*I. Перепишите следующие предложения; подчеркните в каждом из них*

глагол-сказуемое и определите его видо-временную форму и залог.

*Переведите предложения на русский язык.*

1. This workshop is producing several types of minicomputers now.

2. Science has become a leading factor in the progress of mankind.

3. We were making our experiment in the laboratory for two hours yesterday.

4. By the beginning of the year, the changes in the global climate and water

balance had brought about serious changes in the environment.

II. Перепишите следующие предложения; подчеркните в каждом из них

*модальный глагол или его эквивалент. Переведите предложения на*

*русский язык.*

1. One must have a very good knowledge of general engineering subjects to

become a good engineer.

2. They should provide our laboratory with all the necessary instruments.

3. Atoms of different kinds can join together in different ways.

4. Morse discovered that it was possible to send telegraph messages as sounds.

5. Our group will be allowed to use new laboratory equipment next term.

III. Перепишите следующие предложения с определительными и

*дополнительными придаточными предложениями. Обратите внимание*

*на бессоюзные придаточные предложения, переведите предложения на*

*русский язык.*

1. Experiments show that all gases expand when heated.

2. The chief engineer believed we should be working at that problem for a

month the following summer.

3. The devices our country produces are known all over the world.

4. The phenomenon Oersted pointed at interested Ampere greatly.

*IV. Перепишите и письменно переведите текст на русский язык.*

**Electromotive Force and Resistance**

As was previously stated, there is always a disorderly movement of free electrons within all substances, especially metals.

Let us assume that there is a movement of electrons through the wire, say, from point A to point B. What does it mean? It means that there is an excess of electrons at point A. Unless there were a flow of electric current between A and B in any direction, it would mean that both the former and the latter were at the same potential. Of course, the greater the potential difference, the greater it the electron flow.

The electromotive force (e.m.f.) is the very force that moves the electrons from one point in an electric circuit towards another. In case this e.m.f. is direct, the current is direct. On the other hand, were the electromotive force alternating, the current would be alternating, too. The e.m.f. is measurable and it is the volt, that is the unit used for measuring it.

One need not explain to the reader that a current is unable to flow in a circuit consisting of metallic wires alone. A source of an e.m.f. should be provided as well. The source under consideration may be a cell or a battery, a generator, a thermocouple or a photocell, etc.

In addition to the electromotive force and the potential difference, reference should be made here to another important factor that greatly influences electrical flow, namely, resistance. So, to resistance we shall turn our attention now. The student probably remembers that all substances offer a certain amount of opposition, that is to say resistance, to the passage of current. This resistance may be high or low depending on the type of circuit and the material employed. Take glass and rubber as an example. They offer a very high resistance and, hence, they are considered as good insulators. Nevertheless, one must not forget that all substances do allow the passage of some current provided the potential difference is high enough.

Imagine two oppositely charged balls suspended far apart in the air. In spite of their having a difference of potential, no current flows. How can we explain this strange behaviour? The simple reason is that the air between the balls offers too great a resistance to current flow. However, the electrons could certainly flow from the negatively charged ball towards the positively charged one provided we connected them by a metal wire. As a matter of fact, it is not necessary at all to connect both balls in the manner described in order to obtain a similar result. All that we have to do is to increase the charges. If the potential difference becomes great enough, the electrons will jump through the air forming an electric spark.

One should mention in this connection that certain factors can greatly influence the resistance of an electric circuit. Among them we find the size of the wire, its length, and type. In short, the thinner or longer the wire, the greater the resistance offered. Besides, if we could use a silver wire, it would offer less resistance than an iron one.

*V. Ответьте на вопросы:*

1. What is the electromotive force?

2. What factors greatly influence the current flow in the circuit?

3. What does resistance depend on?