y | Voltage [ ]  U=S\* Y | Z [ ] |
| 100 | 0.5 | 2 | 1 |  |  |  |  |
| 250 | 0.5 | 2 | 1 |  |  |  |  |
| 500 | 0.5 | 2 | 1 |  |  |  |  |
| 750 | 0.5 | 2 | 1 |  |  |  |  |
| 1000 | 0.5 | 2 | 1 |  |  |  |  |
| 2000 | 0.5 | 2 | 1 |  |  |  |  |
| 4000 | 0.5 | 2 | 1 |  |  |  |  |
| 100K | 0.5 | 2 | 1 |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model Z** | input | Ug |  | output | Ur |  | R= [ ] |
| frequency (Hz) | defl. fact.  S | divisions  Y | Voltage (V)  U=S\* Y | defl. fact.  S | divisions  Y | Voltage [ ]  U=S\* Y | Z [ ] |
| 100 | 0.5 | 2 | 1 |  |  |  |  |
| 250 | 0.5 | 2 | 1 |  |  |  |  |
| 500 | 0.5 | 2 | 1 |  |  |  |  |
| 750 | 0.5 | 2 | 1 |  |  |  |  |
| 1000 | 0.5 | 2 | 1 |  |  |  |  |
| 2000 | 0.5 | 2 | 1 |  |  |  |  |
| 4000 | 0.5 | 2 | 1 |  |  |  |  |
| 100K | 0.5 | 2 | 1 |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Real tissue** | input | Ug |  | output | Ur |  | R= [ ] |
| frequency (Hz) | defl. fact.  S | divisions  Y | Voltage (V)  U=S\* Y | defl. fact.  S | divisions  Y | Voltage [ ]  U=S\* Y | Z [ ] |
| 100 | 0.5 | 2 | 1 |  |  |  |  |
| 250 | 0.5 | 2 | 1 |  |  |  |  |
| 500 | 0.5 | 2 | 1 |  |  |  |  |
| 750 | 0.5 | 2 | 1 |  |  |  |  |
| 1000 | 0.5 | 2 | 1 |  |  |  |  |
| 2000 | 0.5 | 2 | 1 |  |  |  |  |
| 4000 | 0.5 | 2 | 1 |  |  |  |  |
| 100K | 0.5 | 2 | 1 |  |  |  |  |

Example of Z value calculation:

Graph:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**x - axis ………………………………… [ ]**

Discussion

Importance for the medicine / connection with the health and illness:

Possible errors and accuracy:

Conclusion:

**Task: Skin resistance**

Key words: resistance, electrical conductivity, ion, electric charge

Table of measured resistance values:

|  |  |
| --- | --- |
| epidermis | resistance [ ] |
| natural |  |
| wiped by alcohol |  |
| applied saline solution |  |
| applied ECG gel |  |

Discussion

Importance for the medicine / connection with the health and illness:

Possible errors and accuracy:

Conclusion: