

МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
Учреждение образования
«БРЕСТСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»

Кафедра иностранных языков по техническим специальностям

КОНТРОЛЬНЫЕ ЗАДАНИЯ

по дисциплине

«Иностранный язык» (английский)

и методические рекомендации по их выполнению

для студентов

специальности 1-36 01 01 «Технология машиностроения»

заочной формы обучения

Брест 2010

Контрольные задания и методические рекомендации к ним предназначены для студентов технического вуза заочной формы обучения специальности «Технология машиностроения» и рассчитаны на самостоятельную работу.

Основная цель данного пособия – формирование и контроль практических навыков чтения и перевода специальной технической литературы с английского языка на русский.

Все четыре контрольные работы составлены в соответствии с учебной рабочей программой, разработанной на кафедре иностранных языков по техническим специальностям БрГТУ. Каждая контрольная работа предлагается в пяти вариантах.

Данные контрольные задания и методические указания к ним одобрены на заседании кафедры иностранных языков по техническим специальностям БрГТУ и рекомендованы к изданию.

МЕТОДИЧЕСКИЕ УКАЗАНИЯ К КОНТРОЛЬНЫМ ЗАДАНИЯМ

Целью выполнения контрольных заданий по дисциплине «Иностранный язык» является закрепление материала, самостоятельно изученного студентами в течение учебного семестра, и проверка уровня их подготовленности к зачету и итоговому экзамену.

Выполнение контрольных заданий и оформление контрольных работ

При выполнении контрольной работы по английскому языку учитывайте следующие указания:

1. Каждое контрольное задание в данном пособии предлагается в пяти вариантах. Вы должны выполнить один из пяти вариантов в соответствии с последней цифрой студенческого шифра: студенты, шифр которых оканчивается на 1 или 2, выполняют вариант № 1; на 3 или 4 - № 2; на 5 или 6 - № 3; на 7 или 8 - № 4; на 9 или 0 - № 5.

2. На титульном листе контрольной работы обязательно напишите свою фамилию и инициалы, номер контрольной работы и вариант, шифр зачетной книжки, свой курс обучения, номер группы. Список использованной литературы указывается в конце выполненной контрольной работы.

3. Контрольное задание должно выполняться четким почерком и аккуратно. При выполнении контрольной работы оставляйте поля для замечаний, объяснений и методических указаний рецензента, а также записывайте условие каждого упражнения. Материалы контрольной работы следует располагать в тетради следующим образом:

Левая страница		Правая страница	
Поля	Текст на иностранном языке	Текст на русском языке	Поля

4. Упражнения каждой контрольной работы должны быть выполнены в той последовательности, в которой они даны в настоящем пособии.

5. Выполненные контрольные работы направляйте для проверки и рецензирования в университет в установленные сроки.

Если контрольная работа выполнена без соблюдения вышеизложенных указаний или они выполнены не полностью, она возвращается без проверки.

ИСПРАВЛЕНИЕ РАБОТЫ НА ОСНОВЕ РЕЦЕНЗИИ

1. При получении от рецензента проверенной контрольной работы внимательно изучите отмеченные в работе ошибки.

2. Руководствуясь указаниями рецензента, проработайте еще раз учебный материал. Все предложения, в которых были обнаружены орфографические и грамматические ошибки или неточности, перепишите в конце данной контрольной работы, т.е. выполните работу над ошибками.

3. Отрецензированные контрольные работы являются учебными документами, которые необходимо сохранять: помните о том, что во время зачета или экзамена производится защита контрольной работы, т.е. проверка усвоения материала, вошедшего в контрольную работу.

РЕКОМЕНДУЕМАЯ ЛИТЕРАТУРА:

1. Бгашев В.Н., Долматовская Е.Ю. Английский язык. Учебник для машиностроительных специальностей. Москва, 2003.

2. Полякова Т.Ю., Синявская Е.В., Тынкова О.И., Улановская Э.С. Английский язык для инженеров. Москва: Высшая школа, 2008.

3. Хоменко С.А., Скалабан В.Ф. Английский для студентов технических вузов: основной курс в 2-х частях. Минск: Вышэйшая школа, 2006.

4. Мюллер В.К. Англо-русский словарь. 2009.

5. Англо-русский словарь по деталям машин, станков и механизмов.

КОНТРОЛЬНАЯ РАБОТА №1

Для того, чтобы правильно выполнить контрольную работу №1, необходимо изучить следующие разделы грамматики английского языка:

1. Имя существительное: образование множественного числа и притяжательного падежа.
2. Степени сравнения имён прилагательных и наречий. Конструкции типа "the more ... the better". Конструкции "as ... as", "not so ... as".
3. Местоимения. Именительный и объектный падежи личных местоимений. Притяжательные местоимения и их абсолютная форма, неопределённые, указательные и возвратные местоимения. Структура с глаголом to let.
4. Количественные и порядковые числительные.
5. Особенности перевода предложений с оборотом there + to be на русский язык.
6. Времена группы Indefinite (Present, Past, Future) в действительном и страдательном залогах.
7. Предлоги и артикли.

Вариант 1

1) Перепишите следующие предложения. Подчеркните и определите по грамматическим принципам, какой частью речи являются слова, оформленные окончанием s, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;
- б) признаком множественного числа имени существительного;
- в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Mechanical engineer works on designing and developing tools, ores, jigs, and different fixtures for the production of automotive body.
2. The city's industry supplies the country with computers, gas stoves, carpets, knitted goods.
3. Belarus covers the territory 207 600 square kilometers.
4. His aunt's father was a mechanic.

2) Дополните следующие предложения конструкций there + to be в требуемой форме. Перепишите предложения и письменно переведите их на русский язык, обращая внимание на порядок слов.

1. There... different types of machines in mechanical engineering.
2. ... there 37 secondary schools in your town?
3. There ... new machine-tools at the plant next month.
4. There ... more students in our university last year.

3) Перепишите следующие предложения, содержащие различные формы сравнения, и переведите их на русский язык.

1. He is the best student in our group.
2. Physics is more difficult for me than mathematics.
3. Vitebsk is one of the largest and oldest cities in Belarus.
4. The longer is the night, the shorter is the day.

4) Выберите подходящее местоимение. Перепишите предложения и письменно переведите их на русский язык.

1. (Some, any, every) students in our group can speak English rather well.
2. (Mine, me, my) friends work at (it, this, these) plant.
3. (Their, they, them) house is in the centre of the town.
4. Show (his, him, he) (our, ours, they) magazines.
5. (My, me, mine) sister can do this work (myself, himself, herself).
6. Let (they, them) have a rest.

5) Перепишите следующие предложения в активном залоге, подчеркните в каждом из них глагол-сказуемое и определите его видовременную форму. Переведите предложения на русский язык.

1. The new law comes into force next month.
2. This plant will produce only tyres.
3. They designed this instrument for laboratory research.
4. The engine didn't operate well .

6) Перепишите следующие предложения в пассивном залоге, подчеркните в каждом из них глагол-сказуемое и определите его видовременную форму. Переведите предложения на русский язык.

1. Mechanical engineering is recognized as a separate branch of engineering.
2. My friend was offered a new job last Thursday.
3. Don't worry. This new equipment will be relied on.
4. When will the work be done?

7) Прочитайте и устно переведите текст "Mechanical Engineering". Перепишите и письменно переведите 1, 2, 3 абзацы текста.

Mechanical Engineering

1. Mechanical engineering is recognized as a separate branch of engineering. The development of the textile machinery, steam engines, machine-tools, pumping machinery, turbines and locomotives made such a diversity interest for civilian engineers that these and allied subjects are called mechanical engineering.

2. Mechanical engineering deals with the design, construction and operation of machines and devices of all kinds, and with research and sciences upon which these depend. Among these machines are prime movers such as engines and turbines using air, gas, steam and water as operating media; pumping machines and other hydraulic apparatus; steam boilers, heating, ventilating, air conditioning and refrigerating equipment, transportation structures used in aviation; automotive engineering, railroads and ships, machine-tools, special machines for industry and for construction of buildings, railroads and harbors.

3. In fact, mechanical engineering enters into the work of all engineers whose machines are developed for the processes of specialists of the other branches of engineering. To understand better the extent of the activities and interests of mechanical engineers, the following lists of the professional divisions and technical committees of the American Society of Mechanical Engineers (ASME) are given:

4. Professional divisions; applied mechanics, aviation, fuel, graphic arts (printing), heat transfer, hydraulics, industrial instruments and regulators, management, materials handling, metals engineering, oil and gas power, process industries, production engineering, railroad, rubber and plastics, textiles, wood industries.

Вариант 2

1) Перепишите следующие предложения. Подчеркните и определите по грамматическим принципам, какой частью речи являются слова, оформленные окончанием –s, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;
- б) признаком множественного числа имени существительного;
- в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Some professions are dangerous for women's health.
2. My brother's friends are hockey-players.
3. Electricity flows through transmission lines to houses, industrial plants, enterprises etc.
4. The industrial progress of mankind is based on power: power for industrial plants, machines, heating and lighting systems, transport.

2) Дополните следующие предложения конструкций there + to be в требующейся форме. Перепишите предложения и письменно переведите их на русский язык, обращая внимание на порядок слов.

1. There ... two main sources of producing electricity.
2. There ... more experienced workers at this plant last year.
3. There ... a new sport complex here next August.
4. ... there many educational establishments in your town?

3) Перепишите следующие предложения, содержащие различные формы сравнения, и переведите их на русский язык.

1. The more often we use English words in our speech, the better we learn them.
2. Which is the most difficult subject for you?
3. I hope that was the worst day in my life.
4. It's colder today than it was yesterday.
5. I don't know English as well as my sister does.

4) Выберите подходящее местоимение. Перепишите предложения и письменно переведите их на русский язык.

1. Tomorrow I will have my day off. Let's go (anywhere, everywhere, somewhere).
2. (I, me, my) made some mistakes in (this, my, mine) test.
3. (Give (this, these, they) students (them, their, they) books.
4. (Our, ours, us) car is in the garage now.
5. My wife will buy everything (myself, herself, her).
6. Look, the child is crying. Let (me, them, him) play with (they, it, these) toys.

5) Перепишите следующие предложения в активном залоге, подчеркните в каждом из них глагол-сказуемое и определите его видовременную форму. Переведите предложения на русский язык.

1. The old plant had no modern facilities.
2. When will the reporter publish this information?
3. One pound of uranium contains as much energy as three million pounds of coal.
4. The scientists discovered new ways of refining metals.

6) Перепишите следующие предложения в пассивном залоге, подчеркните в каждом из них глагол-сказуемое и определите его видовременную форму. Переведите предложения на русский язык.

1. Most of the power is obtained mainly from two sources.
2. Is the industrial progress based on power?
3. The idea of constructing a new auto plant was widely discussed some years ago.
4. Much will be done to improve the conditions for research work.

7) Прочитайте и устно переведите текст "The role of science in manufacture". Перепишите и письменно переведите 1, 2, 3 абзацы текста.

The role of science in manufacture

1. Future improvements in productivity are largely depended on the application of science to manufacturing. This depends in turn on the availability of large numbers of scientifically trained engineers. Higher schools can serve the needs of industry in two ways: by performing basic research and by training well-qualified engineers in the manufacturing field.

2. There is a growing need for engineers who are familiar with the fundamental problems in metal processing and manufacturing. In the near future many of the engineers will be recent university graduates. A few will come through courses of study in industry. Others, having a basic engineering knowledge will continue additional studies at colleges to prepare themselves for work in industry. Therefore, an engineer does not finish his education when he receives his diploma, particularly in the fields of interest to tool engineers who are to study new developments constantly.

3. There are numerous ways in which industry and education can cooperate on problems of common interest. Scientists and research engineers are engaged in work that is intended to provide a scientific approach to many purely industrial problems. These scientists and engineers can make a real contribution to engineering education or academic research. They can, for example, teach advanced engineering courses and they can actively participate in basic and applied research.

4. Similarly, large and complicated projects of new technologies could well be handled by institute researchers working on practical applications. This would often provide the most efficient approach to the solution of processing problems.

Вариант 3

1) Перепишите следующие предложения. Подчеркните и определите по грамматическим принципам, какой частью речи являются слова, оформленные окончанием -s, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;
- б) признаком множественного числа имени существительного;
- в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Every year world industry pollutes the atmosphere with about 1000 million tons of harmful substances.

2. Her uncle's parents are retired.

3. Hero's book describes more than seventy totally useless inventions.

4. Great Britain possesses very few raw materials necessary for its industry.

2) Дополните следующие предложения конструкций there+ to be в требующейся форме. Перепишите предложения и письменно переведите их на русский язык, обращая внимание на порядок слов.

1. There ... five simple ways by which an unusually heavy weight is lifted and moved with minimum effort.

2. Next year there ... new equipment in our laboratory.

3. ... there two terms in the academic year?

4. There ... many people at the stadium last Saturday.

3) Перепишите следующие предложения, содержащие различные формы сравнения и переведите их на русский язык.

1. Your translation is better than mine.

2. The more I thought of the plan, the less I liked it.

3. From the earliest times plants play the most important part in the life of mankind.

4. Would you prefer to buy more expensive coat?

5. Is chemistry as difficult for you as physics?

4) Выберите подходящее местоимение. Перепишите предложения и письменно переведите их на русский язык.

1. Do you know (some, any, no) foreign languages?

2. (He, his, him) working day begins early.

3. Show (they, their, them) (our, us, we) plant, please.

4. (This, it, these) book is (mine, my, me).

5. I usually prepare breakfast (my, me, myself).

6. I'm tired. Let (me, my, myself) have a rest.

5) Перепишите следующие предложения в активном залоге, подчеркните в каждом из них глагол-сказуемое и определите его видовременную форму. Переведите предложения на русский язык.

1. Hero invented the siphon, the gearwheel, the pump, the water clock and the steam engine.

2. What transport will people use in the next two or three decades?

3. Our auto plant produces all the main body components.

4. When did you come home yesterday?

6) Перепишите следующие предложения в пассивном залоге, подчеркните в каждом из них глагол-сказуемое и определите его видовременную форму. Переведите предложения на русский язык.

1. The wedge and the lever were known long before Hero's time.
2. All machinery is based on five important principles.
3. The new engine will be tested in the laboratory tomorrow.
4. What are you taught at the University?

7) Прочитайте и устно переведите текст "Hero of Alexandria"(Герон Александрийский). Перепишите и письменно переведите 1, 2, 3 абзацы текста.

Hero of Alexandria

1. About sixty years after the death of Archimedes, Hero of Alexandria was born. Nobody knows the date of his birth, but according to the best authorities, he lived about 150 B.C. In addition to being a great mathematician, he invented the siphon, the gearwheel, the pump, the water clock and the steam engine.

2. His book on mechanics translated into Arabic, was carefully studied by mechanics and describes five simple ways by which an unusually heavy weight may be lifted and moved with minimum effort. These five principles form the basis of all the machinery in the world today and, though described in detail by Hero, their practical application to machinery did not come about for more than a thousand years. They are: the lever, the wheel and axle, the pulley, the wedge, the screw.

3. While it is true that the invention of the screw is attributed to Archimedes and the wedge and the lever were known long before Hero's time, he was the man, who showed for the first time that all machinery is based on these five principles, and how to apply these principles to machinery – such as it was in those early times.

4. Neither he nor anyone else of his time realized the importance of these inventions. Hero's book on pneumatics, which was translated into Italian in 1549 and later into English, described more than seventy totally useless inventions, most of which embody important basic principles.

5. Their main function was to entertain. The siphon, that is essential to modern plumbing and sanitation, hero saw as a sort of toy. Nineteen centuries later Robert Fulton would employ the power of steam for locomotion, but Hero used it to make a hissing sound of a rattlesnake. He invented the pump, so vital to our civilization, but he used it only as a toy. Hero applied it for the automatic pumping of an organ where the air was supplied by a wheel turning in the wind. The importance of pumps in industry was not realized until the middle of the sixteen hundred years after the death of the inventor. Among his other inventions we find a slot machine placed in the temple for different purposes and some other inventions of this kind. It is doubtful whether any other inventors in history applied so many world-shaking ideas to what would appear to us as entertainments.

Вариант 4

1) Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;
- б) признакам множественного числа имени существительного;
- в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. My daughter's computer is modern.
2. Water boils at 100 degrees Celsius.
3. James Watt obtained his technical expertise from working in his father's workshop.
4. This college offers students education in the field of engineering.

2) Поставьте оборот there + to be в нужной форме. Перепишите и переведите предложения на русский язык, обращая внимание на порядок слов.

1. There ... different types of secondary schools in England.
2. There ... a magazine on the table yesterday. Where is it now?
3. There ... a new plant in this district next year.
4. ... there many new books in this library ?

3) Перепишите следующие предложения, содержащие различные формы сравнения и переведите их на русский язык.

1. The longer I stayed in Minsk the more I liked it.
2. What is the largest city in the world ?
3. Is mathematics more or less difficult for you than English?
4. It was not so cold yesterday as it is today.
5. I'm as young as my friend.

4) Выберите нужное местоимение. Перепишите предложения, переведите их на русский язык.

1. (No, nobody, somebody) student of that group studies Spanish.
2. (He, his, him) children are students.
3. Where is (their, they, them) house? Let's ask (those, that, it) men.
4. (Ours, our, us) boss is not here at the moment. Come later, please.
5. The knife is sharp. Don't cut (itself, yourself, myself).
6. Let (it, me, us) introduce myself.

5) Перепишите следующие предложения в активном залоге, определите в них видовременные формы глаголов и укажите их инфинитив. Переведите предложения на русский язык.

1. Mechanical engineers now have new and stronger materials to work with and enormous new sources of power.
2. They offered me a new job.
3. I know this plant tries to expand the production of new tools.
4. When will you use new equipment?

б) Перепишите следующие предложения в пассивном залоге, определите в них видовременные формы глаголов и укажите их инфинитив. Переведите предложения на русский язык.

1. James was taught at home and then he was sent to school.
2. New houses are built everywhere: in cities, towns, villages.
3. At the factory these young workers will be trained to use the new equipment.
4. What was discussed at the meeting?

7) Прочитайте текст “James Watt” и переведите устно абзацы 1-5, перепишите и переведите письменно абзацы 1-3.

James Watt

1. James Watt was born in Greenock, Scotland, and was taught at home, later he went to Greenock Grammar School. His technical expertise seems to have been obtained from working in his father's workshop and from early in life he showed academic promise. His early formal training was as instrument maker in London and Glasgow. Watt combined the expertise of a scientist with that of a practical engineer, for later he was not only to improve the heat engine but also to devise new mechanisms.

2. Watt was interested in making experimental models of steam engines and this marks a historical milestone in engineering development, for they were the first experimental apparatus purposely constructed for engineering research. Watt's early interest in steam arose from his experience in repairing a model steam engine in 1764, and in 1765 he invented the separate steam condenser. In 1769 he took out a patent on the condenser in which steam came into direct contact with cold water; that was a milestone by which steam engineering reached its practical and usable form.

3. In 1784 he took out a patent for a reaction turbine at a time when continental engineers were only considering similar approaches. An improved centrifugal governor was to follow in 1788 and a design for a pressure gauge in 1790. The engine pressure indicator is also attributed to him.

4. In the development of steam engine James Watt represents the perfecting of a sequence of stages beginning with the Newcomen engine and ending with the parallel motion and sun/planet gearing. The latter is said to have been invented by W. Murdock but patented by Watt.

5. In the scientific field Watt's finest memorial, apart from steam engines, is his establishment of the unit of power — the rate of doing work. He coined the term horse power (hp); one horse being defined as equivalent to 33,000 ft lb/min. Watt was interested in the strength of materials and designed a screw press for chemically copying printed texts. Watt received many honors in recognition of his important works. He was a Fellow of the Royal Society of London and Edinburgh, and was a member of the Academy of Sciences in France. James Watt died in 1819 in Heathfield, after a life of incomparable technical value, a statue to Watt was placed in Westminster Abbey.

Вариант 5

1) Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончание -s, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;
- б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного.
Переведите предложения на русский язык.

1. This plant produces the units of a new tractor.
2. My aunt's husband works at a building company.
3. Our chemical laboratory makes some researches in the field of mechanical engineering.
4. This new plant builds only body fixtures.

2) Поставьте оборот there + to be в нужной форме. Перепишите и переведите предложение на русский язык, обращая внимание на порядок слов.

1. There ... much work to do at home.
2. There ... no factory in this town when I was here last year.
3. There ... new modern machine-tools at this plant next year.
4. ... there much useful information in this book?

3) Перепишите следующие предложения, содержащие различные формы сравнения и переведите их на русский язык.

1. It is the least you could do for her.
2. Do you have more or less free time now than you had last year?
3. What film is the most interesting for you?
4. Chemistry is as difficult to him as physics.
5. I don't get up so early on Sundays as on weekdays.

4) Выберите нужное местоимение. Перепишите и переведите предложения на русский язык.

1. I hear some noise. There is (anybody, somebody, anything) in the laboratory.
2. (I, he, him) is the best friend of (my, me, mine).
3. (These, this, it) bag is not (my, mine, me). Maybe it's (your, yours, you, yourself).
4. My parents saw it (myself, themselves, yourselves).
5. (They, them, their) dog is in (our, them, ours) house now.
6. The children are hungry. Let (me, him, them) have supper.

5) Перепишите следующие предложения в активном залоге, определите в них видовременные формы глаголов и укажите их инфинитив. Переведите предложения на русский язык.

1. This scientific research institute has some specific features in its work.
2. That country doesn't produce any heavy industrial machinery.
3. Jules de Dion built the first mechanically propelled vehicle.
4. The builders didn't reconstruct this plant entirely last year; they will do it in two months.

6) Перепишите следующие предложения в пассивном залоге, определите в них видовременные формы глаголов и укажите их инфинитив. Переведите предложения на русский язык.

1. Different types of cars, lorries and bicycles are produced in our country nowadays.
2. When will the work be completed?

3. When was the plant reconstructed?

4. This lecturer is always listened to attentively.

7) Прочитайте и устно переведите текст "Four Industrial Revolutions". Перепишите и переведите письменно 4, 5, 6, 7 абзацы текста.

Four Industrial Revolutions

1. The history of mechanical engineering goes back to the time when the man first tried to make machines. We can call the earlier rollers, levers and pulleys, for example, the work of mechanical engineering.

2. Mechanical engineering, as we understand it today, starts from the first Industrial Revolution.

3. People have labelled as "revolutions" three episodes in the industrial history of the world and now we are entering the fourth.

4. The first industrial revolution took place in England between 1760 and 1840. Metal became the main material of the engineer instead of wood, and steam gave man great reserves of power. This power could drive not only railway engines and ships but also the machines which built them.

5. In the second revolution, from 1880 to 1920, electricity was the technical driving force. It provided power for factories that was easier and cheaper to control than steam. It was marked also by the growing importance of science-based industries such as chemicals and electrical goods, and the use of scientifically-designed production methods such as semi-automatic assembly lines.

6. The third industrial revolution coincided with the advent of automation — in its inflexible form. In this revolution, the main features were advances in the control of manufacturing processes so that things could be made more cheaply, with greater precision and (often) with fewer people. And this change, which occurred around the middle of this century, also featured a new machine that was to greatly influence the world, the electronic computer.

7. What is the fourth industrial revolution? The fourth industrial revolution will be characterized by automated machines that are versatile and programmable and can make different things according to different sets of computer instructions. It will be characterized by flexible, automated machinery, the most interesting example of which are robots.

Notes on the Text

advent - приход, появление

inflexible - негибкий

to occur - происходить

versatile - гибкий

sets of computer instructions - программы компьютера

КОНТРОЛЬНАЯ РАБОТА № 2

Для того, чтобы правильно выполнить контрольную работу № 2, необходимо изучить следующие разделы грамматики английского языка:

1. Времена групп Continuous и Perfect (Present, Past, Future) в действительном и страдательном залогах, особенности образования, употребления и перевода их на русский язык.
2. Модальные глаголы и их эквиваленты.
3. Согласование времён и особенности перевода таких предложений на русский язык.

Вариант 1

1) Перепишите следующие предложения, подчеркните в них глаголы, определите их видовременные формы и залог, укажите инфинитив. Переведите предложения на русский язык.

1. The situation is improving.
2. The new engine is being tested in the laboratory now.
3. They were working on a new type of body fixtures for a long time.
4. I will be preparing a report from 6 till 9 tomorrow.
5. Our country has developed into a powerful state and has made great achievements in all fields of industry, technology and science.
6. The plant has been required recently with every facility for body work including cold stamping of main body components.

2) Раскройте скобки, употребив глагол в указанном времени. Перепишите предложения с указанным в скобках временем и залогом, переведите их на русский язык.

1. An all-plastic car (to exhibit) lately: nearly the whole car except the engine and transmission is of plastics or reinforced plastics (Present Perfect Passive).
2. By the end of the 19th century the first attempts (to make) to obtain synthetic materials (Past Perfect Passive).
3. The scientists (to develop) a new model of a robot by the end of the next year (Future Perfect Active).
4. We (to study) new drawings and specifications now (Present Continuous Active).
5. This machine-tool (to repair) when I came in (Past Continuous Passive).
6. By that time the scientists (to complete) their research (Past Perfect Active).

3) Перепишите следующие предложения, подчеркните в каждом из них модальный глагол. Переведите предложения на русский язык.

1. You had to stay there until the working day was over, didn't you?
2. He was allowed to use the mobile equipment.
3. Will you be able to come earlier tomorrow?
4. You must do this work immediately.
5. Your mother should have a rest, as she looks so tired.

4) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на согласование времён.

1. He said that he had seen your friend the day before.
2. They knew you would graduate from the University the next year.
3. She asked me if I knew about the contracts concluded by the firm.
4. We thought the young writer was working on a new novel.

5) Прочитайте и устно переведите следующий текст. Перепишите и письменно переведите 1, 2, 3, 4 абзацы:

Better metals are vital to technological progress

1. Since the earliest days the preparation of metals for mechanical use was vital to the advance of civilization.

2. Gold, silver and copper were the first to be used by a primitive man, as they were found free in nature. Today we know more than sixty-five metals available in large enough quantities to be used in industry.

3. Metals are mostly solids at ordinary temperatures and possess comparatively high melting points with the exception of mercury. They are for the most part good conductors of heat and electricity, and silver is the best in this respect. They can be drawn into fine wires and hammered into thin sheets.

4. As to their chemical properties the first point to be mentioned is that they vary widely in degree of chemical activity: some are enormously active and others are inert. The Earth contains a large number of metals useful to man. Of all metals to be utilized in industry iron remains by far the most important. Modern industry needs considerable quantities of this metal either in the form of iron or steel.

5. To get the desirable characteristics in metals or to improve them the art to mix metals and other substances began to develop. The first alloys that were formed in this way were sometimes stronger, tougher, harder and more elastic than the metals of which they were composed. To estimate nowadays how many alloys there exist in the modern world is difficult because their numbers increase daily.

6. To serve special uses modern metals and alloys must be lighter yet stronger, more corrosion-resistant, more suitable for automated fabrication yet less expensive than those available before.

7. Scientists are developing new processes and improving old ones in order to produce metals and alloys that will meet the present-day requirements. One of the most interesting purposes is, for instance, to make metals stronger, in other words, to strengthen them by reinforcing them with fibres.

8. Today transportation, communication, farming, construction and manufacturing all depend on the availability of suitable metals and alloys.

Notes on the Text:

in this respect — в этом отношении

as to — что касается

by far — несомненно

Вариант 2

1) Перепишите следующие предложения, подчеркните в них глаголы, определите их видовременные формы и залог, укажите инфинитив. Переведите предложения на русский язык.

1. Scientific contracts are expanding.
2. What were they speaking about at the meeting? I couldn't come there.
3. Metal was being forged when I came into mouldry.
4. What is being done here? I can't understand.
5. I have done a lot of work today. And now I may have a rest.
6. The documents have just been signed.

2) Раскройте скобки, употребив глагол в указанном времени. Перепишите предложения с указанным в скобках временем и залогом, переведите их на русский язык.

1. She (to prepare) for a difficult experiment now. (Present Continuous Active)
2. The volume of scientific information (to grow) very rapidly with the internet invention. (Past Continuous Active)
3. We can't give you any information as the computer (to repair) at the moment. (Present Continuous Passive)
4. Our specialists (to work out) a new experimental flexible line. (Present Perfect Active)
5. I (to repair) this computer before boss came. (Past Perfect Active)
6. A new plant (to build) in this district by the end of August. (Future Perfect Passive)

3) Перепишите следующие предложения, подчеркните в каждом из них модальный глагол. Переведите предложения на русский язык.

1. Radio waves can be used for different purposes.
2. They will be able to create necessary conditions in the laboratory.
3. He had to come to work early every morning.
4. Everyone should know a foreign language.
5. This mixture must be heated before the experiment.

4) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на согласование времен.

1. I didn't know that my friend's son had failed in chemistry.
2. They thought I could drive a car.
3. He asked me what I would do in the evening.
4. The mechanic asked me whether the car was damaged.

5) Прочитайте и устно переведите следующий текст. Перепишите и письменно переведите 1, 2, 4 абзацы.

Characteristics of different metals

1. Pure aluminum has good corrosion resistance and working and forming properties but poor machining characteristics and low mechanical strength. By adding other elements to aluminum, its strength and machining characteristics can be improved. Such a combination of two or more elements, at least one of which is metallic, is called an alloy and the predominant met-

al in the system is referred to as the base metal. Silicon, copper, zinc and magnesium are common alloying elements and are often added to aluminum in substantial proportions. Iron, manganese, nickel, chromium, titanium, antimony, cadmium, cerium, lithium, beryllium and molybdenum are also added in smaller proportions with various beneficial effects.

2. Titanium, tungsten, cerium and molybdenum all contribute to grain refinement of cast aluminum. Manganese and antimony are often added to improve corrosion resistance. Cobalt and nickel affect strength and workability while cadmium and tin increase hardness in heat treatable alloys.

3. The market penetration of ZA alloys has been aided by the fact that traditional high volume foundry metals have significant shortcomings that detract from their inherent advantages: cast iron has high energy and machining costs, protective finishes are nearly always required and there are industry environmental problems; bronze has high material and energy costs and the environmental problem of lead for many important alloys; aluminum has limitation in strength, bearing properties and finishing along with moderately high energy costs. Of course, each of these classic materials has distinct advantages in given applications.

4. In contrast, the zinc casting alloys have advantages that are highly attractive to foundries: excellent casting properties; low energy consumption; pollution free melting and casting; excellent machinability; lower material cost and density than bronze.

Вариант 3

1) Перепишите следующие предложения, подчеркните в них глаголы, определите их видовременные формы и залог, укажите инфинитив. Переведите предложения на русский язык.

1. At 7 o'clock he was welding the metal pieces.
2. The new engine was being tested when I came in.
3. What will you be doing at 7 o'clock in the evening?
4. They have already applied new methods in their research.
5. By the end of the 19th century scientists had made the first attempts to obtain synthetic materials.
6. Almost all chemical elements which have been found on the Earth have been discovered in the sun and the planets of solar system.

2) Раскройте скобки, употребив глагол в указанном времени. Перепишите предложения с указанным в скобках временем и залогом, переведите их на русский язык.

1. He (to prepare) for his report in the reading-room. (Present Continuous Active)
2. This new machine-tool (to use) at the moment. Wait a minute. (Present Continuous Passive)
3. The quality problem (to discuss) when I entered the room. (Past Continuous Passive)
4. She (to work) at our laboratory at 5 o'clock. (Future Continuous Active)
5. The accuracy of this machine-tool (to improve) by the end of that week. (Past Perfect Passive)
6. A large number of research workers (to train) in our country this year. (Present Perfect Passive)

3) Перепишите следующие предложения, подчеркните в каждом из них модальный глагол. Переведите предложения на русский язык.

1. Polymers can be used for making different things.
2. The laboratory assistant had to look after the experimental conditions.
3. Nobody will be able to measure the density of this substance without a special device.
4. The doctor must be immediately sent for.
5. We were to meet at 2 o'clock, but he phoned me and said he was unable to come.

4) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на согласование времён.

1. The student said that he couldn't translate the article himself.
2. I didn't think she would be refused a better room for her research.
3. He asked if the car-manufacturing plant had expanded its international operations.
4. Parents told their child that the weather was fine and he could walk for an hour.

5) Прочитайте и устно переведите текст "Steel". Перепишите и письменно переведите 2, 3 абзацы текста.

Steel

1. The value of alloys was discovered in very ancient times; brass (copper and zinc) and bronze (copper and tin) were especially important. Today the most important are alloy steels, which have a lot of special characteristics.

2. Steel is known as an alloy of iron and 2% or less carbon. Pure iron is soft, ductile and malleable, useful only as an ornamental material. However, the addition of carbon hardens it greatly and changes its properties. Steels for special applications may contain other alloying elements beside carbon. This modifies and improves the physical properties of the base steel. For example, small percentages of nickel, chromium, manganese and vanadium may be used for strengthening steels for construction work. Heat treatment (i.e. tempering) and mechanical working at cold or hot temperatures may also give steel alloys superior qualities, such as strength, hardness, toughness, wear resistance, corrosion resistance, electrical resistivity and workability.

3. As a structural material steel has two drawbacks: its weight and its susceptibility to rust. Yet steel has long been used, and in great quantities, in structural applications from bridges and buildings to ships, automobiles and household appliances. This is because of many advantages of steel. It is superior to other structural materials in strength, toughness, workability and other properties that are critical for such applications, and it is mass-produced with uniform, reliable quality and at low cost.

4. Steel making processes are known as melting, purifying (refining) and alloying at about 2,900 °F (1,600 °C). Molten steel may be first cast into ingots. Later ingots are worked into finished products. This may be done by two major methods: hot-working and cold-working. The latter is generally used for making bars, wire, tubes, sheets, and strips. Molten steel may also be cast directly into products.

Вариант 4

1) Перепишите следующие предложения, подчеркните в них глаголы, определите их видовременные формы и залог, укажите инфинитив. Переведите предложения на русский язык.

1. We were using this technique for a long time.
2. Is he working in the laboratory now?
3. The metal is being cut and forged now. You may look at the process.
4. This plant has produced new types of vehicles such as electromobiles, cars with magnetic suspension and so on.
5. The experiment has just been finished.
6. After the engineer had checked all the drawings and found them satisfactory, materials were ordered.

2) Раскройте скобки, употребив глагол в указанном времени. Перепишите предложения с указанным в скобках временем и залогом, переведите их на русский язык.

1. Our knowledge in this field of science (to grow). (Present Continuous Active)
2. At 4 o'clock the young specialist (to train) to use new equipment. (Past Continuous Passive)
3. I (to read) the article. Take back the magazine. (Present Perfect Active)
4. The experiments (to complete) by the end of June. (Past Perfect Passive)
5. The mechanic (to repair) this machine-tool by the end of the working day. (Future Perfect Active)
6. Cars with less toxic exhaust gases (to use) by the end of the decade. (Future Perfect Passive)

3) Перепишите следующие предложения. Подчеркните в каждом из них модальный глагол. Переведите предложения на русский язык.

1. You ought to have told us about it before, now we don't know what we should do.
2. New types of this machine-tool may have longer period of durability.
3. This computer must be repaired today. We can't work without it.
4. Were the students allowed to leave the class before the bell went?
5. The scientist had to design machines and production systems.

4) Перепишите следующие предложение и переведите их на русский язык, обращая внимание на согласование времен.

1. He asked me if I had ever been to Moscow.
2. She asked him if she might keep the book as long as she needed it.
3. Tom said he knew a man who was an automobile engineer.
4. My friend told me he would look for another job.

5) Прочитайте и устно переведите текст "Copper". Перепишите и письменно переведите 1, 2, 3 абзацы текста.

Copper

1. Copper is man's oldest metal as people could extract it more than 10,000 years ago. As it is rather soft and ductile, copper is alloyed with other elements. There is evidence that the first copper alloy – bronze (90% copper, 10% tin) – was produced around 2800 BC in countries such as India, Egypt and Mesopotamia. Bronze was harder and could be used for making reliable cutting tools. Its use characterizes the Bronze Age.

2. The workability and the ability for corrosion resistance made copper, bronze, and brass the most important functional as well as decorative materials from the Middle Ages and on till

the present day. With the beginning of the Electrical Age the demand for copper increased tremendously because it is an unusually good conductor of electricity and heat. Today more than 5 million tons of copper are produced annually and the copper metals are playing an increasingly vital part in all branches of modern technology.

3. Yellow brass (Copper Alloy 360) is so easy to machine, that it is the standard for metals machinability. Copper is the standard for electrical conductivity. It conducts electrical current better than any other metal except silver. Copper is essential to our health as an important constituent of skin, bones and blood. It is also biostatic – bacteria cannot grow on its surface.

4. The good news is that we will not run out of copper. The worldwide resources of this important and valuable metal can be estimated at nearly 5.8 trillion pounds of which only about 0.7 trillion (12%) have been mined throughout history. Besides, nearly all of 700 billion pounds is still in circulation because copper's recycling rate is higher than that of any other engineering metal. Each year nearly as much copper is recovered from recycled material as is obtained from newly mined ore.

5. Copper clearly was a good idea a hundred years ago. With technological advance, copper is still a great idea today. Engineers hope that we will be able to use copper for centuries on.

Вариант 5

1) Перепишите следующие предложения, подчеркните в них глаголы, определите их видовременные формы и залог, укажите инфинитив. Переведите предложения на русский язык.

1. - What were you doing when I came in?

- I was reading an article about new models of machine-tools.

2. Have you heard good news? We'll be using new equipment next year.

3. At 5 o'clock the young workers were being trained to use new equipment.

4. The ZIL Works has already manufactured a new truck model with an engine that is protected against cold.

5. The secretary has just been sent for.

6. The report had been prepared before the director arrived.

2) Раскройте скобки, употребив глагол в указанном времени. Перепишите предложения с указанным в скобках временем и залогом, переведите их на русский язык.

1. The experimental flexible line (to work) now. (Present Continuous Active)

2. Look, how two parts of metal (to weld). (Present Continuous Passive)

3. I (to repair) an engine when he came in. (Past Continuous Active)

4. They (to apply) already new methods in their research work. (Present Perfect Active)

5. A wide range of processes and equipment (to develop) to produce forgings. (Present Perfect Passive)

6. Our plant (to reequip) by the end of the year. (Future Perfect Passive)

3) Перепишите следующие предложения, подчеркните в каждом из них модальный глагол. Переведите предложения на русский язык.

1. Nowadays the scientists must concentrate their attention on the production of artificial materials.

2. This plant can provide our research institute with a new type of fuel equipment.
3. Nobody will be able to lift this heavy tyre.
4. The engineers should apply their theoretical knowledge to practice.
5. She wanted to graduate from the University with honours, that's why she had to study hard and learn much.

4) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на согласование времен.

1. They wanted to know what our present research was centred upon.
2. He asked me whether I had known about planning and fulfillment of his mission.
3. The engineer said he didn't think the office work would be interesting for him.
4. The student told the teacher that the exercise had many sentences and he would do it in half an hour.

5) Прочитайте и устно переведите следующий текст. Перепишите и письменно переведите 2, 3, 5 абзацы.

Plastics

1. Whether you are aware of it or not, plastics play an important part in your life. From the car you drive to work to the television you watch when you get home, plastics help make your life easier and better. How?

2. Plastics are a large and varied group of materials consisting of combinations of carbon and oxygen, hydrogen, nitrogen, and other organic and inorganic elements. While solid in its finished state, a plastic is at some stage in its manufacture, liquid and capable of being formed into various shapes and colours. Forming is most usually done through the application, either singly or together, of heat and pressure. There are over 40 different families of plastics in commercial use today, and each may have dozens of subtypes and variations.

3. A successful design in plastics is always a compromise among highest performance, attractive appearance, efficient production, and lowest cost. Most people have now outgrown the impression that plastics are low-cost substitute materials. Those that still view plastics as cheap and unreliable have not kept up with developments in polymer technology for the past twenty years.

4. Many plastics indeed evolved as replacements for natural products such as rubber, ivory, silk or wool, which became unavailable or on short supply. But unfortunately, we have to admit that plastics pollute the environment. Luckily, most polymers are thermoplastic (e.g. nylon, polythene), i.e. they can be heated and reformed again. The other group of polymers, thermosets (e.g. bakelite, phenolic resin), must not be recycled, as reheating causes their deformation. However, the controlled incineration of thermosets converts waste into heat energy.

5. Today's engineering resins and compounds serve in the most demanding environments. Their toughness, durability, lightness, strength, thermal and electrical insulation and corrosion resistance have won many significant applications for these materials in transportation, industrial and consumer products.

6. The usefulness of plastics can only be measured by our imagination. These are definitely the materials of past, present, and future generations.

КОНТРОЛЬНАЯ РАБОТА № 3

Чтобы правильно выполнить контрольную работу №3, необходимо изучить следующие грамматические разделы курса английского языка:

1. Неличные формы глагола: простые и сложные формы инфинитива, его функции. Обороты, равнозначные придаточным предложениям: объектный инфинитивный оборот, субъективный инфинитивный оборот.
2. Причастие I и причастие II, простые и сложные формы, конструкции с причастием.
3. Сложные предложения. Сочинительные и подчинительные союзы.

Вариант 1

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива в предложении.

1. It was necessary to develop a new method of cutting metals.
2. We use a thermometer to measure temperature.
3. This result forced them to check the circuit again
4. The material to be tested had interesting properties.
5. You study at the University to become qualified specialists.

2) Перепишите следующие предложения, вставляя, где необходимо, частицу to. Переведите предложения на русский язык.

1. You should (to recharge) your car battery directly.
2. He made me (to use) protective clothing during welding.
3. We would like you (to show) us how the actuator works.
4. Professor watched the students (to quench) a steel bar in oil.
5. The laboratory assistant was the last (to leave) the classroom.

3) Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивный оборот. Переведите предложения на русский язык. Помните, что объектный и субъективный инфинитивные обороты соответствуют придаточным предложениям.

1. We want the new machine - tool to be produced by February.
2. We thought him to have taken part in their experiment.
3. I have never heard anyone give so much interesting information in one report.
4. Students of Cambridge are supposed to wear gowns at lectures.
5. This question appears to be of great importance.

4) Перепишите следующие предложения, подчеркните Participle I и Participle II и укажите функции каждого из них, т.е. укажите, является оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1. We were demonstrated an operating engine.
2. The data required were analyzed in our laboratory.
3. (When) writing a telegram we must use as few words as possible.
4. Having made the experiment they discussed the results obtained.
5. The importance of scientific research is growing with every day.

5) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на особенности перевода безличных предложений с формальным подлежащим it.

1. It is very important to make a strong joint.
2. It is a well-known fact that a solid expands when we heat it.
3. It has been raining since three o'clock.
4. It took him two hours to make an experiment.

6) Прочитайте и устно переведите абзацы 1-4 текста. Перепишите и письменно переведите 2 и 3 абзацы.

Changes in Materials Technology

1. Since the technology of any age is founded upon the materials of the age, the era of new materials will have a profound effect on engineering of the future.

2. Not only new materials, but related, and equally important, new and improved and less wasteful processes for the shaping, treating and finishing of both traditional and new materials are continuously being developed. It is important that an engineer should be familiar with them. These include casting, injection molding and rotational molding of components of ever increasing size, complexity and accuracy; manufacture of more complex components by powder metallurgy techniques; steel forming and casting processes based on new, larger and more mechanized machines, giving reduced waste and closer tolerances; the avoidance of waste in forging by the use of powder metallurgy or cast pressforms and new finishing processes for metals and plastics, just to name a few. A high proportion of these processes is aimed at the production of complex, accurate shapes with a much smaller number of operations and with far less waste than the traditional methods of metal manufacture.

3. Joining techniques have developed to unprecedented level of sophistication and are also providing opportunities for economies. It is necessary to mention that these newer techniques allow the manufacture of complicated parts by welding together simpler sub-units requiring little machining; such assemblies can be made from a variety of materials. The methods can also be used effectively for assembly, allowing savings to be made in both materials and machine utilization.

4. The brief review of new processes above has indicated that a new materials technology is rapidly emerging, providing new opportunities and challenges for imaginative product design and for more efficient manufacture.

Вариант 2

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива в предложении.

1. To design new machine-tools is the task of a mechanical engineer.
2. The material to be investigated is of great value.
3. The engineer allowed the technology to be used.
4. The famous Russian scientist Lebedev was the first to solve the problem of synthetic rubber.
5. The engineer must know the conditions under which the new material is to be utilized.

2) Перепишите следующие предложения, вставляя, где необходимо, частицу to. Переведите предложения на русский язык.

1. I wanted (to speak) to Nick, but couldn't (to find) his telephone number.
2. That funny scene made me (to laugh).
3. It is obviously necessary (to demonstrate) the properties of the substance to the researchers.
4. The distance (to be measured) is between these two points.
5. He used (to spend) a lot of time in the laboratory.

3) Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивный оборот. Переведите предложения на русский язык. Помните, что объектный и субъектный инфинитивные обороты соответствуют придаточным предложениям.

1. The result forced them to check the circuit again.
2. Everybody knows him to be working on a new book.
3. The visitors saw skilled workers assemble the tiny devices very quickly.
4. Carbon steel has been known to be the principal product of the steel industry.
5. The laser beam seems to have almost unlimited industrial possibilities.

4) Перепишите следующие предложения, подчеркните Participle I и Participle II, и установите функцию каждого из них, т.е. укажите, является оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1. The professor delivering a lecture on nanotechnology mentioned interesting facts.
2. Metals being used in industry in the form of alloys have better properties than pure metals.
3. Studying elements Mendeleev divided them into 9 groups.
4. Having obtained the necessary results they stopped their experimental work.
5. The behavior of metals is greatly affected by the changes in temperature.

5) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на особенности перевода безличных предложений с формальным подлежащим it.

1. It is unnecessary to mix these substances.
2. It is said that the first metals used by men were gold, silver and copper.
3. I don't think it will rain in the afternoon.
4. Does it take you much time to get to the university?

6) Прочитайте текст и устно переведите его. Перепишите и письменно переведите 1, 2, 3, 4 абзацы.

The Fundamentals of Forging

1. Forging is the oldest known metal working process. It is believed to have begun when early man discovered he could beat pieces of ore into useful shapes. History tells us that forging was widely practised at the time when written records first appeared.

2. The blacksmith was one of the first to realize the advantages of forging. Although he did not know why, he knew that hammering a piece of hot metal not only resulted in a usable shape, it improved its strength. It is this inherent improvement in strength of metal that has placed forgings in the most highly stressed applications in machines.

3. To understand why forging improves the mechanical properties of metal, it is important to recognize that metal is made up of grains. Each grain is an individual crystal, and when the grains are large, cracks can occur and propagate along the grain boundaries. Therefore, it is desirable to minimize the grain size in a metal.

4. Reducing the metal's grain size is one of the things forging does so well. Forging breaks down a coarse-grained structure producing a chemically homogeneous wrought structure with much smaller grains by controlled plastic deformation. In forging, controlled plastic deformation whether at elevated temperature or cold (at room temperature) results in greater metallurgical soundness and improved mechanical properties of the metal.

5. Metal shaping by controlled plastic deformation is the basis for all forging operations. Because of the diversity of forging end-use applications, however, a wide range of processes and equipment have been developed to produce forgings. Some processes are ideally suited to make large parts, others, small parts, and still others, rings. Modern forging is not only carried out in virtually all metals, it is done at temperatures ranging from more than 2500 °F to room temperature. Part configuration generally determines the forging method chosen.

Вариант 3

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива в предложении.

1. To obtain steel of the desired quality is the main subject of the experiment carried out in the research laboratory of the plant.

2. To design new machine-tools a mechanical engineer must study much.

3. The information enables us to predict the properties of the new substance.

4. The problem to be solved was of great importance.

5. He came to the laboratory to make some experiments.

2) Перепишите следующие предложения, вставляя, где необходимо, частицу to. Переведите предложения на русский язык.

1. Water may be used (to drive) dynamos which generate electricity.

2. Don't let children (to play) with matches.

3. (To obtain) an alloy, one must (to mix) metals with non-metals.

4. Domestic appliances are supposed (to consume) plenty of electricity.

5. I shall (to do) all I can (to help) you.

3) Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивный оборот. Помните, что объектный и субъектный инфинитивные обороты соответствуют придаточным предложениям.

1. This analysis permitted them to obtain new data.

2. We expect you to show good results.

3. We know Morse to have been a painter by profession.

4. The first-pocket-size colour television sets were reported to have been developed.
5. The motor proved to be quite efficient.

4) Перепишите следующие предложения, подчеркните Participle I и Participle II и укажите функцию каждого из них, т.е. укажите, является оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1. A barometer is an instrument measuring atmospheric pressure.
2. The results received were of great importance for further work.
3. When built by skilled workers the experimental system worked well.
4. Having studied the properties of the alloy the engineer made a report on the subject of his research.
5. Gold is not affected by moisture.

5) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на особенности перевода безличных предложений с формальным подлежащим it.

1. It is not difficult to adjust the welding flame.
2. It can be said that everything that is being done in the development of a new program technology is the result of our scientists' and engineers' joint efforts.
3. It takes much time for the reaction to complete at a low temperature.
4. It snowed a lot last winter.

6) Прочитайте устно и переведите следующий текст. Перепишите и письменно переведите 2, 3, 4 абзацы.

Welding

1. Welding is one of the most important operations that are used in industry. Many parts of machines, automobiles, airplanes, ships, bridges and buildings are welded.

2. Welding is a process when metal parts are joined together by the application of heat, pressure, or a combination of both. The process of welding can be divided into two main groups: pressure welding, when the weld is achieved by pressure and heat welding, when the weld is achieved by heat. Heat welding is the most common welding process used today.

3. Nowadays welding is used instead of bolting and riveting in the construction of many types of structures, including bridges, buildings, and ships. It is also a basic process in the manufacture of machinery and in the motor and aircraft industries. It is necessary almost in all productions where metals are used. The welding process depends greatly on the properties of the metals, the purpose of their application and the available equipment. Welding processes are classified according to the sources of heat and pressure used.

4. The welding processes widely employed today include gas welding, arc welding, and resistance welding. Other joining processes are laser welding, and electron-beam welding.

5. In electric arc welding two workpieces are welded by an electric arc. In order to create the arc a powerful electric current should be provided. The current must be at least 60A and for thicker workpieces it may be 250A or more.

6. To supply the current it is necessary to use a transformer. The latter must be switched on to strike the arc. To join the workpieces the electrode holder should contain an electrode rod. When the arc is struck the electrode must brush against the workpiece at 80° to its sur-

face. As the current flows between the electrode and the workpiece the tip of the electrode melts and falls onto the workpiece. Thus a joint is created.

7. It is essential to hold the electrode approximately 4 mm from the surface of the workpiece. One should not leave the electrode too long in the same position because it will become attached to the workpiece. The electrode must be moved across the joint continuously backwards in a straight line. However, if it is moved too quickly neither the electrode nor the workpiece will melt.

8. And it is important to remember that to weld plates by an electric arc is quite dangerous. In order to protect yourself you should always follow certain safety rules. For example, it is absolutely necessary to wear overalls with long sleeves, gloves, an apron, a cap, and rubber boots. A mask or helmet is used to protect the face and especially eyes from sparks.

Вариант 4

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива в предложении.

1. To read ancient mathematical tables was very difficult.
2. The need to develop stronger alloys forces the experiments to be continued.
3. To supply the current it is necessary to use a transformer.
4. Our plant produces automatic and semiautomatic machine-tools to be installed in new large shops.
5. The new apparatus was to control all the temperature changes during the experiment.

2) Перепишите следующие предложения, вставляя, где необходимо, частицу to. Переведите предложения на русский язык.

1. You must (to take) care not (to hurt) yourself.
2. Mother's interest in electricity made him (to start) experimenting with it.
3. Robots are supposed (to facilitate) people's work.
4. The dog was the first (to feel) danger.
5. It is necessary (to mix) these substances.

3) Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивный оборот. Помните, что объектный и субъектный инфинитивные обороты соответствуют придаточным предложениям.

1. Modern equipment caused us to introduce new methods.
2. We expected him to be appointed director of a new automobile plant.
3. The technician felt something heavy strike the platform.
4. Rubber is known to have been brought from America.
5. These experiments are likely to have been made in suitable conditions.

4) Перепишите следующие предложения, подчеркните Participle I и Participle II и укажите функцию каждого из них, т.е. укажите, является оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1. He heard the voices coming through the open window.
2. The explanation given was not complete.

3. While calculating the speed the student made a mistake.
4. Having made many experiments scientists proved that electricity had an atomic character.
5. This man must have been sitting here for about hour or so.

5) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на особенности перевода безличных предложений с формальным подлежащим it.

1. It is very essential to provide a hot enough flame.
2. It required some more experiments for the engineer to prove the precision of the results obtained.
3. It never snows in June in our country.
4. Did it take you much time to equip the new laboratory?

6) Прочитайте устно и переведите следующий текст. Перепишите и письменно переведите 2, 3, 4 абзацы.

Metal cutting

1. Cutting is one of the oldest arts practised in the stone age, but the cutting of metals was not found possible until the 18th century, and its detailed study started about a hundred years ago.

2. Now in every machine-shop you may find many machines for working metal parts, these cutting machines are generally called machine-tools and are extensively used in many branches of engineering. Fundamentally all machine-tools remove metal and can be divided into the following categories: 1) Turning machines (lathes); 2) Drilling machines; 3) Boring machines; 4) Milling machines; 5) Grinding machines.

3. Machining of large-volume production parts is best accomplished by screw machines. These machines can do turning, threading, facing, boring and many other operations. Machining can produce symmetrical shapes with smooth surfaces and dimensional accuracies not generally attainable by most fabrication methods.

4. Screw-machined parts are made from bar stock or tubing fed inter-mittently and automatically through rapidly rotating hollow spindles. The cutting tools are held on turrets and tool slides convenient to the cutting locations. Operations are controlled by cams or linkages that position the work, feed the tools, hold them in position for the proper time, and then retract the tools. Finished pieces are automatically separated from the raw stock and dropped into a container.

5. Bushings, bearings, nuts, bolts, studs, shafts and many other simple and complex shapes are among the thousands of products produced on screw machines. Screw machining is also used to finish shapes produced by other forming and shaping processes.

6. Most materials and their alloys can be machined — some with ease, others with difficulty. Machinability involves three factors: 1) Ease of chip removal; 2) Ease of obtaining a good surface finish; 3) Ease of obtaining good tool life.

Вариант 5

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива в предложении:

1. To study geometry means to train logical thinking.
2. To drive safely it is important to check the break system regularly.
3. He warned me not to switch on the power till he asks.
4. The engineers had several problems to solve.
5. They hope to be sent to the conference.

2) Перепишите следующие предложения, вставляя, где необходимо, частицу to. Переведите предложения на русский язык.

1. The engineer must (to know) the conditions under which the new material is (to utilize).
2. Sometimes bad weather forces the aircrafts (to land).
3. I want you (to help) me to weld two pieces by an electric arc.
4. The engine (to install) in this car is very powerful.
5. All this makes me (to think) that it is fascinating to experiment with lasers.

3) Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивный оборот. Переведите предложения на русский язык. Помните, что объектный и субъектный инфинитивные обороты соответствуют придаточным предложениям.

1. The tutor would like us to complete the course work in time.
2. The owner of the motor car wanted the old engine to be replaced.
3. We can make an atom serve the needs of man.
4. Ink is supposed to have been invented in Egypt.
5. The discovery of a laser is sure to be of great value.

4) Перепишите следующие предложения, подчеркните Participle I и Participle II и установите функцию каждого из них, т.е. укажите, является оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1. The boiling solution has neither colour nor odour.
2. She showed us a list of the newly published books.
3. When assembled the car undergoes various tests.
4. Being the cheapest of the metals cast iron is widely used everywhere.
5. You must be tired after working so hard.

5) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на особенности перевода безличных предложений с формальным подлежащим it.

1. It is absolutely necessary to put on protective clothing.
2. It was for our engineer to decide what kind of computer to utilize for such calculations.
3. Do you think it will rain in the afternoon? Shall I take an umbrella?
4. It takes only one hour to get from St. Petersburg to Moscow by plane.

6) Прочитайте и устно переведите следующий текст. Перепишите и письменно переведите 1, 2 и 3 абзацы.

What is a machine-tool?

1. A machine-tool is a power-driven machine used to shape metal by cutting, drilling, pressure, electrical techniques, or a combination of these processes. Thus, it is clear that machine-

tools can be built in a wide variety of types. Basically, however, there are two main categories, the first being the cutting-type machine-tool, which shapes metal to certain size and contour.

2. For the various operations that are to be performed in the metalworking shop, there are many different kinds of machines. Each machine-tool is being designed to do work of a specific nature. There are special machine-tools that are built to perform successive operations. The operator only watches the succession of machining steps from the beginning to the end of the operation. Such equipment is considered to be automatic machinery.

3. Precision of operation is the most important characteristic of today's machine-tools. The precision makes it possible to produce hundreds of identical parts¹, all so much alike that they may be freely interchanged or substituted in assembly or repair, without hand-fitting. The function of a machine-tool is to hold both the work² and a cutting-tool and move them relative to each other to obtain the proper cutting action.

4. Machine-tools are known to serve four main purposes: 1) they hold the work or part to be cut; 2) they hold the cutting tool (or tools); 3) they impart to the cutting tool or work the motion required for cutting or forming the part; 4) they regulate the cutting speed and the movement between the tool and work.

5. The most common machine-tools are lathes, which perform cutting operations mostly, milling machines, drilling machines and grinders.

Notes on the Text:

¹ part - деталь

² work - изделие

КОНТРОЛЬНАЯ РАБОТА № 4

Для того, чтобы правильно выполнить контрольную работу № 4, необходимо изучить следующие разделы грамматики английского языка:

1. Герундий: простые и сложные формы, функции, герундиальные обороты.
2. Сослагательное наклонение.
3. Условные предложения.
4. Отглагольное существительное.
5. Использование глагольных времен в придаточных предложениях времени и условия.

Вариант 1

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на формы и функции герундия.

1. Casting is a process of forming metal objects by melting metal and pouring it into moulds.
2. There are some ways of obtaining high-quality alloys.
3. Mankind is interested in atomic energy being used only for peaceful purpose.
4. We know of industry having polluted the air badly.
5. The value of his having discovered natural lasers is not realized completely yet.

2) Перепишите и переведите следующие предложения на русский язык; определите, чем являются слова, оканчивающиеся на -ing (причастием, герундием или отглагольным существительным).

1. A foundry can't operate without employing proper foundry materials.
2. He was sure of repairing the machine-tool without anybody helping him.
3. The building of this house will cost much money.
4. The goods having been loaded, the workers left the port.
5. I saw Boris leaving the laboratory.

3) Перепишите и переведите следующие предложения на русский язык. Определите тип условных предложений (I – реального условия; II – нереального условия, относящегося к настоящему или будущему; III – нереального условия, относящегося к прошлому).

1. If it were possible we should begin this work at once.
2. If we had used new methods, we would have saved a lot of time.
3. If you send us a catalogue of diesel engines, it will help us in our work.
4. Provided new composite materials are used, it will be possible to reduce overall aircraft weight.
5. If the fisherman had been less patient, he wouldn't have caught.

4) Перепишите следующие предложения, употребляя глаголы в требуемой форме. Предложения переведите.

1. If he (to work) hard, he would have achieved great progress.
2. If he (not to come) in time, shall we have to wait for him?
3. If you (to do) your morning exercises every day, your health would be much better.
4. If he had warned me I (to do) the work in time.

5) Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите 2 и 3 абзацы.

1. Scientists consider that the oldest tools that are known to the mankind are 2,600,000 years old. They were used by people in manual operations and that is why they were called hand tools. By the beginning of the Industrial Revolution, people had already devised simple hand tools for cutting and shaping different materials. But in the 18th century there appeared machine tools that made mass production a reality in the 19th century. A machine tool is a power-driven machine that is used to perform different operations with metal or other material. Basic machine tools use mechanical power to bend, cut, drill, grind and hammer metal into desired shapes. More advanced machine tools use such power sources as electrical or chemical energy, heat, magnetism and ultrasound.

2. Nowadays machine tools play an important role in the manufacture of almost all metal products. Machinists (people who operate machine tools) use them in making automobiles, radios, refrigerators, television sets and so on. Every mechanical engineering workshop is equipped with machine tools. They are the main source for the manufacture of component parts of all machines and mechanical devices.

3. There are about 500 kinds of machine tools. Some perform a single operation, such as grinding or drilling. Others, called machining centres, carry out several kinds of tasks. These numerous machine tool types fall into two categories. The first group is called "metal cutting". The machine tools of this group remove some material from the workpiece and they are much stronger than the workpiece itself. The examples of metal cutting machines are lathes, drill presses, milling and shaping machines.

4. The second group is called "metal forming". They shape the work-piece without the removal of any material from it. For metal forming operations we use a wide range of forging machines, presses and press brakes.

Вариант 2

1) Перепишите и переведите следующие предложения на русский язык, обращая внимание на формы и функции герундия.

1. The new technique of compiling new programs accelerated our work a lot.
2. Melting is very important in the production of high-quality castings.
3. In building new metallurgical works engineers have to solve many different problems.
4. We speak about cupolas being used for melting cast iron.
5. Is there any opportunity of replacing these parts?

2) Перепишите и переведите следующее предложение на русский язык; определите, чем являются слова, оканчивающиеся на - ing (причастием, герундием или отглагольным существительным).

1. He spent much time on the copying of his literature lectures.
2. The idea of connecting these wires was not mine.
3. Determining the properties of the alloy the scientist made lots of experiments.
4. They insisted on the question being reconsidered.
5. Being obtained in the laboratory the new substance had some valuable properties.

3) Перепишите и переведите следующие предложения на русский язык. Определите тип условных предложений (I – реального условия; II – нереального условия, относящегося к настоящему или будущему; III – нереального условия, относящегося к прошлому, IV – смешанный).

1. If the laboratory gets new equipment, we shall test it.
2. If we had tested this material we should have used it in our work.
3. Provided the laboratory continued this experiment, it would take them 3 years to complete it.
4. If the mechanic were there, he would repair the equipment.
5. If I were you I wouldn't have told him the truth.

4) Перепишите следующие предложения, употребляя глаголы в требуемой форме. Предложения переведите.

1. If men (to have) no weapons, would wars be possible?
2. If he (not to read) so much he would not be so clever.
3. If no one (to come) to help, we shall be obliged to do the work ourselves.
4. If the oil supply (to stop) even for a moment, serious damage might have resulted.

5) Прочитайте и устно переведите следующий текст на русский. Перепишите и письменно переведите 1, 2, 4, 5 и 7 абзацы.

Lathe

1. A lathe is a machine tool which spins a block of material to perform various operations such as cutting, sanding, knurling, drilling, or deformation with tools that are applied to the work-piece to create an object which has symmetry about an axis of rotation.

2. Lathes are used in woodturning, metalworking, metal spinning, and glass-working. Lathes can be used to shape pottery, the best-known design being the potter's wheel. Most suitably equipped metalworking lathes can also be used to produce most solids of revolution, plane surfaces and screw threads or helices.

3. Ornamental lathes can produce three-dimensional solids of incredible complexity. The material is held in place by either one or two centers, at least one of which can be moved horizontally to accommodate varying material lengths. Examples of objects that can be produced on a lathe include candlestick holders, cue sticks, table legs, bowls, baseball bats, crankshafts and camshafts.

4. The lathe is an ancient tool, dating at least to the Egyptians and, known and used in Assyria, Greece, the Roman and Byzantine Empires.

5. The origin of turning dates to around 1300BC when the Egyptians first developed a two-person lathe. One person would turn the wood work piece with a rope while the other used a sharp tool to cut shapes in the wood. The Romans improved the Egyptian design with the addition of a turning bow. Early bow lathes were also developed and used in Germany, France and Britain.

6. In the Middle Ages a pedal replaced hand-operated turning, freeing both the craftsman's hands to hold the woodturning tool. The pedal was usually connected to a pole, often a straight-grained sapling. The system today is called the "spring pole" lathe. Spring pole lathes were in common use into the early 20th Century. A two-person lathe, called a "great

lathe", allowed a piece to turn continuously (like today's power lathes). A master would cut the wood while an apprentice turned the crank.

7. During the industrial revolution the lathe was motorized, allowing wooden turned items to be created in less time and allowing the working of metal on a lathe. The motor also produced a greater rotational speed, making it easier to quickly produce high quality work. Today most commercial lathes are computer-operated allowing for mass-production that can be created with accurate precision and without the cost of employing craftsmen.

Вариант 3

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на формы и функции герундия.

1. Walking, talking, and thinking like a human being will soon become possible for robots.
2. Without gathering data it is impossible to prove the theory.
3. Numerous methods have been developed for producing metal castings.
4. Great attention is paid to the metal being heated to the proper temperature.
5. We heard of the experiment having been started last week.

2) Перепишите и переведите следующие предложения на русский язык. Определите, чем являются слова, оканчивающиеся на -ing (причастием, герундием или отглагольным существительным).

1. The students found the reading of English newspaper rather difficult at first.
2. Using renewable resources can significantly reduce the amount of air pollution.
3. Did you have any difficulty in solving this problem?
4. Having built a new automobile plant, they increased the output of cars and buses.

3) Перепишите и переведите следующие предложения на русский язык, определите тип условных предложений (1-реального условия, 2-нереального условия, относящегося к настоящему или будущему, 3-нереального условия, смешанный).

1. If one knows the dimentions of the body he will calculate easily its volumes.
2. The design would have been ready by the end of the year if they had supplied us with all the necessary equipment.
3. If I were in your place I would refuse to stop the experiment.
4. If there were no computers space flights would be impossible.
5. You would never get lost in a new city if you had a map of it.

4) Перепишите следующие предложения, употребляя в требуемой форме, предложения переведите на русский язык.

1. You will never finish your work if you (to waste) your time like that.
2. If she (not to be) so absent-minded, she would be a much better student.
3. I should not have bought the car, if my friend (not to lend me money).
4. If they (to return) earlier, they would have been able to see him before he left.

5) Прочитайте и устно переведите следующий текст. Перепишите и письменно переведите 3, 4 и 5 абзацы.

1. In 1775 John Wilkinson, an English iron-maker, invented the first modern machine tool. It was a boring machine that enabled the workers to drill precise holes in metal. Many refinements have been incorporated in machine tools since that time.

2. By the middle of the 20th century some machine tools had been linked together in series for use in mass production. And in the 1950s the first machines with numerical control were introduced.

3. Numerical control, commonly called NC, is a system of automating machine tools. Let's have a look at some example of NC systems application.

4. The system known as computer numerical control (CNC) has a number of machine tools, each of which is directed by its own computer. So when you want to adapt a CNC machine tool to a different job you just change the control programme, or software of the computer. They are very easy in operation, their programming is simple and you can always test it. Moreover, they are cheaper to maintain and are generally more accurate in comparison with standard machine tools. CNC systems are used with a wide range of machine-tools such as milling machines and lathes. Many are equipped with graphic displays that show the shapes of the workpiece and can even produce three-dimensional views of the components.

5. When several CNC machine tools receive instructions from a large central computer that stores and processes operational procedures, we can speak about a direct numerical control (DNC). This single computer controls more than 100 machine tools.

6. A further development in the automation of machine tools is the "machining centre". This machine has automatic tool changers and performs a lot of machining operations on a workpiece with the help of more than 100 different cutting tools. One machining centre can do the work of eight or more standard machines. They are particularly useful when you need to produce large and complex components with the high degree of accuracy.

7. In general, all machine tools that are equipped with NC systems have a lot of advantages. One of the most important advantages is the absence of necessity to design, build and store the numerous fixtures.

Вариант 4

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на формы и функции герундия.

1. Some metals require treatment before being placed in the melting furnace.
2. By introducing new foundry methods the engineer improved the quality of castings.
3. We know of electric furnaces being used for the production of high-grade castings.
4. After pouring, the molten metal is allowed to solidify in a mold.
5. Recently scientists have succeeded in creating a few kinds of generators for converting heat directly into light.

2) Перепишите и переведите следующие предложения на русский язык; определите, чем являются слова, оканчивающиеся на -ing (причастием, герундием или отглагольным существительным).

1. I don't mind your reading science magazines in the reading room.
2. People cannot prevent robots from becoming too clever.
3. The singing of those beautiful folk songs impressed me greatly.

4. Having used a laser beam, scientists, obtained accurate calculations of Jupiter's temperature.

5. The report concerning the latest achievements in science and economics was made by a professor of our university.

3) Перепишите и переведите следующие предложения на русский язык. Определите тип условных предложений(1-реального условия; 2-нереального условия, относящегося к настоящему или будущему; 3-нереального условия, относящегося к прошлому).

1. If you know the design of the motor, you would be able to operate it properly.
2. If a scientific research is closely linked with practice the results are always good.
3. If the oil supply had stopped even for a moment, serious damage might have resulted.
4. You will fail in your exam unless you work harder.
5. If you watch a laser operate, you might be surprised at the simplicity of a device capable of such power.

4) Перепишите следующие предложения, употребляя глаголы в требуемой форме. Предложения переведите на русский язык.

1. If she(not to help) me, I should have been in a very difficult situation.
2. If I don't manage to finish my report today, I (to stay) at home tomorrow.
3. If he (to be) more courageous, he would not be afraid.
4. If they.(to know) it before, they would have taken measures.

5) Прочитайте и устно переведите следующий текст. Перепишите и письменно переведите 1, 4, 6 и 7 абзацы.

1. We now use the term automation for specific techniques combined to operate automatically in a complete system. These techniques are possible because of electronic devices, most of which have come into use in the last thirty years. They include program, action, sensing or feedback, decision, and control elements as components of a complete system.

2. The program elements determine what the system does and the step-by-step manner in which it works to produce the desired result. A program is a step-by-step sequence that breaks a task into its individual parts. Some steps in an industrial automation program direct other parts of the system when and how to carry out their jobs.

3. The action elements are those which do the actual work. They may carry or convey materials to specific places at specific times or they may perform operations on the materials. The term mechanical handling device is also used for the action elements.

4. Perhaps the most important part of an automated system is sensing or feedback. Sensing devices automatically check on parts of the manufacturing process such as the thickness of a sheet of steel or paper. This is called feedback because the instruments return or feedback this information to the central system control.

5. The decision element is used to compare what is going on in the system with what should be going on; it receives information from the sensing devices and makes decisions necessary to maintain the system correctly. If some action is necessary the decision element can give instructions or commands to the system.

6. The control element consists of devices to carry out the commands of the decision element. They may be many kinds of devices: valves that open or close, switches that control the

flow of electricity, or regulators that change the voltage in various machines; they make the necessary corrections or adjustments to keep the system in conformity with its program.

7. An industrial engineer working with automated systems is part of a team. Many components of the system, such as computers, are electronic devices so electronic engineers and technicians are also involved. Many of the industries in which automation has proved particularly suitable — chemicals, papermaking, metals processing — involve chemical processes, so there may be chemical engineers at work too. An industrial engineer with expertise in all these fields may become a systems engineer for automation projects thereby coordinating the activities of all the members of the team.

Вариант 5

1) Перепишите следующие предложения и переведите их на русский язык, обращая внимание на формы и функции герундия.

1. Robots are capable of doing different tasks.
2. Before switching on the laser we read the safety instructions carefully.
3. Instead of repairing the old machine-tool they decided to buy a new one.
4. Speaking foreign languages is of importance for every cultured man.
5. Mother objects to the children watching television every night.

2) Перепишите и переведите следующие предложения на русский язык; определите, чем являются слова, оканчивающиеся на -ing (причастием, герундием или отглагольным существительным).

1. Flying is better for long journeys but travelling by car is more interesting.
2. Automation is being increasingly used in all branches of our industry.
3. Having been shown the design, I found the fault quickly.
4. Such doing can hardly be explained.
5. Is there any possibility of their finding a suitable machine-tool so soon?

3) Перепишите и переведите следующие предложения на русский язык. Определите тип условных предложений (I – реального условия; II – нереального условия, относящегося к настоящему или будущему; III – нереального условия, относящегося к прошлому).

1. If the engineer had been informed of the results before, he would have allowed you to repeat the test.
2. If drivers were more attentive while driving there would be less accident on the road.
3. If the service life device had been prolonged, the economic effect would have been increased many times.
4. If this new device is applied, the process of production will be simplified.
5. If the students had been more careful, they wouldn't have broken the new machine-tool.

4) Перепишите следующие предложения, употребляя глаголы в требуемой форме. Предложения переведите на русский язык.

1. If only you had let me know, I (to go) there immediately.
2. If I (to know) the result now, I would phone her at once.
3. You won't understand the rule, if you (not to listen to the teacher).
4. If you had not wasted so much time you (not to miss) the train.

5) Прочитайте и устно переведите текст на русский язык. Перепишите и письменно переведите 2, 6, 7 абзацы.

Robots

1. The word robot was introduced to the public by Czech writer Karel Capek in his play R.U.R. (Rossum's Universal Robots), which premiered in 1921. The play begins in a factory that makes artificial people called robots, but they are closed to the modern ideas of androids and clones, creatures that can be mistaken for humans.

2. A robot is an artificial agent. In practice, it is usually an electro-mechanical system which, by its appearance or movements, conveys a sense that it has intent or agency of its own. The word robot can refer to both physical robots and virtual software agents, but the latter are usually referred to as bots. There is no consensus on which machines qualify as robots, but there is general agreement among experts and the public that robots tend to do some or all of the following: move around, operate a mechanical limb, sense and manipulate their environment, and exhibit intelligent behavior, especially behavior which mimics humans or other animals.

3. Stories of artificial helpers and companions and attempts to create them have a long history, but fully autonomous machines only appeared in the 20th century.

4. The first digitally operated and programmable robot, the Unimate, was installed in 1961 to lift hot pieces of metal from a die casting machine and stack them. Today, commercial and industrial robots are in widespread use performing jobs more cheaply or with greater accuracy and reliability than humans. They are also employed for jobs which are too dirty, dangerous or dull to be suitable for humans. Robots are widely used in manufacturing, assembly and packing, transport, earth and space exploration, surgery, weaponry, laboratory research, and mass production of consumer and industrial goods.

5. Many factory jobs are now performed by robots. This has led to cheaper mass-produced goods, including automobiles and electronics. Stationary manipulators used in factories have become the largest market for robots.

6. Over the last three decades automobile factories have become dominated by robots. A typical factory contains hundreds of industrial robots working on fully automated production lines, with one robot for every ten human workers. On an automated production line, a vehicle chassis on a conveyor is welded, glued, painted and finally assembled at a sequence of robot stations.

7. Mass-produced printed circuit boards (PCBs) are almost exclusively manufactured by pick-and-place robots manipulators, which remove tiny electronic components from strips or trays, and place them on to PCBs with great accuracy. Such robots can place hundreds of thousands of components per hour, far out-performing a human in speed, accuracy, and reliability.

8. People have a generally positive perception of the robots they actually encounter. Domestic robots for cleaning and maintenance are increasingly common in and around homes. There is anxiety, however, over the economic impact of automation and the threat of robotic weaponry, anxiety which is not helped by the depiction of many villainous, intelligent, acrobatic robots in popular entertainment.

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