**КОНТРОЛЬНАЯ РАБОТА**

**По дисциплине «Иностранный язык»**

**Направления 18.03.01 «Химические технологии»**

**3 семестр (полный курс)**

Для того, чтобы правильно выполнить работу № 3, необходимо усвоить следующие разделы курса английского языка:

1. Причастие настоящего: времени: функции и перевод (Participle I).
2. Причастие прошедшего времени: функции и перевод (Participle II).
3. When, if + причастие прошедшего времени (when, if + Participle II).
4. Зависимый и независимый причастный оборот (The Absolute Participle Construction), определение и перевод. Использование англо-русского химико-технологического словаря.
5. Умение пользоваться терминологическим англо-русским словарем, знать технический минимум

**Вариант № 1**

**Задание 1.** Прочитайте, перепишите, используя нужную форму при­частия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. The geologists (to work) in the Par East found extensive reserves of natural minerals.
2. The letter (to write ) was addressed to the USA.
3. (to have mixed) these two substances we put the mixture into the glass.

**Задание 2.** Прочитайте предложения, определите функции причас­тий. Переведите предложения на русский язык.

1. Students are given every opportunity to acquire knowledge in different branches of science.
2. The information mentioned above is of great interest.
3. We use many electronic machines performing very complicated calculations.

**Задание З.** Прочитайте предложения, переведите письменно и укажите, в каком предложении использован независимый причастный оборот.

1. The experiment being very interesting we decided to analyze it.
2. Unless carrying out the experiment, the scientist noticed that the substance was solid.
3. Having been heated for several hours the substance began to melt.

**Задание 4.** Прочитайте и переведите письменно следующий текст.

**Metals**

In general metals are solids with a metallic lustre, conduc­tors of electricity, malleable, and of high physical strength. In compound form, the metals have positive valences. Probably, their most important characteristic is that when used as a metal they are usually in elemental form or alloyed with other metals.

The metals long used by mankind – iron, copper, zinc, titian lead, mercury, silver and gold – are those which exist as easily recognized minerals in large deposits and which are easily reduced from compounds to elemental forms.

The most important metal, iron, is both prevalent and easily v reduced to metallic form. In more recent times some of the most naturally prevalent metals that are difficult to reduce have become common and readily available due to the development of electrochemical processed for their production. These include aluminium,magnesium and sodium*.*

The metals occur most commonly as oxides or sulphides in ores that contain such materials as clay, silica, granite, etc. from which the metal compounds must be separated.

Since only a few of the metals, such as copper, gold, silver, platinum and bismuth, exist in elemental form, the chief problem is that of reducing them from compound to elemental form.

**Задание 5**. Исправьте предложения на основе текста.

1. The metals enn't occur aa aulphldfin in oro, platinum and bismuth existing in pure form.

2. Zink and copper axe hardly recognized minerals.
3. Gold can be used alloyed with other metals.

**Задание 6.** Ответьте на вопросы письменно.

1*.* What metals exist naturally in elemental form?

2. What metals have long been used by mankind?

3. What metals have become common in more recent years?

**Задание 7.** Переведите письменно на английский язык, используяя текст.

1. Что ты знаешь о металлах, используемых в промышленности?
2. Металлы, существующие в злементарн0й форме - медь, золото, серебро, платина.
3. Такие металлы, как железо, медь, цинк были использованы человечеством.

**Вариант № 2**

**Задание 1.** Прочитайте, перепишите, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. Modern computers (to solve) problems so quickly are electronic machines.

2. The letter (to write) to my friend is on the table.

3. When (to study) this compound we came to the wrong conclusion.

**Задание 2.** Прочитайте предложения, определите функции причастий. Переведите предложения на русский язык.

1. The data obtained are necessary for our engineers.

2. Our plant producing complex machinery is very large.

3. None of the data have been presented at the-conference.

**Задание З.** Прочитайте предложения, переведите письменно и укажите, в каком предложении использован независимый причастный оборот.

1. When heated to 100 ° water boils.

2. Having finished his talk, the speaker smiled and waited for the questions.

3. The range of application of stable isotopes being very, wide the scientists axe interested in them.

**Задание 4.** Прочитайте и переведите письменно текст.

**Synthetic polymers and their application**

Polymers are the dynamic part of industry, particularly plas­tics and fibres. A polymer is a substance consisting of molecules and characterized by its viscosity colour and by its softening po­ints. Until recently it was thought that the properties of the po­lymers were determined only by the chemical structure of their molecules. Chemists after many years of research have established that the properties of polymers produced are largely determined by the pattern of their big molecules. The properties of polymers de­pend on their super-molecular structure.

Polymers just like metal a can be alloyed, i.e. groups diffe­rent in composition may be introduced into the structure of the polymers. A study has been made of possible variants of structural patterns of different polymers and of ways of developing the requi­red structures. This has opened up the possibility for developing substances with scheduled properties.

High molecular compounds possessing a great variety of valuable properties, they can therefore be used in a wide range of things.

The main concern of researchers and engineers is to improve the quality of mass produced goods.

The so-called "aging" of material is a result of deterioration in the properties of polymers due to chemical and physical changes caused by the effect of light, heat and humidify. Many laboratories are conducting research to prevent these processes.

**Задание 5.** Исправьте предложения на основе текста.

1. The metals can be alloyed but the polymers cannot.
2. It is impossible to develop polymeric substances with the scheduled properties.
3. The so-called "aging" of the polymers is due to chemical and physical changes caused only by temperature.

**Задание 6.** Ответьте на вопросы письменно.

1. What are polymers characterized by?
2. What do the properties of the polymers depend on?
3. What is the main concern of the researchers and engineers?

**Задание 7.** Переведите письменно на английский язык, используя текст.

1. Полимеры широко используются в промышленности.
2. На полимеры влияет свет, тепло и влажность.

3. Основная задача ученых и инженеров – улучшить качество полимеров.

**Вариант № 3**

**Задание 1.** Прочитайте, перепишите, используя нужную форму при­частия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. (to design); any machine the engineer must know what work it must perform.

1. The equipment (to need) for the experiment was carefully checked.
2. Water is the most efficient agent, (to have) a high heat transfer coefficient and a high heat capacity.

**Задание 2.** Прочитайте предложения, определите функции причастий. Переведите, предложения на русский язык.

1. We use electronic machines fulfilling the most complicated calculations in industry and agriculture.
2. The airliner designed by N can carry only 80 passen­gers.
3. The experimental facts can be explained by this theory.

**Задание 3.** Прочитайте предложения, переведите письменно и ука­жите, в каком предложении использован независимый причастный оборот.

1. The electron is about as large as a nucleus its diameter being about 10-12 cm.
2. Metals do not melt until heated: to a definite tempera­ture.

3. Mercury is used in barometers, having a great specific gravity.

**Задание 4.** Прочтите и переведите письменно текст.

**Rubber**

Natural rubber is an elastic substance found as milky, dispersion …many, species of plants. Synthetic rubbers are highly polymeric substances manufactured from a wide range of chemical compounds. Both synthetical and natural rubber have in common the ability to undergo nearly reversible, highly elastic deformation.

In 1960, world wide use of rubber was divided nearly equally between natural product (about 2 million .tons) and synthetic rubber (about 1.8 million tons).

Natural rubber being an extremely valuable substance, many other naturally occurring compounds are closely related to it che­mically. The basic building block for natural rubber as well аs other polyisoprenoids is acetic acid. Natural rubber was first obtained from wild trees in Brazil.

The physical and chemical properties of natural rubber are fixed by biological factors. In synthetic rubber a much greater variation of properties can be realized. The chemical properties of rubber are of paramount importance.

Vulcanization is a process used to make raw rubber useful. It decreases sensitivity to extremes of temperature, confers resistan­ce to flow under stress and stabilizes rubbers valuable properties. Chemically, vulcanization creates strong bonds between the long linear molecules of the rubbery polymer. It fixes efficiently the mo­lecules position with respect to one another and prevents their slippage under stress.

**Задание 5.** Исправьте предложения на основе текста.

1. The main building block for natural rubber are acetic and nitric acids.
2. Synthetic and natural rubbers are not equally used.
3. The biological factors only can't fix the chemical and physical properties of natural rubber.

**Задание 6.** Ответьте на вопросы письменно.

1. What are synthetic rubbers?

2. What is vulcanization?

3. When was the first natural rubber obtained?

**Задание 7.** Переведите письменно на английский язык, используя текст.

1. Синтетический и природный каучук имеют много общего. 2. Химические свойства каучука имеют большое значение. 3. Процесс вулканизации может помочь стабилизировать некоторые свойства каучука.

**Вариант № 4**

**Задание 1.** Прочитайте, перепишите, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения.

1. (to have) light weight, plastic materials find wide application in industry.
2. We can use the method (to suggest) by the scientist.
3. This substance does not dissolve in water when (to heat).

**Задание 2.** Прочитайте предложения, определите функции причастий.

Переведите предложения на русский язык.

1. Attention was also given to the electron microscopic observations.
2. The tasks explained by the engineer were very important.
3. The engineers carrying out experiments combine their research with practical work.

**Задание З.** Прочитайте предложения, переведите письменно и укажите, в каком предложении использован независимый причастный оборот.

1. Ordinary salt being examined with a magnifying glass, they saw that the crystals were of cubic form.
2. When calculating the weight of a body we nave to multiply its specific gravity by its volume.
3. Having been measured with unreliable instruments the results were poor.

**Задание 4.** Прочитайте и переведите письменно текст.

**The nature of plastics**

The word "plastic" is a general name given to a group of materials because it means "capable of being molded". The word however, is used to describe not only the material which can be molded but also the material obtained, after it has been fabricated into an object and may no longer be moldable. Plastics are the wonderful engineering materials of the modern age, provided that they are properly employed. They posses a great variety of valuable properties and can be used in a wide range of things.

It is necessary to know the nature and behaviour of plastics, their general advantages and disadvantages.

The advantages of the plastics materials include:

1. The ease of fabrication and adaptability to mass production methods at low unit cost.
2. Resistance to corrosion.
3. Plastics are good thermal and electric insulators, all having dielectric strength.
4. Plastics can be easily combined with other materials like wood, fibers, paper and combine light weight with good strength аз wall. The highest strength is obtained with glass fibre and this reinforcement is now used to a considerable extent.

Having made a rather modest appearance in the turn of the century as substitutes for some costly materials, plastics have now invaded all branches of industry, agriculture, household needs, medicine and even art. Plastics are used in building industry, some of them are extensively used for finishing the interior of buildings.

**Задание 5.** Исправьте предложения на основе текста.

1. Plastics axe wonderful substances of modern life, which can be used only in agriculture.
2. It is not important to know the nature of plastics if you use them in agriculture.
3. It is difficult to combine plastics with wood.

**Задание 6.** Ответьте на вопросы письменно.

1. Where can plastics be used?

1. What are the advantages of plastics?
2. Do plastics resist to corrosion?

**Задание 7.** Переведите письменно на английский язык, используя текст.

1. Одно из преимуществ пластмасс то, что они имеют легкий вес и устойчивы к коррозии.
2. Пластмассы обладают многими ценными свойствами.
3. Пластмассы могут быть использованы в строительстве.

**Вариант № 5**

**Задание 1.** Прочитайте, перепишите, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. (to carry out) experimental study the scientists advance menu's- knowledge.
2. The substance thus (to obtain) was pure.
3. When (to translate) soma new texts he used to write out all new words*.*

**Задание 2.** Прочитайте предложения, определите функции причастий. Переведите предложения на русский, язык.

1. Cane is taken not to heat the substance.
2. The liquid measured is in the test-tubes number one.
3. Being a young science cybernetics penetrates into various fields of industry.

**Задание З.** Прочитайте предложения, переведите письменно и укажите, в каком предложении использован независимый причастный оборот.

1. A gas can be dissolved in a liquid the liquid changing its boiling, point.

2. When falling the more massive bodies have more inertia to overcome.

3. Having been warmed to 0 o ice began to melt.

**Задание 4.** Прочитайте и переведите письменно текст.

**Ceramics**

Ceramics is an applied science dealing with the preparation and application of a great number of organic chemicals. Until recently ceramic materials were primarily silicate bearing compounds. Now they include oxides, graphite, carbides, borides, filicides, nitrides, and systems compounded; of these groups. Typical ceramic products are pottery, porcelain, enamels, refractories, glass, insulators, cement, bricks: and building materials, abrasives, clay being still the basis of: mast commercial ceramic products.

Ceramic products are usually, man-made, a number of ceramic products existing in a natural state, e.g. diamond, graphite, mica and marble. Ceramic products can be classified by the method of preparation into two groups: sintered and fused, Silica (SiO2) is the main ingradient of most ceramic products. Its most common form is quartz. Kaolin or clay minerals are compounds of silica and other metal oxides, particularly aluminium and magnesium, and are used in pottery manufacture. Mica minerals also consist of complex silicates. Mica is used as an insulator in electrical and electronic equipment.

An extensive technology is now developing around newer ceramics, oxides having great potential because of their resistance to high temperatures and their electrical properties. Graphite because of its high melting point and high temperature strength, is finding wide-spread use in rocket building.

Ferrites (mixed oxides of iron and other metals) have magnetic properties which are of interest for computer Components. Titanates, sapphire, ruby and garnets are finding application in advanced communication equipment and energy and power– conversion equipment.

Cermets (combination of metals and ceramics) are becoming important ceramic systems.

Notes: 1) sintered products – металлокерамические изделия

2) fused products – плавленные изделия

**Задание 5.** Исправьте предложения на основе текста.

1. A number of ceramic products can not exist in natural state, e.g. diamond and marble.
2. Cermets have magnetic properties which are of interest for computer component's.
3. Mica is used as an insulator in electrical and electronics computers together with, diamonds.

**Задание 6.** Ответьте на вопросы письменно.

1. What is ceramics and what does it deal with?
2. What are typical ceramic products?
3. How can the ceramic products ;be classified?

**Задание 7.** Переведите письменно на английский язык, используя текст.

1. Мы изучали методы классификации этих веществ.
2. Особое внимание было уделено основным ингредиентам этого соединения.
3. Сейчас ученые работают над развитием интенсивных технологий.

**Требования к выполнению контрольной работы**

Контрольная работа выполняется письменно в рабочих тетрадях. Титульный лист и регистрация обязательны.