CONDUCTORS AND INSULATORS

4.1. Vocabulary

Ex. 1. *Match the words with their Russian equivalents.*

1. in the loop	a. на полной мощности
2. to generate power	b. ток
3. energy	c. проводящий материал
4. to transfer heat	d. энергия
5. high voltage	e. подключить и использовать
6. plug and play	f. высокое напряжение
7. circuit	g. цепь
8. at full capacity	h. передавать тепло
9. insulating layer	i. правильно изолировать
10. resistance	j. электричество
11. current	k. напряжение
12. to insulate properly	l. изоляционный слой
13. conductive material	m. в цепи
14. electricity	n. проводить электричество
15. to conduct electricity	o. сопротивление
16. voltage	p. генерировать энергию

Ex. 2. *Complete the sentences with the given words.*

current, to transfer heat, conductive material, Resistance, in the loop, to conduct electricity, high voltage, to generate power, plug and play, Energy, at full capacity, electricity (3), insulating layer, voltage, to insulate properly, energy (2), Electricity, circuit

_____(1) is essential for powering our homes and electronic devices effectively.

The _____(2) flowing through the wire determines how strongly it can power a light bulb.

A _____(3) must be complete for the _____(4) to flow and power the appliance.

_____(5) in materials can affect how easily _____(6) can travel through them.

The _____(7) in a household outlet is usually around 120 volts, which is safe to use.

_____(8) can be stored in batteries and released when needed for various devices.

Copper is a common metal used _____(9) in electrical wiring.

Wind turbines are an effective way _____(10) from renewable _____(11) sources.

When cooking, you need _____(12) efficiently from the stove to the pot.

It is important _____(13) around wires to prevent electrical accidents.

Silver is considered a highly _____(14), allowing _____(15) to pass through easily.

An _____(16) is necessary to protect people from electric shocks in appliances.

Equipment that operates at _____(17) should be handled with extreme care and caution.

If everything is connected correctly, the system will work perfectly _____(18).

The generator was running _____(19) to meet the _____(20) demands of the city.

Many modern devices are designed to be _____(21), making setup easy for users.

4.2. Reading

Ex. 1. *Read the text.*

Understanding the difference between conductors and insulators is crucial when dealing with electricity. A conductor is any material that can easily conduct electricity. They have low resistance and allow the current to flow through quickly. Metals like copper and aluminum are prime examples of conductive material.

On the other hand, insulators are materials that do not easily allow electricity to pass through them. They have high resistance, which prevents the current from flowing. Plastic, rubber, and wood are common

insulating layers. It’s essential for materials to insulate properly to ensure safety in electrical systems.

In any circuit, the balance of voltage and resistance directly impacts the current flow. Using the right components ensures that the circuit can operate at full capacity. Engineers often maximize energy efficiency by using conductors to transfer heat and to generate power.

In the real world, high-performance systems must maintain high voltage conditions safely. Insulators keep conductive materials separated, making sure current stays in the loop. With advancements in technology, many setups have become more plug and play, simplifying complex configurations. Understanding these basics is fundamental for working with electrical systems efficiently.

Ex. 2. *Answer the questions.*

1. What is the main difference between conductors and insulators?

2. Can you provide examples of materials that are good conductors of electricity?

3. How do insulators prevent the flow of current?

4. Why is it important for materials to insulate properly in electrical systems?

5. How does the balance of voltage and resistance affect current flow in a circuit?

6. How do engineers maximize energy efficiency in circuits?

7. What role do insulators play in maintaining high voltage conditions safely?

4.3. Communication

Ex. 1. *Make sentences using the following words.*

1. Metal/good/conductor
2. Rubber/insulator/prevents
3. Copper/wiring/commonly
4. Wood/known/natural
5. Why/silver/good
6. Plastic/act/both
7. Aluminum/foil/decent
8. Glass/commonly/homes

9. Do/rubber/tires
10. Paper/both/conductor