

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА  
Улан-Удэнский колледж железнодорожного транспорта -  
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(УУКЖТ ИрГУПС)



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**МЕТОДИЧЕСКИЕ УКАЗАНИЯ**  
по выполнению контрольных работ

дисциплины ОГСЭ.03. Иностранный язык (английский)  
для специальности

23.02.06 Техническая эксплуатация подвижного состава  
железных дорог (локомотивы)

*Базовая подготовка*  
*среднего профессионального образования*  
*Заочная форма обучения на базе среднего общего образования*

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С - 149 **ОГСЭ.03 Иностранный язык (английский)** [Текст]: Методические указания и контрольные задания по выполнению домашней контрольной работы для обучающихся заочной формы обучения специальности 23.02.06 Техническая эксплуатация подвижного состава железных дорог (локомотивы)/ М.И. Сайфутдинова; Улан-Удэнский колледж железнодорожного транспорта ИрГУПС. – Улан-Удэ: Сектор информационного обеспечения учебного процесса УУКЖТ ИрГУПС, 2020. – 45 с.

Методические указания и контрольные задания по выполнению домашней контрольной работы разработаны в соответствии с рабочей учебной программой ОГСЭ. 03 Иностранный язык (английский) 23.02.06 Техническая эксплуатация подвижного состава железных дорог (локомотивы) и требованиями к результатам освоения программы подготовки специалистов среднего звена ФГОС СПО по данной специальности (базовая подготовка).

Цель данных методических указаний – оказать помощь обучающимся при выполнении домашней контрольной работы и закреплении теоретических знаний по дисциплине ОГСЭ. 03 Иностранный язык (английский).

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## **Пояснительная записка**

Сборник содержит контрольные работы по английскому языку для студентов УУКЖТ УУИЖТ заочной формы обучения. Контрольные работы состоят из тематических текстов и грамматических упражнений к ним. Основной целью данного сборника является выявление у обучающихся уровня знаний лексического материала, умения применять его при выполнении упражнений, умение анализировать, делать выводы, используя тематическую лексику.

Грамматические упражнения состоят из различных видов заданий: подстановочные упражнения, ответы на вопросы, выявление грамматических явлений английского языка с элементом анализа. Каждый тест состоит из нескольких вариантов, имеющих различный уровень трудности, что в свою очередь позволяет дифференцированно подходить к оценке.

Данные контрольные работы позволяют выявлять и систематизировать уровень умений и знаний обучающихся по английскому языку.

**1. Перепишите и письменно переведите текст.*****The last of the Broad Gauge***

The gauge of the most railways in Great Britain is now 4 ft 8 1\2 inches, but there was the time when the gauge was not the same on all the railways.

The famous English engineer Brunel suggested the 7 feet gauge. So that for many years there were two principle gauges in England – 7 feet and 4 ft 8 inches, the last one was suggested by G. Stephenson. The broad gauge was expensive and was not satisfied.

And at last in the House of Commons the broad gauge was described as a “national evil”. It was very difficult to change the gauge because of the engines, carriages and wagons and for more than 30 years.

“The Battle of the Gauges” continued its better course. And only in 1892 the railways were converted to the standard gauge.

**2. Переведите следующие предложения и определите временные формы глаголов. Подчеркните глагол-сказуемое.**

- a) The technical equipment of this railway is much better than the technical equipment of that one.
- b) The railroad engineers are improving protective device the locomotives.
- c) The railroad transport was the best means of communication some years ago.
- d) Special signals will help engine men to drive trains without accidents.
- e) The greatest increase in railway construction began in the 90 - s of the last century.

**3. Переведите предложения, задайте вопросы к каждому предложению. Второе и третье предложения сделайте отрицательными.**

- a) We search for ways of peaceful international relations.
- b) The students were testing new devices in the laboratory last evening.
- c) The construction of Moscow – Petersburg line began in 1843.
- d) These students will take part in the conference.

**4. Ответьте письменно на вопросы.**

- a) Is your family friendly?
- b) What floor is your flat on?
- c) Who usually makes breakfast for you?
- d) How do you get to the college?
- e) What will you have at the end of the term?
- f) What Houses does the British Parliament consist of?
- g) What is the capital of the UK?

**1. Перепишите и письменно переведите текст*****Plastics***

Plastic materials are not found in nature. They are organic substances made synthetically by polymerization. The principal agent incorporated in a plastic is the resin; it may be either natural or synthetic. Plastic is used in a variety of ways. Their chemical properties make them more resistant to environments. Most plastics are rather inert to the atmosphere and to salt, fresh and soil water.

Plastics in many cases are not flammable and burn very slowly. Much more than metals plastics usually combine with other materials like wood, fibers or paper. Plastics are good thermal and electric insulators. The advantages of the plastic material include the combination of light weight with good strength. In road and railway transport the use of plastic materials is becoming a common part of the design.

**2. Переведите предложения и определите временные формы глаголов. Подчеркните глагол-сказуемое.**

- a) Our scientists are solving many complex problems now.
- b) The workers were repairing the track from 9 till 5 o'clock yesterday.
- c) Electronic machines work according to a program.
- d) We shall study a book about the mechanization of transportation.
- e) There were few railways at the end of the 19<sup>th</sup> century in Russia.

**3. Письменно переведите предложения, задайте вопросы к каждому предложению. Второе и третье предложения сделайте отрицательными.**

- a) Every year our railway transport carries nearly 4 billion tons of cargo.
- b) Our extra-mural students will be testing a new device from 5 till 7 o'clock.
- c) The designers made different improvement in the construction of the locomotives.
- d) The number of electrified lines is increasing all time.

**4. Письменно ответьте на вопросы.**

- a) What relatives have you got?
- b) Do you live far from the college?
- c) Have you got a grant?
- d) What department do you study at?
- e) When was our college founded?
- f) Is our Republic mountainous?
- g) What is the official language in the UK?

**1. Перепишите и переведите письменно текст.*****Railways conquer the world.***

The railway was invented long ago. Its advantages were long debated. Its efficiency was demonstrated in 1805, when a single horse drew a load of 55 tons for six miles along a level without distress.

The early railroad pioneers understood the question of speed as very significant. There was an upper limit to the speed which could be attained on land. It was set up by horse and the world record for a horse pulling vehicle in 1806 was 20 miles per hour (mph). Later development with pneumatic-tyred wheels brought this average speed up to 30 mph. The inventor of the “iron horse” was Stephenson whose “Rocket” ran at a speed of 35 mph. that’s why we consider the 14<sup>th</sup> of October, 1829, the opening of a new era, the age of mechanical transport.

Nowadays the railways surround the Earth with many bonds. The railways have opened new countries and connected them with the rest of the world. New cities were founded and waste lands were populated.

**2. Ответьте на следующие вопросы:**

- a) When and how was the efficiency of the railroad demonstrated?
- b) What did Stephenson invent?
- c) What is the main meaning of railways?
- d) What was a record speed for a horse pulling vehicle in 1806?

**3. Определите время и залог следующих предложений, подчеркните глагол-сказуемое. Переведите предложение.**

- a) Nowadays the railways surround the Earth with many bonds.
- b) New cities were founded and waste lands were populated.
- c) The inventor of the “iron horse” was Stephenson, whose “Rocket” ran at speed of 30 mph.
- d) The railways have opened new countries.

**4. Задайте пять типов вопросов к предложению:**

The railways connect people and countries with each other nowadays.

**1. Перепишите и письменно переведите текст.*****The operation of trains.***

Railways are very important in our life. The railways are developing and remain the vital arteries of national and international economic life.

All railroads are divided into divisions in order to simplify the problem of running trains. A division may be of different length.

Each railway has two kinds of trains: regular trains and extra trains. A regular train is a “scheduled” train, a train listed on the railroad timetable. Regular trains have definite times for arrival and departure. All regular trains may be both freight and passenger ones. Passenger trains are subdivided into fast expresses which have long runs and make few stops and local trains which stop at all stations.

Freight trains are used for carrying goods. Some freight trains make few stops during their runs and some freight trains stop at small stations to load and unload freight.

“Extra” trains are not scheduled in the railroad timetable.

**2. Ответьте письменно на следующие вопросы.**

- a) For what reason are railroads divided into divisions?
- b) How many kinds are the trains?
- c) What can you say about freight trains?
- d) Are “Extra” trains scheduled in the timetable?

**3. Переведите предложение. Подчеркните глагол-сказуемое. Определите время и залог.**

- a) Each railway has two kinds of trains.
- b) Passenger trains are subdivided into fast expresses and local trains.
- c) The railways developed our economy in past times.
- d) Regular trains have become more frequent.

**4. Задайте пять типов вопросов к предложению.**

Railways become more and more important in our life every day.

11.02.06 Техническая эксплуатация транспортного радиоэлектронного оборудования (по видам транспорта)  
2 курс  
1 вариант

**1. Перепишите и письменно переведите текст.**

***Developing of telecommunications.***

I would like to tell you about telecommunications and their developing.

We cannot deny the role of telecommunications in our life. The Internet, phones, telegraph, cell phones, radio, television are all the means of communication or communication. Nowadays we live in information era, when information is the key and engine of progress. Our society needs perfect means of information exchange that is why all types of telecommunication are under the permanent developing.

Currently hundreds of millions of people use wireless communication means. Cell phone is no longer a symbol of prestige but a tool, which lets to use working time more effectively.

Considering that the main service of a mobile connection operator is providing high quality connection, much attention in the telecommunication market is paid to the spectrum of services that cell network subscriber may receive. Today we can easily connect to the Internet using our cell phone or to take a picture or to take a short movie, using our video cell phone.

**2. Письменно переведите предложения на русский язык. Подчеркните модальные глаголы.**

- a) It is known that an atom can be split.
- b) The electrons outside the nucleus can only move in orbits.
- c) He may work at the laboratory of our institute, if he wishes to do so.
- d) Atoms combine into molecules and molecules may contain one, two, three or more atoms.
- e) You must prepare a report for our conference.

**3. переведите предложения, обращая внимание на Причастие I и Причастие II.**

- a) The designers having used semiconductors improved the operation of the device.
- b) Transistors being highly reliable, they are widely used on modern electronic system.
- c) Having developed semiconductors the engineers have contributed to the progress of electronics.
- d) Transistors are very sensitive to light, some of them reacting even to starlight.



11.02.06 Техническая эксплуатация транспортного радиоэлектронного оборудования (по видам транспорта)

2 курс

2 вариант

**1. *Перепишите и письменно перепишите текст.***

Telephones are as much a part of infrastructure of our society as roads or electricity, and competition will make them cheaper. Losses from lower prices will be countered by higher usage.

Most important of all by cutting out the need to install costly cables and microwave transmitters, the new telephone could be a boon to the remote and poor regions of the earth. Even today half the world's population lives more than two hours away from a telephone.

Satellite phones are not going to deliver all their benefit at once.

Lots of other new communication services – on-line film libraries, personal computers that can send video-clips and sound-bites as easily as they can be used for writing letters, terrestrial mobile-telephone systems cheap enough to replace old sets – are already technically possible.

**2. *Письменно переведите предложения на русский язык. Подчеркните модальные глаголы.***

- a) It is the cyclotron that can be used to produce high speed positively charged particles of enormous energy.
- b) The electrons outside the nucleus can only move in orbits.
- c) You should carry out the experiment by yourself; you are quite able to do so.
- d) Atoms combine into molecules and molecules may contain one, two, three or more atoms.
- e) Atoms of different kinds can join together in different ways.

**3. *переведите предложения, обращая внимание на Причастие I и Причастие II.***

- a) The designers having used semiconductors improved the operation of the device.
- b) Transistors being highly reliable, they are widely used on modern electronic system.
- c) Having developed semiconductors the engineers have contributed to the progress of electronics.
- d) Transistors are very sensitive to light, some of them reacting even to starlight.

**1. Перепишите и письменно переведите текст.**

***Making railway.***

Before a new railway is made a great deal of work must be done. First of all the country to be traversed by a railway has to be carefully surveyed in order to find out the best and most suitable rout. Then drawings and plans showing the course of the railway, stations, viaducts, bridges, tunnels must be prepared and total cost must be estimated.

The next thing to be done is making out the railway and clearing away all obstacles that may be in the way. Equally important is to accommodate hundreds of workmen and to transport machinery and materials.

The work usually begins at several places at the same time and as soon as possible temporary railway tracks on which small locomotives can run are laid.

An essential part of any railroad is construction of cutting and embankments. Cuttings are usually made in hills while embankments have to be built in low places. Construction of both involves the use of different kinds of road building machines.

**2. Перепишите предложения, переведите их. Подчеркните глагол-сказуемое в каждом предложении и определите его время и залог. Подчеркните глагол-сказуемое.**

- a) Many magazines published articles which discussed the problem of joint less track.
- b) All important main line tracks in our country were electrified.
- c) A wide network of railways has been built.
- d) The sleepers for high-speed railways are made of concrete.
- e) All railways in Russia have the standard gauge.

**3. Вставьте пропущенные глаголы.**

(can, may, have to, must, to be)

- a) A great deal of work ... be done before a new railway is built.
- b) There ... be different kinds of obstacles in the course of a future railway line.
- c) Railway construction work ... be started at several places at the same time.
- d) Wide rivers ... be crossed by bridges.

**1. Перепишите и письменно переведите текст.**

***Track construction***

It is not an easy job to build a railway. The railway is built on a strip of land which is called the right-of-way (полоса отвода).

The right-of-way must be carefully prepared for laying down the tracks. At first, it must be cleared from trees, bushes and then graded (выравнивать) by special machines known as graders.

After the right-of-way is cleared and graded the permanent way is constructed. Ties and rails are laid upon the ballast foundation and the ballast is packed between the ties and on each side of the track to hold the ties in place.

The methods of railroad building have changed greatly in recent years. The greatest change has been the replacement of hand labour by machines, such as powerful bulldozers, huge excavators, scrapers, graders, etc.

The most modern method of railway construction is laying the track in pre-assembled (сборный) lengths, that is, the lengths of rails to which the sleepers are already attached. This work is carried out by a high-speed track-laying crane, a wonderful machine which lays pre-assembled lengths of track in a few minutes. One of the most efficient machines of this kind is the Platov track-laying crane having an output of 900-1000 metres of track per hour.

**2. Перепишите предложения, переведите их. Подчеркните глагол-сказуемое в каждом предложении и определите его время и залог.**

***Подчеркните глагол-сказуемое.***

- a) The high-speed electrified railways have been totally equipped with automatic signaling.
- b) The iron rails were replaced by steel ones.
- c) For many years engineers tried to find a new material for making sleepers.
- d) Scientists work hard to improve the electronic computers.

**3. Переведите предложения. Обратите внимание на сочетания**

***«One + модальный глагол»***

Образец:

*One must know – необходимо знать*

*One can hear – можно слышать*

- a) One must understand that the work of the engine driver requires much experience.
- b) One can expect that the average speed of trains will be increased.
- c) At the exhibition one could see the latest track-laying machine.
- d) One may say that the introduction of long-welded rails on concrete sleepers has greatly improved the stability of track.

23.02.06 Техническая эксплуатация подвижного состава железных дорог  
(ЛОКОМОТИВЫ)  
2 курс  
1 вариант

**1. Перепишите и письменно переведите текст.**

On the other hand, the diesel locomotive is more expensive to build and maintain than the electric of equal power since the diesel locomotive carries a power plant on itself. In addition, the diesel engine is an air pollutant prime mover, so the diesel locomotive is that the diesel engine runs on organic fuel the supplies of which are not inexhaustible.

From the above-said it becomes evident the railway future lies in electrification. The railway system will consist of electrified trunk lines and diesel operated branch and secondary lines. As to the self-propelled diesel trains they may be usefully employed on the suburban lines where the traffic is not sufficiently dense and the operation of locomotive-drawn trains or electric, multiple-unit trains cannot be repaid.

**2. Закончите предложения, Используя слова, данные ниже.**

- a) Railway services in many countries of the world were badly ... during the World War II.
- b) After the War many European countries continued to ... steam traction.
- c) The ... from steam to diesel traction was made under very difficult conditions.
- d) In some European countries dieselization went side by side with ....

(change over, use, electrification, damaged)

**3. Перепишите предложения, переведите их. Подчеркните глагол-сказуемое в каждом предложении и определите его время и залог. Подчеркните глагол-сказуемое.**

- a) When the work had been completed the results were published in the magazine.
- b) A great deal of research work was done at the Railway Transport Institute.
- c) When the testing was being made everybody was watching it with great interest.
- d) After the lecture had been delivered they asked many questions.

**4. Перепишите и переведите предложения. Подчеркните причастия и определите их функции.**

- a) While building the bridge the workers used new materials.
- b) Speaking about his new invention the young engineers told no many interesting things.
- c) When heated to a certain temperature, this alloy increases in volume.

**1. Перепишите и письменно переведите текст.**

The locomotive engineer plays a dominant part in the manufacture and maintenance of locomotives. And to keep the wheels of railway engineering turning efficiently, the engineer must keep moving forward technically. That is why a new school for diesel train drivers for British Railways has been opening in Derby.

The new building comprises a two storey block for classroom instructions and a single-storey demonstration bloc. The trainees attending the course are railway workers who have already receiving some practical training on different railways. The aim of the course is to give diesel drivers a basic knowledge of the power units, braces and auxiliary equipment of diesel locomotives and railcars. The theoretical instruction is sandwiched in with operational instruction on the track.

**2. Дополните предложения, используя слова, данные внизу.**

- a) The diesel locomotive is practically an electric locomotive having its own ...
- b) The most powerful engines usually develop 1500 ...
- c) Both electric and diesel locomotives have many ... in comparison with steam locomotives.
- d) The air to be admitted into the cylinder must be in a ... form.
- e) Because of the high temperature in the cylinder there are no ...  
(advantages, power station, compressed, spark-plugs, revolutions per minute)

**3. Перепишите и переведите следующие предложения. Подчеркните причастия и определите их функции.**

- a) The trains drawn by horses were short and light.
- b) Laying down the track the builders use powerful machines.
- c) When first proposed, the project for the Moscow Underground seemed unrealistic.
- d) The mechanic examining the new machine tool will help you.

**4. Перепишите и переведите предложения. Подчеркните в них модальные глаголы.**

- a) Railways have to introduce new types of freight cars to transport special kinds of freight.
- b) Our engineers should test this machinery in motion.

**1. Письменно переведите текст.**

***Describing electric locomotive wheel arrangement.***

The method of describing electric locomotive wheel arrangement is as follows. Letters are used to show the number of driving axles in each bogie (“B” for 2, “C” for 3, and so on.), and a small “o” after the letter shows that each axle in a bogie has its own motor. Thus, a locomotive with two two-axle bogies, all axles motor-driven, is a Bo-Bo, and one with two three-axle bogie is a Co-Co. Often the little “o” is left out because today axles are nearly always fitted with their own motors.

Some large locomotives have small guiding bogies as well as motor bogie and these non-motored axles are shown by figures instead of letters. A I-Co-Co-I, for example, is a locomotive with a single-axle guiding truck at each end, outside the two three-axle motor bogies.

When the motor bogie symbols are separated by a plus sign, it means that the coupling hooks and buffers are mounted on the bogie ends, the bogie being interconnected so that the tractive effort (“pulling power”) is transmitted through their frames to the train.

Mount- устанавливать

Axle-ось, цилиндр

Bogie-тележка

Couple- сцеплять, hook- крючок

**2. Ответьте письменно на вопросы по тексту.**

- What is the method of describing locomotive wheel arrangement?
- What does it mean when the motor bogie symbols are separated by a plus sign?
- What does a small “o” show?

**3. Запишите предложения, переведите их, обращая внимание на причастие.**

- The trains drawn by horses were short and light.
- Laying down the tracks the builders use powerful machines.
- Almost all passenger trains in Europe have coaches equipped for passengers in wheelchairs.

**4. Найдите в тексте предложения в Passive Voice, подчеркните в них глагол-сказуемое.**

**1. Письменно переведите текст.**

***Chief attractions of electric traction.***

Where once there were thick coal smoke blackened cars, stations and passengers, now high-speed electric trains are operating. The chief advantages of electrification are two in number. One is the great rapidity of acceleration from a dead stop. It is this, rather than higher maximum speeds, that has accelerated the introduction of electric working over suburban routes. The power of the electric locomotive at lower speeds is very great; further than this, motors can be distributed throughout the train-this is known as "the multiple-unit" system of working- all under the control of one motorman. The power thus available makes possible very rapid starts from each of the frequent stops of a suburban route, making, in this way, substantial cuts in the overall time of suburban journeys, so that the improvement of the service from the passenger's point of view is likely to attract traffic to the route.

Besides, the higher average speed makes it possible to crowd trains more closely, increasing the railway carrying capacity, and this may do away with the necessity of track doubling in order to accommodate an increasing traffic.

Route-маршрут

**2. Ответьте письменно на вопросы по тексту.**

- a) What are the chief advantages of electrification?
- b) What increases the railway carrying capacity?

**3. Запишите предложения, переведите их, обращая внимание на причастие.**

- a) When first proposed, the project for the Moscow under ground seemed unrealistic.
- b) The mechanic examining the new machine tool will help you.
- c) On lines equipped with AC overhead wires special precautions (меры) are taken to reduce interference in communication cables.

**4. Выпишите из текста предложения (или часть предложения) в Present Simple, подчеркните в них глагол-сказуемое.**

**1. Перепишите и переведите следующий текст письменно.**

There is a wide variety of electric traction systems around the world, which have been built according to the type of railway, its location and the technology available at the time of the installation. Many installations seen today were first built more than 100 years ago.

The first demonstrated electric locomotive was a miniature. It could transport some thirty visitors at the time around a 900 ft (275m) circle track at about 2 mph (6km/h). It was a primitive machine with a single switchgear, but its role in technological development was greater than that of steam in the previous years.

At first, this kind of traction in Germany and America was used in mines because of its mechanical simplicity, but a few years later it led to the reconstruction of the first electric passenger trams.

**2. Перепишите и переведите следующие предложения, обратите внимание на страдательный залог.**

- a) Electric energy is generated at electric power stations.
- b) Coal, gas or oil are used at the thermal power stations.
- c) This kind of traction was put into operation in mines.
- d) Locomotives have been equipped with transmitters and receivers.

**3. Переведите следующие словосочетания на русский язык.**

- a) A single switchgear-            e) Technological development-
- b) Because of its mechanical simplicity-
- c) Reconstruction of the first electric passenger trams-
- d) A power supply system-

**4. Перепишите предложения, подчеркните глагол-сказуемое, определите его видовременную форму и залог. Письменно переведите предложение.**

- a) A power supply system is necessary for the economic development of any country.
- b) The remote control is successfully used to operate railway substations.
- c) The introduction of electric traction has resulted in increased efficiency of railways.
- d) It was a primitive machine.

transmitter - передатчик      receiver - приемник

switchgear - распределительное устройство

traction - тяга



**1. Перепишите и переведите текст письменно.**

In the last 20 years there has been a gigantic acceleration in railway traction development. This has in parallel with the development of power electronics and microprocessors.

As a matter of fact electric traction on pre-revolutionary Russian Railways was never used. Electrification of railways depended upon the industrial development of the country in general. The first attempt to electrify Russian railways was made in 1876 and it was in 1891 the first street railway was put into operation in Kiev.

By the end of the first five-year plan Russian plants started producing electric locomotives. Some time later the Mytishchi plant began building electric motor car sets.

The latter locos used silicon rectifiers which were lighter, less expensive, and more durable.

**2. Перепишите и переведите следующие предложения, обратите внимание на страдательный залог.**

- a) The first railway was put into operation.
- b) All passenger saloons are furnished with comfortable two-seat chairs.
- c) Modern trains are equipped with radio aids.
- d) Traction motors are divided into two types.

**3. Переведите следующие словосочетания на русский язык.**

- a) Electric motor car sets-    b) Silicon rectifiers-    c) Electric traction-  
d) Auxiliary equipment-    e) wide application in railway substation-

**4. Перепишите предложения, подчеркните глагол-сказуемое, определите его видовременную форму и залог. Письменно переведите предложение.**

- a) Electronics has found a wide application in railway substation.
- b) Silicon rectifiers were one of the most electronic instruments.
- c) The railway needs a power supply.
- d) Technical aids will be used to simplify the task of directing train movements.

Rectifier - выпрямитель

traction - тяга

pre-revolutionary - дореволюционный

substation - подстанция

**1. Перепишите и письменно переведите текст.**

Both conventional and nuclear power stations generate a high voltage alternating current (a.c.). the fact is that the alternating current can be more economically transmitted over long distances than the direct current (d.c.) and the higher the voltage the less energy is lost.

Although the alternating current can be used to drive trains, in many countries it is converted to the direct current because d.c. motors are simpler than a.c. machines.

As is known, the conversion of a.c. to d.c. takes place in railway substation. The first essential of a substation is a transformer in which the electric current taken from the transmission line is lowered in voltage. Another important instrument the substation is fitted with is a rectifier which converts a.c. to d.c., one-way (direct) current being fed to the overhead wire.

Electronics has found a wide application in railway substation; silicon rectifiers being one of the most commonly used electronic instruments. Due to electronics most substations are now operated by remote control.

**2. Перепишите и переведите предложения. Подчеркните глагол-сказуемое и определите его время и залог.**

- a) A power supply system is necessary for the economic development of any country.
- b) The remote control is successfully used to operate railway substations.
- c) The construction of electric traction has resulted in increased efficiency of railways.

**3. Переведите следующие словосочетания.**

- a) valuable raw materials - b) batteries of dials and records - c) by products - c) the cable feeding trains with electric energy – d) a type of control used to operate modern substations-

**4. перепишите и переведите предложения, обращая внимание на страдательный залог.**

- a) Electric energy is generated at electric power stations.
- b) Coal, gas or oil are used at the thermal power stations.

***1. Перепишите и письменно переведите текст.***

Main circuit breaker. The main circuit breaker controls the high-tension current and is used as protection against overloads or short circuits in the traction motors. It is simply a switch with several fixed contacts. The main circuit breaker is remotely controlled by direct current or compressed air, from the drive's cab, but may be operated by hand in case of failures.

Traction motors. Traction motors are divided into types: 1) The series commutator motor, as used for d.c. (direct current) and with some modification, also for single-phase a.c. (alternating current). 2) The 3-phase a.c. induction motor, is used on the 3-phase system and of phase converters. The series motor is generally used for railway traction purposes. The three-phase a.c. induction motor is very rarely used for modern railway traction.

Electronics has found a wide application in railway substation; silicon rectifiers being one of the most commonly used electronic instruments. Due to electronics most substations are now operated by remote control.

***2. Перепишите и переведите предложения. Подчеркните глагол-сказуемое и определите его время и залог.***

- a) All passenger saloons are furnished with comfortable two-seat aircraft-like chairs.
- b) Locomotives had been equipped with transmitters and receivers by the departure moment.
- c) Technical aids will be used to simplify the task of directing train movements.

***3. Переведите предложения с русского на английский.***

- a) В этом регионе железная дорога была электрифицирована ещё в прошлом году.
- b) Рельсы будут тщательно проверены прежде чем они будут уложены на железобетонные шпалы.

***4. Закончите предложения, используя инфинитив.***

- a) It was very important (установить) block signals on the railway.
- b) We saw the new locomotive (отправился со станции).

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27.02.03 Автоматика и телемеханика на транспорте (железнодорожном транспорте)

2 курс

1 вариант

***Centralized traffic control.***

***1. Перепишите и письменно переведите текст.***

Centralized Traffic Control or CTC is used to facilitate the traffic control in the sections or divisions which have busy traffic.

If the trains in the sections were operated only by schedule or by train order, their movements would be delayed. Much time would be lost while waited for the appearance of opposing trains. Using CTC, all trains movements in the sections are governed by signal indications. The signals and switches are operated from an illuminated panel situated in front of the dispatcher's desk.

On this panel one may see diagram of all tracks in the controlled section. Below the diagram are small buttons and levers that control the operation of each switch and signal. These switches and signals are all interlocked so that it is impossible for the dispatcher to show signals that would admit two trains to the same track.

On the track diagram there is a number of small lights. When a train enter a section of the track shown on the panel a light goes on showing the dispatcher that a train is on the section of the track. It is CTC that can serve much time and prevent train delays.

Siding –ветка, боковой путь

***2. Письменно ответьте на вопросы по тексту:***

- a) Why is CTC on railways used?
- b) Where is an illuminated panel situated?
- c) Can CTC prevent train delays?
- d) What is there on the track diagram?

***3. Переведите письменно словосочетания:***

- a) train order
- b) traffic control installation requirement
- c) railway transport development
- d) panel section
- e) signal indication

***4. Переведите предложения, обращая внимание на причастия.***

- a) Trains arriving at marshalling yards are placed in reception sidings.
  - b) Railways made much progress in improving the efficiency of their yards.
- Marshalling yards – сортировочный парк.

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транспорте)

2 курс

2 вариант

***Centralized traffic control on light traffic line.***

***1. Перепишите и письменно переведите текст.***

On 84 miles of single track, which handles important through traffic, 8 to 12 trains daily, the St. Louis – San Francisco cut the costs for Centralized Traffic Control by equipping only six sidings. This installation has proved to be of much greater benefit in train operation that would have been made by conventional automatic block.

Thus the link between Edward and Afton handles the traffic between Kansas City and Tulsa. The schedule includes two through passenger trains and two through freight ones each direction.

The passenger trains are the modern streamlined type hauled by diesel locomotives. The “Firefly” is a fast day train, both directions between Kansas City and Tulsa. The “Oklahoman” is a night train, both directions between the same points. These trains are operated at speeds up to 70 mph. The through freight trains also are operated with diesel locomotives.

When deciding which sidings are to be equipped with dispatcher- controlled signals preference is given to sidings spaced equal distances. The final decision is to equip six of sixteen sidings having capacities from 137 to 157 cars.

***2. Письменно ответьте на вопросы по тексту.***

- a) How is a fast day train called?
- b) Between what points does “Oklahoma” night train run?
- c) What speed are these trains operated at?
- d) What locomotives do haul passenger trains?

***3. Переведите письменно словосочетания:***

- a) train order issue
- b) signal indication panel
- c) railway transport development system
- d) panel section control
- e) future railway transport

***4. Переведите предложения, обращая внимание на причастия.***

- a) Electronic equipment being highly reliable, many railroads began using it for working in marshalling yards.
- b) Having developed CTC system our engineers have contributed to the progress of railway operations.

Marshalling yards – сортировочный парк.

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27.02.03 Автоматика и телемеханика на транспорте (железнодорожном транспорте)

2 курс

3 вариант

**1. Перепишите и письменно переведите текст.**

The short, dynamic word “robot” was first used in the 20s by Karel Chapek, a Czech writer. While working at one of his plays, Karel Chapek couldn’t find the name for his “humanoid” machines. First he wanted to call them “labors”, the Latin word for “work”. His brother Yosef Chapek, an artist, suggested the Czech word “robot”. In this way a new word appeared which is now used practically in all the world’s languages. Some new terms were formed from it, such as “robotics” and “robotization”. The idea of robot technology (robotics) was born in the 40s, when the foundations of atomic power engineering were laid. Scientists had to deal with radioactive materials. The equipment used in obtaining and studying them was dangerous for men. Remote-controlled equipment helped to solve this problem.

The first generation robots appeared in the 60s and could perform operations of the type “pick-up-bring”. The second generation robots supplied with vision (TV camera) and hearing (microphone). They could perform more complex operations – painting, welding and assembly work.

Today there is a need for flexible production systems. The aim of these systems is to remove people completely from production areas where there are harmful conditions. The sooner robot will replace a man there, the better.

Notes power engineering – энергетика; remote control – дистанционное управление; welding and assembly – сварка; flexible production systems – гибкие системы; “pick-up-bring” operations – операции по доставке и подаче.

**2. Перепишите и переведите предложения, подчеркните глагол-сказуемое и определите его время и залог.**

- a) Students learned many special subjects during the course of training at the Institute.
- b) Much has been learned about using robot technology in power engineering.
- c) Many questions were asked on the productivity of Japanese robots at the exhibition.

**3. Перепишите предложения. Подчеркните в них причастия и определите их функцию. Переведите предложения.**

- a) Remote-controlled equipment is widely used now.
- b) Robots used in radioactive zones replaced and saved many people.
- c) The material collected served for improving robot technology.

**4. Найдите в тексте и выпишите предложения с модальными глаголами. Глаголы подчеркните.**

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2 курс

4 вариант

**1. Перепишите и письменно переведите текст**

That the problem of railway operation must be now solved with the use of the most up-to-date technical aids is clear to everybody. Being introduced on railways, the technical aids greatly facilitate the task of directing train movements and make the job of the railway men simpler and more productive. The technical aids, which provide the so-called telecommunication service, comprise the telephone, the radio and the television.

Of all technical aids it is the radio which plays the most significant part on modern railways. While the telephone system is principally made for control purposes the radio has found a wide application practically in all aspects of railway operation.

Today, locomotives are equipped with both transmitters and receivers and the locomotive drivers can communicate with at least the nearest station along the track or with other trains on the route. In case of an emergency the engine driver can radio a warning to other drivers or ask the dispatcher for help. Thus thanks to the radio the danger of train collision has been substantially decreased.

**2. Перепишите и переведите предложения. Подчеркните глагол-сказуемое и определите его время и залог.**

- a) The railroad track needs careful maintenance.
- b) The rails in high-speed tracks are subjected to rapid wear.
- c) The walkie-talkie is used to inform the passengers on the changes in the time.

The walkie-talkie – переносная рация;

The technical aids- технические средства;

**3. Перепишите предложения. Подчеркните в них причастия и определите их функцию. Переведите предложения.**

- a) Automatic manipulators – the so-called industrial robots – have been designed.
- b) First appeared in Soviet enterprises in 1873 robots began to operate dangerous work.
- c) While building the machines the workers used new materials.

**4. Найдите в тексте и выпишите предложения с модальными глаголами. Глаголы подчеркните.**

**1. Перепишите и письменно переведите текст.**

From the history of car building in Russia.

In Russia, the construction of passenger cars was started in 1846 at the Alexander Works, which was also the first to built steam locomotive and wagons. The first carriages were vehicles without compartments. They were mounted on two trucks and had a body made of wood, each 90 passengers. An empty vehicle weighed 22 tons.

Ten years later, a number of passenger cars were supplied to the Russian railways from abroad. These cars had neither heating nor toilet rooms. They were unsuitable for the Russian winter and had to be reconstructed later.

In the middle of the 60s all the carriages operated on the Moscow-Petersburg railway were produced in Russia. Unlike the cars operated in the European countries these cars were heated by stoves and had toilet rooms.

Of significant importance for the history of the car building industry in our country were Kovrovsky Workshops. The Kovrovsky Workshops were the first to introduce steam and water heating, lighting and roof ventilation in cars. The cars turned out by the Workshops were durable and had good performance characteristics.

**2. Перепишите и переведите предложения, подчеркните глагол-сказуемое и определите его время и залог.**

- a) Old cars were not fitted with electricity; they used gas lamps for igniting cars.
- b) The speed of Japanese trains is more than 250 km/h.
- c) The first steel car looked rather unusual.
- d) Most large stations and yards have special container handling cranes and other equipment.

**3. Перепишите предложения, подчеркните в них причастия и определите их функции.**

- a) All objects surrounding us are composed of different substances.
- b) These cars were called all-steel lightweight cars, which later developed into standard and “streamlined” cars.
- c) When heated to certain temperature water increases in volume.

**4. Перепишите предложения и переведите предложения. Подчеркните модальные глаголы или их эквиваленты.**

- a) Every candidate to the Institute has to take four exams.
- b) This bridge could be put into operation last month.



**1. Перепишите и письменно переведите текст.**

Improvements in passenger car construction.

Steam heating of cars is believed to have become into use in the eighties of the 19<sup>th</sup> century practically eliminating the danger of fire, even in case of wooden cushions besides increasing passenger safety, steam heating made cars much more comfortable, providing even temperature throughout the car.

The early cars are known to have had an open platform at each end, this being especially dangerous in case of train collisions, later an enclosed vestibule (закрытый тамбур) was introduced. Its introduction is thought to be another step in increasing safety. The fact is that the introduction of the enclosed vestibule proved, to be a very important measure, preventing the cars from damage in case of an accident.

At the beginning of the 20<sup>th</sup> century, steel began to replace wood in car construction. Engineers understood the use of steel would make the cars much more durable. The steel vestibule car was found to be rarely crushed even in a wreck. In addition, if properly maintained, steel cars lasted much longer than wooden coaches.

**2. Перепишите и переведите предложения, подчеркните глагол-сказуемое и определите его время и залог.**

- a) A group of engineers is designing a special car for the exhibition.
- b) New cars are usually tested in a special train.
- c) It was in the USA that the first sleeping car was invented.
- d) Both Russian and foreign engineers work at the design of more comfortable cars.

**3. Перепишите предложения, подчеркните в них причастия и определите их функции.**

- a) While building the bridge the workers used new materials.
- b) Speaking about his new invention the young engineer told many interesting things.
- c) When heated to a certain temperature this alloy increases in volume.

**4. Перепишите предложения и переведите предложения. Подчеркните модальные глаголы или их эквиваленты.**

- a) Railways have to introduce new types of freight cars to transport special kinds of freight.
- b) Our engineers should test this machinery in motion.

**1. Перепишите и письменно переведите текст.**

The railroad track

The place where the ends of the rails meet in the track is known as the joint. The rail joint has always been the weakest part of the track, for nearly all the rails wear out first at the ends.

Some railroads have two or more tracks. In order to make the trains pass from one track to another the railroads have a switch, which is a very important element of the track.

The rails differ greatly in weight according to the kind of traffic they have to carry when placed in the track. The largest and heaviest rails are laid in the main-line tracks for it is these tracks which carry the largest volume of traffic. The ties on most tracks were almost all made of wood and in order to make them last longer they were treated with creosote.

The ties are not laid upon the earth for the earth cannot support the track structure. They rest upon a bed of crushed rock or gravel, which is called ballast. Ballast is a very important element of the track, for it is the ballast, which supports the track structure, holds the track in position and provides needed drainage.

Long-welded rail – бесстыковой («бархатный») путь

**2. Переведите словосочетания на русский язык.**

- a) to increase the weight of the rails
- b) heavy sleepers
- c) to eliminate difficulties
- d) in order to provide the necessary support

**3. Перепишите и переведите предложения с причастным оборотом.**

- a) The locomotives developing high speeds are used to draw passenger trains.
- b) Ballast supporting the track structure is made of broken stone.
- c) The engineers taking part in the conference spoke about the latest achievements of Soviet railway engineers.
- d) When designing the BAM Railway electrification attracts the attention of transport engineers in the countries facing the energy crisis.

**4. Найдите в тексте предложения в пассивном залоге. Перепишите и переведите их.**

**1. Перепишите и письменно переведите текст.**

The railroad track

The track is one of the basic features of a railway. It is also called the permanent way. The fact is that in early days of railroad building workers first had to lay temporary tracks to transport the materials to the construction site. And only after that they laid down the permanent tracks or the permanent way (железнодорожное полотно), as it was called. The permanent way consists of rails, ties and ballast.

The railroad track of today is quite different from that used in the early days of railways. The first tracks had no ballast; the rails were made of wood and rested on heavy blocks of granite. Then the wooden rails were replaced by iron ones and wooden ties replaced the granite blocks, or sleepers. This kind of track, however, was not strong enough for heavy steam trains. The discovery how to make cheap steel was of great importance to the railways, for when placed in the same track, steel rails had a life 15 times as long as iron rails.

The distance between the rails is called the gauge. The standard gauge in most countries is 1435 mm, while in our country the railways have a gauge of 1524 mm. that gauge was finally adopted when the first line Moscow-St.Petersburg railway was under construction (1842-1851). Thus, Russia was the first world country where the uniform gauge was adopted for all railways. In America the gauge was uniformed only in 1886.

**2. Переведите словосочетания на русский язык.**

- a) the replacement of iron rails by steel ones –
- b) to standardize a gauge –
- c) the main features of the permanent way
- d) long-welded rails

**3. Перепишите и переведите предложения с причастным оборотом.**

- a) Organizing international railway exhibitions we demonstrate Soviet-made locomotives, cars and modern machinery.
- b) Discussing the project the engineers spoke of its advantages.
- c) The locomotive must develop a higher tractive effort when drawing a heavy train.
- d) When designing the BAM Railway the engineers had many difficulties.

**4. Найдите в тексте предложения в пассивном залоге. Перепишите и переведите их.**

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3 курс

1 вариант

**1. Перепишите и письменно переведите текст.**

Automation and computerization on railways

Nowadays one can hardly find fields in human activity where electronic machines or devices are not used. More and more hard and time-consuming operation performed by man some time ago is now transferred to machines. Computers are increasingly performing complicated calculations, logical operations, weather forecasts and many other jobs.

The development of the machines that carry out human functions is well under way in Russia. Here are a few examples of using computers on the railways.

The first an automatic locomotive driver was designed and successfully tested in Russia, under this system the electronic computers installed in the trains start and stop the train and control their speeds. Russia is also among the first countries to develop and use the so-called auto dispatcher. Driverless trains controlled by electronic computers are opening at the Tashtagol ore mine. Installed in the mine the auto dispatcher controls the movement of each vehicle and ensures the optimum efficiency of its operation. A special transmitter is employed to give a sound signal if any fault occurs. Under this system only one human dispatcher is required to keep the traffic under control. There is no need to say that the driverless trains described open up great prospects on railways.

Is well under way – успешно ведётся

**2. Найдите в тексте, перепишите и переведите предложения с причастиями. Определите их функции.**

**3. Переведите следующие словосочетания на русский язык.**

a) a non-reflecting surface b) an unusual transmitter c) to minimize the wear of rails

d) a semi-conductor rectifier e) a soundless operation

**4. Переведите словосочетания на английский язык.**

a) устранить повреждение b) надежное транспортное средство c) в случае крайней необходимости d) управлять устройством e) обеспечить безопасное движение поездов

**5. Перепишите и переведите предложения с модальными глаголами.**

a) When the train speed increased many improvements to be made in the track structure.

b) The faulty equipment should be carefully examined and shut down if required.

c) In large cities there must be high-speed communications between the city's centre and the airports.

23.02.01 Организация перевозок и управление на транспорте (по видам)  
27.02.03 Автоматика и телемеханика на транспорте (железнодорожном  
транспорте)  
3 курс  
2 вариант

***1. Перепишите и письменно переведите текст.***

Automation and computerization on railways

Traffic control is not the only job the computers are able to do on railways. They are most widely used to automate sorting yards operations. Some time ago the sorting of goods trains at stations was a very complicated job and the operators were physically unable to process all the data received by a station. Computers have come to their aid.

The problem of training locomotive drivers has been greatly facilitated by means of the electronic technique known as simulation. Under this system the locomotive simulator is equipped, with a computer and other electronic devices. The driver taking a test is to push a button to begin the test. Immediately a moving picture appears on the screen in front of him. The film simulates various operating conditions and the driver learns when he has to apply the brakes, increase or decrease the train speed, turn right or left, stop or restart the train. The programme of the computer must provide for emergency situations in order to instruct the driver to avoid accidents. The railway power supply system is the sphere where automation should be applied on a wide scale. Most railways substations supplying trains with electricity are now automatically controlled. In case of an emergency situation the automatic devices are immediately to shut down the faulty equipment.

***2. Найдите в тексте, перепишите и переведите предложения с причастиями. Определите их функции.***

***3. Переведите следующие словосочетания на русский язык.***

a) non-smoking b) unimportant information c) national independence d) a non-electrified section of track e) an unqualified assistant

***4. Переведите словосочетания на английский язык.***

a) сложная проблема b) согласно требованиям c) использовать без колесной пары d) обрабатывать различные данные e) единственное устройство

***5. Перепишите и переведите предложения с модальными глаголами.***

a) The regular operations in the sorting yards are to be planned before hand.  
b) Simulation technique ought to be used for training locomotive drivers.  
c) According to the project, called the "Aerodromes system" the cars were to be provided with wings.

**1. Перепишите и письменно переведите текст.**

When we study the geographical location of the routes over which electric traction is employed, we see, first of all, that the suburban railway routes of big cities with their dense and constant traffic are operated by electric trains. We see, again that the heavily-used trunk lines are most efficiently operated by electricity. Further, railways in mountainous country, with heavy gradients are among the earliest to be electric haulage.

The chief attractions of electric haulage are four in number. One is great rapidity of acceleration. The text advantage is that the electric locomotive is always ready for use and can remain in service for practically the whole of twenty-four hours continuously. If followed under electrification the maintenance and operation costs are relatively cheap. Yet another essential benefit to be obtained is the ability of electrics to haul very long and heavy trains for there is practically no limit to the energy to be taken by the locomotive from the centenary. Besides, of all the existing kinds of traction it is the electric haulage that is most promising as regards speeds.

The electric rolling stock is of two types, namely, locomotive-hauled trains and multiple-unit trains, the latter being composed of motor coaches and trailers, that is, coaches without traction motors.

*Rolling stock – подвижной состав; haulage- тяга, перевозка; trunk line - магистральная линия*

**2. Выпишите из текста и переведите предложения с инфинитивом. Определите его функции (определение или обстоятельство).**

- a) The transformers are used to lower the voltage of the alternating current.
- b) The chief engineer was the first to locate the faulty equipment.
- c) To meet the needs of the country in power the atomic –power plants are being increasingly built.

**3. Переведите словосочетания, обращая внимание на союзы.**

- a) both telephone and radio
- b) either the overhead wire or the conductor rail
- c) neither railway nor road transport
- d) the electric as well as the diesel haulage
- e) the higher the density of traffic the shorter the time intervals between trains

**4. Вставьте пропущенные слова по смыслу.**

- a) Due to electric (haul, haulage) the traffic (dense, density) on the line can be increased.
- b) The generation of electricity from the sun energy is now quite (realizable, realize, realization)
- c) The operation cost of electrified railways is (relatively, relative, relativity) low.

**1. Перепишите и письменно переведите текст.**

Thanks to their rapid acceleration multiple-unit trains are most suitable for suburban railways with their frequent stops and frequent services. As to electric locomotives they are mainly used to long distance goods and passenger trains.

Electric railways may use either direct or alternating current. For the electric current to be led to the trains the conductor rails or a system of overhead wires, often, called the centenary, are needed. It is the power supply system that makes railway electrification a costly business since electric haulage makes it necessary for railways to be equipped with a whole system of electrical substation and cables to bring the power to the track. Because of a high construction cost railway electrification is justified on the railways with a high density of traffic. Thus, the greater the density of traffic the more favorable situation for the operation of electric trains.

There are some other drawbacks of electric haulage to be mentioned. For example, the electric trains cannot run anywhere beyond the lines equipped with the centenary. Besides, any serious breakdown in the power supply system can bring a large number of trains to a stand. In hard winter conditions icing of the overhead wire or the conductor rail causes many troubles on electrified lines.

*Heavy gradients – крутые подъёмы; running rails - ходовые рельсы.*

**2. Выпишите из текста и переведите предложения с инфинитивом. Определите его функции (определение или обстоятельство).**

- a) To achieve greater flexibility of operation, the control circuits were arranged.
- b) Attempts to use electric traction were made at the beginning of the 19<sup>th</sup> century.
- c) The locomotive to be used for ha-heavy trains must have a uniform rate of acceleration from start to maximum speed.

**3. Переведите словосочетания, обращая внимание на союзы.**

- a) to choose either the day or the night-time train
- b) to work at the design of more comfortable cars
- c) the transformer reduces voltage as well as speed
- d) neither step-down nor step-up transformer
- e) both passenger coaches and sleeping cars

**4. Вставьте пропущенные слова по смыслу.**

- a) The main task of the programme until 2020 is ... (to modernize, modernizing, modernization) of railways.
- b) The greatest attention in Russia ... (devotes, is devoted to, devoting to) the use of diesel traction.
- c) We must develop railway industry (to accord, according, accordance) to demands.

**1. Перепишите и письменно переведите текст.**

Diesel traction is normally employed today on non-electrified trunk lines and on lines where traffic is not enough to justify electrification. In addition, it is the diesel traction which is particularly suitable for switching services for the diesel locomotive is not connected to the overhead wires and can easily and rapidly perform its switching duties.

The question now being discussed is whether the diesel locomotive will be able to compete with its electric counterpart in the future. To make the task easier, let's discuss the advantages and drawbacks of the two kinds of motive power.

The diesel; and electric locomotives have some common features. As well as the electrics, diesels are always ready for service because the diesel engine can be started within a minute or two in any weather and can be in operation for perhaps a week without needing to go to a depot. As well as the electrics, the diesels are capable of developing a high tractive effort at low speeds and, therefore, can start and accelerate heavy trains. These features allow the diesel locos to be used for heavy mainline service.

**2. Найдите английские эквиваленты к следующим словам и словосочетаниям.**

- a) to produce locomotives and cars –
- b) a single-section locomotive
- c) besides the diesel motive power-
- d) to depend mainly on the track

**3. Переведите словосочетания на английский язык.**

- a) локомотив высокой мощности –
- b) отвечать современным требованиям-
- c) двухсекционный локомотив -

**4. Выберите верные варианты перевода слов.**

- a) движущая сила (horse power, motive power, prime power)
- b) внешнее сгорание (external combustion, internal combustion)



23.02.06 Техническая эксплуатация подвижного состава железных дорог  
(ЛОКОМОТИВЫ)  
3 курс  
2 вариант

**1. Перепишите и письменно переведите текст.**

New trains go into service.

Via Rail Canada introduced several LRC (Light, Rapid < Comfortable) trains into service between Montreal and Toronto in 1981. The railways ordered some more LRC locomotives and coaches. At present there are two trains a day in each direction between these two cities replacing a morning Rapid Train and the evening Turbo Train. The trains were to have a maximum speed of 200 km/h but because of track limitations they will not run faster than about 150 km/h.

The most significant engineering innovation in design of a LRC train set is a power banking system, which enables the train without discomfort to passengers. The Canadian system can tilt the coach by more than 8 degrees. Each bogie is equipped with the banking mechanism and operates independently. As the coach enters a curve, an accelerometer senses the resulting lateral force and sends this information to a small electric device. The device, in turn, sends signals to hydraulic cylinders on each bogie instructing them to tilt the locomotive and coach bogies.

**2. Найдите английские эквиваленты к следующим словам и словосочетаниям.**

- a) work on gasoline
- b) burn costly fuel
- c) to put engine into motion
- d) a single section locomotive

**3. Переведите словосочетания на английский язык.**

- a) маневровый локомотив
- b) запускать двигатель
- c) локомотив высокой мощности

**4. Выберите верные варианты перевода слов.**

- a) внутри двигателя (outside an engine; inside an engine)
- b) дизельное топливо (gasoline; oil fuel)

**1. Переписать и письменно перевести текст.**

***The earliest passenger cars.***

The first passenger cars were similar to stage coach bodies mounted upon flanged wheels. For many years passenger cars continued to resemble coaches drawn by horses. Then these coaches were gradually made longer as more and more people began to travel by railroads. But they were still very small and extremely uncomfortable compared to the cars now used on railways.

The first passenger cars that looked somewhat like today cars were built about 1840. Those cars had a long body similar to the body of modern cars. The body was built up from a heavy platform or under frame. Two swivel trucks supported the car body in almost the same manner as we find today. Inside the car was open from end to end so that passengers and trainmen could walk along the length of the car. The seats were arranged in rows along either end of the car. Washrooms were provided at the ends of the car and each side of the car had a long row of glass windows. These cars were a great improvement over the first cars, for railroads began to carry more passengers in a single train. Besides that, the increased comfort made it possible for passengers to travel longer routes between important stops.

During the 19<sup>th</sup> century passenger cars continued to be made longer and larger and more comfortable inside. Unfortunately, the safety of the passenger cars was not developed as fast as their comfort.

**2. Письменно ответить на вопросы по тексту:**

- a) What were the first cars?
- b) How were the seats arranged? c) Why was inside the car open?

**3. Перепишите и переведите предложения. Определите время и залог, подчеркните глагол-сказуемое:**

- a) The body was built up from a heavy platform or under frame.
- b) During the 19<sup>th</sup> century passenger cars continued to be made longer and larger.
- c) The safety of the passenger cars did not develop as fast as their comfort.
- d) Washrooms were provided at the ends of the car.
- e) Those cars had a long body similar to the body of modern cars.
- f) The seats were arranged in rows along either end of the car.

**4. Закончите предложение по смыслу:**

- a) Passenger cars were a great improvement over the first cars because ...
- b) Inside the car was open from end to end because ...
- c) Comfort and arrangements of the cars grew but unfortunately ... was not developed.

**5. Выпишите слова и словосочетания, относящиеся к теме «Cars», письменно переведите их.**

**1. перепишите и письменно переведите текст.**

***First improvements in passenger cars***

During the greater part of the 19<sup>th</sup> century all passenger cars had three serious disadvantages. First of all, they were not very strong since they were built of wood and their trucks had many wooden parts. When there was a train wreck the cars often broke apart and most of the passengers riding in them were crushed to death. Besides that, these early cars were all heated by wood or coal-burning stoves. If a train wreck took place in winter when the stoves were lighted, the latter usually set fire to the wooden cars. But worst of all, these cars had open platforms at each end. It is the combination of open platforms, wooden bodies and stoves plus the absence of modern signaling that made the cars dangerous for travelling.

And it was the elimination of the open platform that was the first great improvement in railroads car design in 1880s. Since that time all passenger cars have the enclosed vestibule and the steel and canvas diaphragm connecting the ends of adjacent coaches. Both the diaphragm and the enclosed vestibule make it possible to pass with safety from car to car.

Another improvement in car design was the use of hot water heating which practically eliminated the danger of fire. Besides greatly increasing passenger safety new heating system made cars much more comfortable. When stoves were used the passengers near the stove were too hot while those far from the stoves were always freezing. Today air- conditioning is widely used.

**2. Письменно ответьте на вопросы по тексту.**

- a) What were disadvantages of the cars in 19<sup>th</sup> century?
- b) What made the cars dangerous for travelling? c) How did they heat the cars in early trains?

**3. Определите время и залог следующих предложений, подчеркните глагол-сказуемое. Перепишите и переведите предложения.**

- a) They were not very strong since they were built of wood.
- b) These cars had open platform at each end.
- c) Since that time all passenger cars have the enclosed vestibule.
- d) When the stoves were used the passengers near the stove were too hot.
- e) When there was a train wreck the cars often broke.
- f) Besides that the first cars were heated by wood or coal burning stoves.

**4. Закончите предложения по смыслу, используя текст.**

- a) When there was a train wreck the cars often broke because of ....
- b) In 1880s the first improvement in railroads car design was ...
- c) In winter there was a danger of fire because of ....

**5. Выпишите из текста слова и словосочетания к теме "Cars" и письменно переведите их.**

**1. Перепишите и письменно переведите текст.**

The freight cars are the cars that are used by the railroads for carrying different kinds of freight or goods. There are many different kinds of these cars. The simplest type of a car is the flat car. It is merely a platform car. It is used to carry logs, steel rails and some other long articles as well as heavy pieces of machinery.

There are freight cars that are used to carry coal. Such cars have sides and ends above the floor, but they have no roof and therefore they are called "open-top-cars". There are two common types of "open-top-cars", the gondola and the hopper car.

The chief difference between these two is that the gondola car has a flat floor or bottom, while the hopper car has a floor, which slopes downwards from each end. The bottom of the car has one or more hoppers with doors that open downwards. The most common type is "box-car". The body of the car is a huge box with a sliding door on each side.

The refrigerator car is a special kind of a box-car used carrying perishable goods such as meat, fruits etc. there are electrical refrigerators. The walls, floors and roofs of the refrigerator are waterproof and airtight and they are well insulated. Liquid freight, such as oil may be transported in tank-cars. The tank-cars are made of steel. The top of a tank is emptied. There is also a valve at the bottom of the tank to empty it.

**2. Перепишите и переведите предложения. Подчеркните в каждом предложении глагол-сказуемое, определите время и залог.**

- a) New cars are usually tested in a special train.
- b) All new types of cars always have a number of advantages and disadvantages.
- c) The engineers have improved the car heating and lighting systems.
- d) These wagons were used for transporting cement.

**3. Перепишите и переведите предложения, подчеркните в каждом предложении причастия и определите их функции.**

- a) Making the report he demonstrated new devices.
- b) When placed in a strong magnetic field iron becomes magnetized.

**4. Перепишите и переведите предложения, подчеркните модальные глаголы.**

- a) Nobody will be able to measure the density of this substance without a special device.
- b) They must improve the experimental conditions in their laboratory.
- c) He can drive all kinds of locomotives.
- d) They had to change a schedule three times a year.

**1. *Перепишите и письменно переведите текст.***

With increasing containerization there arose the demand for international railway container transportation from and to the different countries. Today the intercontainer partners include the railway administrations of 23 European countries in western and Eastern Europe in order to develop an international transport network with refrigeration containers. Several railways have designed special container carrier wagons and have built them in large numbers, though containers can also be carried by conventional flat wagons, which are, in fact especially at periods of peak demand, used for this purpose. The railway administrations of different countries have carried out a process of standardization and have agreed on a small number of container wagon types.

Compared to conventional flat wagons, the container-carrier wagons have the advantage that the containers can be secured during transportation by means of wagon pins, which can be lowered and can be fixed to the corner fittings of containers.

**2. *Перепишите и переведите предложения. Подчеркните в каждом предложении глагол-сказуемое, определите время и залог.***

- a) The Institute of Railway Transport provides broad engineering education.
- b) Our students will carry out their laboratory tests in modern labs.
- c) They have organized an excursion to places of interest in this town.
- d) The new power station was built there last year.

**3. *Перепишите и переведите предложения, подчеркните в каждом предложении причастия и определите их функции.***

- a) The students translating the text came across many difficulties.
- b) ) Heat produced from electrical energy warms our homes.

**4. *Перепишите и переведите предложения, подчеркните модальные глаголы.***

- a) One must know the difference between the sleeping car and the coach.
- b) Passenger train can be driven either by diesel or electric locomotives.
- c) The new car is to begin its service in some months.
- d) His father could drive different kinds of locomotives.

**1. Прочитайте и переведите текст**

## Experimental Bridge

A bridge is a structure built to cross natural or artificial obstacles such as a river, a street, a railway and so on. First bridges had to be built out of the *material close at hand* (подручный материал). In tropical jungles, suspension bridges were made of long bamboo poles. In the places where there were many forests, it was wood.

Simple suspension bridges were made by means of ropes and are still used in some countries. Two parallel ropes were suspended from rocks or trees on each bank of the river with a platform of woven mats laid across them. When the Spaniards reached South America, they found that the Incas of Peru used suspension bridges made of 6 strong cables, four of which supported a platform and two cables served as *handrails* (поручни).

In Middle Ages, people constructed wooden beam type bridges. They were usually built on stone piers or wooden piles. Bridges of this type are used in Japan and India.

With the beginning of railway construction in the 19<sup>th</sup> century, there was a great demand for bridges and the railway companies had capital for building them. The first railway bridges were built of stone or brick. Later there appeared concrete and metal bridges. The first iron bridge crossed the river Severn in Great Britain.

Nowadays some people are experimenting with different unusual materials. One of them is paper. Nobody consider paper to be a very strong material. However, paper-makers have another opinion. In order to prove it they built a paper bridge across a narrow canyon in Nevada. The bridge had a span of 32 *ft* (фунт). The designers calculated that it could safety span 80 ft. It took engineers only two months to design the bridge, to test and construct it.

For testing, the engineers chose a truck, which weighed 12000 lb (фунт). This truck drove quite safety across the paper bridge. The engineers are sure that the bridge can take six times the truckload of 12000 lb.

The bridge itself weighed 9000 lb. Therefore, the structure was light enough to be laid into place by helicopter.

**2. Прочитайте и переведите предложения, обращая внимание на употребление времён группы Continuous (Present, Past, Future) и группы Perfect (Present, Past, Future) в действительном и страдательном залогах. Выпишите сказуемые и укажите их видовременные формы.**

a) Hurry up! I am afraid by the time we get to the station the train will have already left.

b) The new American turbo-train has covered a 230-mile distance in 3 hours 15 minutes with four stops between Boston and New York.

c) By the time the train reached its destination Paul had made friends with many of his fellow travelers.

d) For many years, railway track has been laid and repaired by hard manual labor. Now this work is being done by means of up-to-date track machines and mechanisms.

**3. *Перепишите и переведите предложения, выбрав правильную форму сказуемого (Active or Passive)***

a) After the reconstruction of this line track maintenance cost (will reduce; will be reduced) considerably.

b) A taxi (was called, called) 15 minutes ago; so we (are expecting; are being expected) it any moment.

c) Bill (kept; was kept) his word and arrived exactly at the time he (had promised; had been promised).

d) Great attention (pays; is paid) to ecological problems all over the world.

e) Be careful! The train (is approaching; is being approached) the station.

**4. *Перепишите и переведите предложения, обращая внимание на употребление модальных глаголов. Подчеркните модальные глаголы в английских предложениях и в переводе***

a) Drivers of express and fast trains must have a rest after 3 hours of week.

b) In New York a passenger may go by subway all day long for the same fare if he only changes trains but do not go out of the station.

c) In Metro, when the passengers get on the escalator, they should stand on the right so that people, who hurry, can run by on the left.

d) The new automated control system will eliminate all types of accidents, which can be caused by the driver's error.

e) You need not hurry up; you may take a later suburban train.

**5. *Перепишите и переведите предложения, обращая внимание на употребление Participle I в функциях определения и обстоятельства. Подчеркните причастия I в английских предложениях и в переводе.***

a) Having packed our baggage/ we hired a taxi and hurried to the airport.

b) Electric diagrams showing the routes of trains are installed in the London Underground.

c) The high-speed train running between *Hiroshima* and *Kokura* was entered in the *Guinness Book of Records* for the highest average of speed – 261,8 km/h.

d) Carriage wheels, when passing over rail joints, produce the familiar sound “click-etty-click”.

e) While unloading the car we found a few broken boxes.

**6. Перепишите и переведите предложения, обращая внимание на употребление Participle II в функциях определения и обстоятельства. Подчеркните причастия II в английских предложениях и в переводе.**

- a) The first steam engine invented by James Watt was installed in a machine at a large mine to pump out the water.
- b) The mechanic said that he had replaced the broken part of the engine.
- c) When heated by sun, the rails become longer.
- d) This engine radically differs in both construction and operation from the engine designed five years ago.
- e) The Disneyland train called the "Excursion" was built especially to carry visitors through the *Grand Canyon Diorama*.

**7. Перепишите предложения. Задайте общие и специальные вопросы к подчёркнутым словам.**

- a) The load weighs two hundred kilograms.
- b) The windows in this car are made of unbreakable glass.
- c) Each passenger must fasten the belts when the train takes off or lands.

**4 курс**

**2 вариант**

**1. Перепишите и переведите текст**

From the history of the London Underground

The underground railways as a kind of city transport appeared in the second half of the 19<sup>th</sup> century. The first underground system was proposed by Charles Pearson in 1843. Twenty years later the first line of the London Underground was opened for traffic. Its length was almost four miles. On that first historic day, 30.000 Londoners made the first underground travel in the world.

In the early days the trains were driven by steam locomotives, which burnt coal, filling the tunnels with smoke. It is said that the train staff and porters asked for a permission to grow beards and moustaches – as an early form of smog mask. The tunnels of the first underground were as small as possible in order to reduce the construction costs. The coaches themselves were small and narrow.

According to *Pearson's* project all lines were laid down close to the ground surface. The deep tunneling came later, in 1890. Constructing the tunnel through miles of clay, sand and gravel is no easy task and it was *James Henry* who developed the method which made the construction of most London tunnels possible. One of the longest continuous tunnels in the world is the 17 1/2 – mile tunnel on the Northern line. The first escalator was also installed in the London Underground in 1911.



During the World War II the London Underground served as a shelter for thousands of Londoners. Many British Museum treasures spent the war in the tunnels of the underground. The railways were prepared for any emergency that might occur. They had duplicate control systems, repair groups, duplicate power supply and so on. To minimize the danger of flooding the underground near the Thames, isolating doors were built in the tunnels. All the trains were equipped with special reduced lighting for using on open sections of track.

Nowadays the London Underground is the most popular means of city transport. Its length is about 300 km and it has 273 stations.

**2. Перепишите и переведите предложения, обращая внимание на употребление времён группы Indefinite (Present, Past, Future) в действительном залоге. Выпишите сказуемые и укажите их видовременные формы.**

1. This train will proceed to its destination without any stops.
2. The price of the ticket in the London Underground depends on the distance you travel.
3. The invention of a steam engine started the first industrial revolution.
4. The top speed of the first steam locomotive was thirteen miles per hour.
5. Students of technical institutes have practical training at various enterprises and it gives them an opportunity not only to watch production processes but also to take part in them.

**3. Перепишите и переведите предложения, обращая внимание на употребление времён группы Indefinite (Present, Past, Future) в страдательном залоге. Выпишите сказуемые и укажите их видовременные формы.**

1. Since Paris is located in the centre of the country, the passengers who spent a day in the capital can reach any town the same evening.
2. Our flight will be delayed because of a strike of air-traffic controllers.
3. The flight turnover was reduced because of a considerable increase of transportation cost.
4. New plastic and synthetic materials are widely used for the interior and exterior finishes of carriages.
5. The demand for tickets was so great that they were sold out as soon as the booking office was opened.

**4. Перепишите и переведите предложения, поставив глагол в нужную форму.**

1. This railroad (*to design* – Present Indefinite Passive) to handle only freight trains.
2. We (*to leave* – Past Indefinite Active) our car in the parking lot near the terminal.
3. The shuttle-train (*to cover* – Present Indefinite Active) the distance from London to Paris in three hours forty minutes.

4. Steel rails (*to use* – Past Indefinite Passive) in the USA for the first time in 1863.  
5. You (*to catch* – Future Indefinite Active) the train, if you (*to hurry* – Present Indefinite Active) up.

**5. Препишите и переведите предложения, обращая внимание на употребление прилагательных в сравнительной и превосходной степенях. Подчеркните прилагательные в английских предложениях и укажите степень сравнения.**

- a) In Australia the traffic is heavier during the winter months when many tourists travel in passenger trains.  
b) It is much more convenient to travel by express train because it does not stop at small stations and it takes you less time to get to your destination.  
c) The world's longest road tunnel links France and Italy beneath Europe's highest peak Mont Blanc.  
d) Statistically it is safer to travel by air than to drive a car  
e) The maximum train speed on the West Coast railway line (Great Britain) is 77 miles per hour but there are many sections where the speed is much lower because of tight curves and steep gradients.

**6. Препишите предложения. Задайте общие и специальные вопросы к подчеркнутым словам.**

- a) The incandescent lamp was invented by Edison.  
b) Railway track will be strengthened on this section of the mainline because it is planned to increase the volume of freight traffic here.  
c) Road accidents are more frequent in rainy weather.  
d) In some countries the locomotive pulls the train in one direction and pushes in the other.  
e) Steel sleepers first appeared in Europe in 1868 mainly because of the shortage of durable wood in some countries.  
f) In our Metro trains run every 8 minutes.  
g) Civil engineering means the construction of roads, railways, bridges, tunnels, canals, etc.

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