**Прочитайте и переведите текст**

**Electric lines and their efficiency**

Wires are used to deliver electric power and to interconnect different components of electrical installations. Conductors used for electric wiring are commonly produced of copper and aluminium. Aluminium is widely used nowadays due to its low cost. Copper is also widely used in electrical engineering but its cost is much higher.

Wires connecting the components of various installations may be insulated. They may also be used without insulation. In long wires (longer than 10m), power loss cannot be ignored since it is rather high. Power loss in a line should not exceed a definite value. If this value is exceeded the line becomes inefficient.

One should know that the efficiency of a line is not constant – it may change. The value of the line efficiency depends on the load: the greater the load the lower is the line efficiency. At voltage losses of 2 to 5 per cent the efficiency of a line is 98 – 95 per cent. Protecting devices, fuses and relays are used to protect the circuit against overcurrents and short – circuits.

Прочитайте текст и выполните упражнения

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|  |
| ELECTRIC CIRCUIT |
| circuit | compare |  |
| resistor | difference |  |
| voltage source | pass through |  |
| conductor | no (current) |  |
| consist of | a short |  |
| reduce | an open |  |
| supply | trouble |  |
| connect | result in, from |  |

This is a circuit. Its elements are a voltage source, a resistor and a conductor. The circuit consists of a voltage source, a resistor and a conductor. A voltage source supplies current. A resistor reduces current. A conductor connects the elements of the circuit.

Compare circuit "a" with circuit "b". What is the difference between them? Current passes through circuit "a" while no current passes through circuit\* "b". Circuit "b" has an open; No current through circuit "b" results from an open. An open and a short are troubles in a circuit. A trouble in a circuit may result in no current in it.

Электрическая цепь

Это цепь. Её элементами являются источник питания, сопротивление и проводник. Цепь состоит из источника питания, сопротивления и проводника. Источник питания производит ток. Сопротивление уменьшает ток. Проводник соединяет элементы цепи.

Сравните цепь «а» с цепью «б». В чем разница между ними? Через цепь «а» ток проходит, в то время как в цепи «б» тока нет. Цепь «б» разорвана. В цепи «б» нет тока из-за разрыва. Разрыв и короткое замыкание – это поломки в цепи. Поломка в цепи может привести к отсутствию в ней тока.

EXERCISES

A

Выберите верный вариант ответа

1) circuit "a" consists of

a) resistors and conductors

b) a voltage source and resistors

c) a voltage source, a resistor and a conductor

2) a voltage source

a) conducts current

b) reduces current

r) supplies current

3) a conductor

a) connects the elements

b) supplies voltage

c) conducts current

4) a resistor

a) connects the elements

b) supplies current

c) reduces current

5) no current results from

a) an open

b) a short

B

Ответьте на вопросы

1. 'What elements does a circuit consist of? 2. What is the function of a voltage source? 3. What is the function of a conductor? 4. What is the function of a resistor? 5. When is there no current in a circuit? 6. What does an open or a short result in? 7. What does no current in a circuit result from?

C

Решите задачи:

1. How much is the current in the circuit if a 60-volt source is connected to a resistance of t, 600 ohms?

2. How much is the voltage in a circuit having a current equal to 25 amp, if a 25-ohm resistance is connected to it?

3. A 70.35-ohm resistance is connected to the circuit. How much is the voltage if the current is equal to 4.5 amp?