

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА
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ИРКУТСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ПУТЕЙ СООБЩЕНИЯ
Сибирский колледж транспорта и строительства

ОГСЭ.03 ИНОСТРАННЫЙ ЯЗЫК В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ

Учебно-методические указания к практическим занятиям для обучающихся

**3 курса
специальности**

**23.02.04 ТЕХНИЧЕСКАЯ ЭКСПЛУАТАЦИЯ ПОДЪЁМНО-ТРАНСПОРТНЫХ,
СТРОИТЕЛЬНЫХ, ДОРОЖНЫХ МАШИН И ОБОРУДОВАНИЯ (ПО
ОТРАСЛЯМ)**

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Учебно-методические указания к практическим занятиям
предназначены для студентов 3х курсов колледжа, обучающихся по
специальности

**23.02.04 ТЕХНИЧЕСКАЯ ЭКСПЛУАТАЦИЯ ПОДЪЁМНО-ТРАНСПОРТНЫХ,
СТРОИТЕЛЬНЫХ, ДОРОЖНЫХ МАШИН И ОБОРУДОВАНИЯ (ПО
ОТРАСЛЯМ)**

Учебно-методические указания к практическим занятиям состоят из заданий, упражнений и текстов по истории строительства мостов, тоннелей, по развитию различных средств городского транспорта, начиная с древних времен и до наших дней, а также включены сведения и задания по материалам, применяющихся при строительстве различных городских сооружений. В заключительной части учебно-методических указаний к практическим занятиям предложен краткий грамматический справочник.

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Введение

Каждая тема состоит из лексических и грамматических упражнений, текстов и диалогов, а также послетекстовых упражнений. Работа над языковым материалом начинается с введения и закрепления лексики, а для ее активизации предложены различные типы упражнений. В конце пособия предложены таблицы по рассматриваемому грамматическому материалу. К данному пособию прилагается терминологический словарь.

В результате освоения раздела студенты должны уметь:

- общаться (устно и письменно) на иностранном языке на профессиональную тематику;
- переводить (со словарем) иностранные тексты строительной направленности;
- пересказать текст, опираясь на план и используя вводные фразы;
- выделить основную мысль текста и высказать ее на английском языке;
- задавать все виды вопросов;
- употреблять нужное грамматическое время в предложениях;
- рассказать о любом архитекторе или архитектурном памятнике на английском языке;
- рассказать о преимуществах и недостатках строительных материалов на английском языке;
- рассказать о современных средствах транспорта.

В результате освоения раздела студенты должны знать:

- лексический и грамматический минимум, необходимый для чтения и перевода (со словарем) иностранных текстов строительной направленности;
- значение и уместность употребления различных английских аффиксов;
- сложные времена английского глагола в действительном и страдательном залоге.

Для проверки полученных знаний и умений по каждой теме проводится контрольная работа, по темам *Types of transport* и *Bridges and tunnels* студенты выполняют задания по самостоятельной работе в виде докладов и презентаций.

Unit I. The history of building

Task 1. a). *Study information.*

Types of affixes.

1. Affixes of nouns:

- ion / - sion /-tion; -ure / -ture; -ment; -ance / -ence - *abstract nouns*;
 - er / -or - *denotes a job*;
 -ing - *process*;
 -ty / -ity; -ness - *property, attribute*.

2. Affixes of adjectives:

-ic; -able / -ible; -ant / -ent ; -ive; -ous; -al; -ful – *presence of the characteristic expressed by stem*;
 -less - *lack of quality*;
 -un / -in / -ir / -il / -im - *opposite, not*.

3. Affixes of verbs:

- ize – from noun, to acquire the features of noun;
 re- (prefix) *again or back*.

b). Find in the dictionary all meanings of the words. Construct all possible words adding any affixes.

Example: research – researcher (noun), construct – constructive (adjective), write - rewrite (verb).

1. Engineer _____
2. Build _____
3. Application _____
4. Construct _____
5. Utilize _____

Task 2. *Use the table to construct statements about buildings and builders.*

Her father	is are have has	a builder.
Builder		an honorable profession.
The builder's profession		many old bridges in our town.
There		pads to protect their hands.

Task 3. *Read and translate the following word combinations into Russian.*

1. Profession of civil engineer _____

2. Branches of civil engineering _____
3. Utilization of materials and forces of nature _____
4. To protect oneself against the elements _____
5. Civil engineering _____
6. Mechanical engineering _____
7. Electrical engineering _____
8. Nuclear engineering _____
9. Mining engineering _____
10. Military engineering _____
11. Marine engineering _____
12. Sanitary engineering _____

Task 4. Read and translate the text.

Civil Engineering

The word "engineering" means the art of designing, constructing, or using engines. But this word is now applied in a more extended sense. It is applied also to the art of executing such works as the objects of civil and military architecture, in which engines or other mechanical appliances are used. Engineering is divided into many branches. The most important of them are: civil, mechanical, electrical, nuclear, mining, military, marine, and sanitary engineering. While the definition "civil engineering" dates back only two centuries, the profession of civil engineer is as old as civilized life.

In order to understand clearly what civil engineering constitutes, let us consider briefly the development of different branches of engineering. Some forms of building and utilization of the materials and forces of nature have always been necessary for man. Man had to protect himself against the elements and sustain himself in the conflict with nature.

Up to about the middle of the 18th century there were two main branches of engineering - civil and military. The former included all those branches of the constructive art not directly connected with military operations and the construction of fortifications, while military engineering concerned itself with the application of science and the utilization of building materials in the art of war. But later there came a remarkable series of mechanical inventions, great discoveries in electrical science and atomic energy. It led to the differentiation of mechanical, electrical, nuclear engineering, etc.

Architecture, which up to the 18th century had been considered a branch of engineering had become a profession by itself. The term "civil engineering" has therefore two distinct meanings. In the widest and oldest sense it includes all non-military branches of engineering as it did two centuries ago. But in its narrower and at the present day more correct sense civil engineering includes mechanical engineering, electrical engineering, metallurgical, and mining engineering.

Task 5. Answer the following questions.

1. What are the main branches of engineering?
2. What is civil engineering?
3. How old is the profession of civil engineer?
4. What are the fields of civil engineering?

Task 6. Put these items of the plan in the order according to the content of the text above.

1. Two main branches of engineering.
2. The age of the profession of civil engineer.
3. The meaning of the word “engineering”.
4. The widest and oldest sense of the term “civil engineering”.
5. The consequences of inventions and discoveries.

Task 7. Use these clichés to retell the text.

I’m going to retell.....

In the beginning of.....

I’ve known that.....

It was interesting to know that.....

Speaking of..... it turned out that.....

The fact that was new for me.....

It goes without saying that

Moreover (Furthermore).....

To sum up

In conclusion

However

Task 8. Read, translate and complete the dialogue.

Teacher: Today we are going to discuss the development of different branches of engineering. Can you name any?

Student: Yes, certainly. The most important of them are: civil, mechanical, electrical, nuclear, mining, military, marine and sanitary engineering.

Teacher: Let’s remember the fields of civil engineering.

Student: In the whole, civil engineering makes housing, industrial construction; the construction of highways, city streets and railroads.

Teacher: Explain, please, the fields of mechanical and military engineering.

Student:.....

Task 9. Read and translate the text.

From the history of communications

Most people think of communications only when they want to get from one place to another. But communications are important to the national economy of a country. Without good roads and railways a country cannot develop its resources and industry. Without roads it is impossible to market agricultural produce.

Early man probably used the river as his first means of travel and communications. Here he was safe from the wild animals in the forests. Later, man began to develop

roads. These at first would be no more than tracks across the mountains and paths through the forests. But very early in Europe we find the development of the amber trade, from the Baltic coast via the great rivers, such as the Rhine, Elbe and Danube, to the Mediterranean.

In Roman times, roads became important for military reasons. Today we have increased the ways of communication. Roads are still important, water, in the form of either rivers or seas, is useful for carrying bulky materials.

But to these we have added the railway and the airplane. Airplanes cannot carry a great deal in weight, and are used mainly for carrying mail, people, or important goods.

Although the future belongs to air transport the railways today still carry the bulk of passenger and goods traffic. Railway transport is still one of the cheapest ways of hauling freight over long distances.

Modern Soviet railways run a transcontinental passenger service. It rushes the traveler across two continents - Europe and Asia - in most convenient all-metal carriages. The dining-car will cater for all appetites. The luggage-van and the then existing machines could not cope with the ever increasing demands of the mines. The stationary steam engine invented by I. Polzunov in 1763 and installed at some plants paved the way for the introduction of steam as tractive power on railways.

The first steam locomotive in Russia was constructed by the Cherepanovs, father and son, who were considered to be the most skilled and most talented workmen of their time.

The first railway in Russia using steam traction was put into operation at the Nizhni Tagil metallurgical works. It was a short distance line covering only 854 m. It is to the Cherepanovs that Russia owes the right to be placed among the countries which were the first to use steam as tractive power.

Some four years later, in 1837, the inauguration of the St. Petersburg - Tsarskoye Selo railway took place.

That very important railway line, which was 27 km, was soon followed, in 1851, by the construction of the St. Petersburg - Moscow line, 644 km in length. That was a first-class double-track railway line, which linked two large industrial and cultural centers - Moscow and St. Petersburg; 185 bridges and 19 viaducts were erected to make the line as straight and level as possible. P. P. Melnikov and N. O. Kraft, prominent engineers, were in charge of the construction work.

Notes

1. may be traced — можно проследить
2. as far back as — уже, еще
3. tram-ways — вагонеточные пути
4. who suggested that cast iron rails should be used instead of trams - который предложил использовать чугунные рельсы вместо деревянных (лежней)
5. to meet the needs — удовлетворять потребности
6. to be superior — превосходить
7. to time train movements — составлять расписание поезда
8. to gain ground — распространяться, усиливаться
9. the then existing — существовавшие тогда

10. paved the way — (зд.) проложил путь
11. the Cherepanovs — Черепановы

Task 10. Complete each sentence with right variant.

1. Early man used _____ (trees, rivers, bridges) as his first means of communications.
2. In Roman times, roads became important for _____ (economical, traveling, military) reasons.
3. The future belongs to _____ (air transport, railways, sea transport).
4. The first railway in Russia with steam traction was put into operation at the _____ (Tsarskoye Selo, Nizhni Tagil, Moscow) metallurgical works.
5. The inauguration of the St. Petersburg - Tsarskoye Selo railway took place in _____ (1851, 1763, 1837).

Task 11. Complete the sentences.

1. Without good roads and railways a country cannot _____
2. Airplanes cannot carry _____
3. Railway transport is still _____
4. It is to the Cherepanovs which were the first _____

Task 12. Answer the following questions.

1. What does the communication system include?
2. Why do railways still stay one of the most important ways of communications today?
3. Who was the constructor of the first steam locomotive in Russia?
4. What do you prefer to travel by?

Task 13. Use correct forms of adjectives.

1. Civil, mechanical, electrical, nuclear, mining, military engineering branches are (important) _____ ones.
2. Civil engineering is (old) _____ than nuclear one.
3. Railway transport is still one of (cheap) _____ ways of hauling freight over long distances.
4. The line covering 854 m. is much (short) _____ than distance line in 644 km. Nowadays air transport is (fast) _____ way of communication.

Task 14. Choose the correct forms of verbs.

1. During the last hundred years many new methods of building _____.

a) has been discovered, b) have been discovered, c) will has been discovered

2. One of the most recent discoveries _____ the usefulness of steel as a building material.

a) is, b) were, c) be

3. Nowadays it _____ often necessary to have a very fast transport.

a) is, b) are, c) were

Task 15. *Read and translate the text.*

The history of road markings.

In 1911 in Wayne County (округ), Michigan, an automobile driver observed a collision on a narrow bridge between a horse and a buggy (новозка), and an automobile going into opposite directions. Each of the drivers was sure that he was on his own side of the road. The observer was Edward Hines, the governor of the county.

Mr. Hines immediately decided that it must be possible for drivers to determine with certainty where their side of the road was. He ordered a white line painted on the centre of every bridge and every turn within his county.

Subsequently he had his idea extended to all the highways of the county. The centre line and various pavement markings have unquestionably saved many lives. They are now one of the most effective means of controlling traffic.

Task 16. *Make your own questions for any 3 sentences of the text above.*

Unit II. Building materials.

Task 1. *Read and translate the text.*

Building materials.

Building materials - natural and artificial material and products, used at the construction and building repair. Differences in the purpose and conditions to erecting and usages the buildings define varied requirements to the building materials and their extensive nomenclature.

Building materials are distinguished on strictly building materials and building products - ready details and elements, assembled in the building on the place of construction.

The list of building materials is extensive and varied. Alongside with traditional materials - ceramic, natural, stone, glass and other - in the modern construction broadly use new building materials on the base of metal.

At the building activity and erecting it is necessary in the first place to use local building materials (sand, gravel, lime, brick and others) that shorten transport expenses, forming much of the material cost. The greater value for cheapen building materials has a salvaging the departures of industry.

Requirements to the building material and products are kept in state sin formation on the building material, given its determination, specified raw material application, categorization, and division by the sort and marks, methods of test, condition of keeping and transporting.

Official document for builders is also "Building rates and rules", where are kept nomenclature and sizes of main building materials, requirements to their quality, instructions upon their choice and using depending on conditions of usages of raising building standards, standard specifications and other normative documents.

Task 2. *Read the sentences from the text with the verbs in Passive Voice, paraphrase them using Active Voice.*

Example: This bridge *is made* of concrete.

1). It *is the* concrete bridge.

2). They *made* this bridge of concrete.

Task 3. *Write out the names of natural and artificial building materials.*

1. natural building materials: _____
2. artificial building materials: _____

Task 4. Read and translate the text.

Properties of materials.

Density (specific weight) is the amount of mass in a unit volume. It is measured in kilogram per cubic meter. The density of water is 1000 kg/m^3 but most materials have a higher density. Aluminium alloys, with typical densities around 2800 kg/m^3 are considerably less dense than steels, which have typical densities around 7800 kg/m^3 . Density is important in any application where the material must not be heavy.

Stiffness (rigidity) is a measure of the resistance to deformation such as stretching or bending. The Young modulus is a measure of the resistance to simple stretching or compression. It is the ratio of the applied force per unit area (stress) to the fractional elastic deformation (strain). Stiffness is important when a rigid structure is to be made.

Strength is the force per unit area (stress) that a material can support without failing. The units are the same as those of stiffness, but in this case the deformation is irreversible. The yield strength is the stress at which a material first deforms plastically. For a metal the yield strength may be less than the fracture strength. It is the stress at which it breaks. Many materials have a higher strength in compression than in tension.

Ductility is the ability of a material to deform without breaking. One of the great advantages of metals is their ability to be formed into the shape that is needed, such as car body parts. Materials that are not ductile are brittle.

Toughness is the resistance of a material to breaking when there is a crack in it. For a material of given toughness, the stress at which it will fail is inversely proportional to the square root of the size of the largest form present. Toughness is different from strength. For example, the toughest steels are different from the ones with the highest tensile strength. Brittle materials have low toughness. For example, glass can be broken along a chosen line by first scratching it with a diamond. Composites can be designed to have considerably greater toughness than their constituent materials.

Creep resistance is the resistance to a gradual permanent change of a shape, and it becomes especially important at higher temperatures. A successful research has been made in materials for machine parts that operate at high temperatures and under high tensile forces without gradually extending. For example, they can be the parts of plane engines.

Task 5. Name all properties of materials.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Task 6. Match the following words with their Russian equivalents:

1	density	a	вес
2	weight	b	количество
3	a volume	c	объем
4	an amount	d	плотность
5	stiffness	e	жесткость
6	rigidity	f	твердость
7	a force	g	сила
8	strength	h	прочность

1 ____, 2 ____, 3 ____, 4 ____, 5 ____, 6 ____, 7 ____, 8 ____.

Task 7. Make up your own sentences with the words from above.

Task 8. Find out 8 words:

x s t i f n e s s i
u d e f 0 r m s t d
w i z u r 0 0 a r g
p e e r c w z y e e
x i s t e e l 0 n h
w y 0 0 l l a z g g
s s e n h g u 0 t n
f r a c t u r e h c

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Task 9. Read the text and answer the following questions.

1. Is density (specific weight) the amount of mass in a unit volume?
2. Is it measured in kilograms per cubic meter?
3. Is density important in any application where the material must not be heavy?
4. Is stiffness (rigidity) a measure of the resistance to deformation such as stretching or bending?
5. Is strength the force per unit area (stress) that a material can support without failing?
6. Is toughness the resistance of a material to breaking when there is a crack in it?
7. Is creep resistance the resistance to a gradual permanent change of shape?

Task 10. Read the text again and complete the following sentences:

1. Aluminium alloys, with typical densities around.....are considerably less dense than steels, which have typical densities around.....
- 2.....is important in any application where the material must not be heavy.
- 3.The Young modulus is a..... to simple stretching or compression.
4. It is the ratio of the applied force per unit area (stress) to the.....
- 5.The yield strength is the stress at which a
6. For a metal the yield strength may be which the stress at which it breaks is; many materials have a..... tension.
7. One of the great advantages of metals is..... such as car body parts.
8. Materials that are not ductile are.....
- 9.Toughness is the..... of a material to breaking when there is a crack in it.
10.is a measure of the resistance to deformation such as stretching or bending.

Task 11. Read the following statements and tell whether they are true or false. Correct all false statements.

1. Density (specific weight) is not the amount of mass in a unit volume.
2. Aluminium alloys, with typical densities around 3000 kg/m^3 are considerably less dense than steels, which have typical densities around 7800 kg/m^3 .
3. Density is not important in any application where the material must not be heavy.
4. The Young modulus is a measure of the resistance to simple stretching or compression.
5. It is the ratio of the applied force per unit area (stress) to the fractional elastic deformation (strain).
6. Strength is the force per unit area (stress) that a material can support without failing.
7. Many materials have not a higher strength in compression than in tension.
8. Ductility is the ability of a material to deform without breaking.
9. Toughness is the resistance of a material to breaking when there is a crack in it.

10. It is measured in a kilogram per cubic meter.

Task 12. Put the following sentences in negative and interrogative form:

1. Density (specific weight) is the amount of mass in a unit volume. _____
2. Stiffness (rigidity) is a measure of the resistance to deformation such as stretching or bending. _____
3. Toughness is the resistance of a material to breaking when there is a crack in it. _____
4. Ductility is the ability of a material to deform without breaking. _____
5. Strength is the force per unit area (stress) that a material can support without failing. _____

Task 13. Make up sentences.

1. any, in , density, important, application, is _____
2. important, a, is, stiffness, rigid, structure, is, to, when, mad, be

3. from, toughness, is, strength, different _____
4. low, brittle, have, materials, toughness _____
5. a, many, in, materials, have, higher, strength, in, tension, than, compression. _____

Task 14. Read and translate the text.

Brick

A brick is best described as "a building unit". It may be made of burnt clay, of concrete, of mortar or of a composition of sawdust and other materials; in shape it is a rectangular solid and its weight is from 6 1/2 to 9 pounds.

The shape and convenient size of a brick enables a man to grip it with an easy confidence and, because of this, brick-building has been popular for many hundreds of years. The hand of the average man is large enough to take a brick and is able to handle more than 500 bricks in an eight-hour working day.

It is necessary, therefore, for the "would-be" bricklayer to practice handling a brick until he can control it with complete mastery and until he is able to place it into any desired position.

Task 15. Answer the following questions.

1. What materials is brick made of?

2. Why brick-building has been popular for many hundreds of years?
3. What is the shape of a brick?
4. What is the brick's weight?

Task 16. Find English equivalents from the text above.

1. форма и размер кирпича _____,
2. ширина кирпича _____,
3. строительство из кирпича _____,
4. из обожженной глины _____,
5. практиковаться в укладке _____,
6. достаточно большая _____,
7. с полным мастерством _____,
8. лучше всего характеризуется _____.

Task 17. Make sentences using the words below.

1. clay, a brick, of, can, made, be, burnt. _____
2. Brick-building, popular, has, years, of, been, hundreds, for, many. _____
3. A "would-be", a brick, must, bricklayer, until, practice, mastery, handling, control, with, he, complete can, it. _____
4. able, a bricklayer, is, any, a brick, to place, position, into, position. _____
5. pads, the bricklayer's, with, and, thumb, the fingers, be, protected, must, leather. _____

Task 18. Read and translate the text.

Prestressed concrete

Prestressed concrete is not a new material. Its successful use has been developed rapidly during the last four decades, chiefly because steel of a more suitable character has been produced.

Concrete is strong in compression but weak when used for tensile stresses. If, therefore, we consider a beam made of plain concrete, it will at once be realized that the beam's own weight will cause the beam to "sag" or bend. This sagging at once puts the lower edge of the beam in tension, and if the cross-sectional area is small, causes it to break.

If, on the other hand, we use a beam of similar cross-section, but incorporate steel bars in the lower portion, the steel will resist the tensile stress derived from the sag of the beam, and thus assist in preventing it from breaking.

In prestressed concrete steel is not used as reinforcement, but as a means of producing a suitable compressive stress in the concrete. Therefore any beam (or member) made of prestressed concrete is permanently under compression, and is

consequently devoid of cracks-under normal loading, or so long as the "elastic limit" is not exceeded.

Prestressed concrete is not only used for beams but is now employed extensively for columns, pipes, and cylindrical water-towers, storage tanks, etc.

Task 19. Choose correct variant and complete the sentences.

1. Prestressed concrete is ...

a) a completely new building material, b) not really a new material

2. The successful use of prestressed concrete has been developed rapidly ...

a) long ago, b) during the last four decades

3. Plain concrete is ...

a) strong in compression, b) weak in compression

4. Plain concrete is ...

a) weak when used for tensile stress, b) strong when used for tensile stress

5. Prestressed concrete is used ...

a) only for beams, b) for beams, columns, pipes, etc.

Task 20. Complete the sentences.

1. Prestressed concrete has been used during

2. Plain concrete is strong in

3. The sagging of a beam made of plain concrete may cause it to

4. Incorporated steel bars in the lower portion of a beam prevent

5. A beam made of prestressed concrete is permanently under

6. Prestressed concrete is now employed extensively for

Task 21. Answer the following questions.

1. Is prestressed concrete a new building material?

2. How long has prestressed concrete been used in construction?

3. What disadvantages has plain concrete?

4. What is steel used in prestressed concrete for?

5. What will happen if "elastic limit" of a beam is exceeded?

6. What is prestressed concrete used for?

Task 22.a) In the text above find the sentence with the verb used in the Present Perfect.

b) Write this sentence in interrogative and negative form.

Task 23. Read and translate the text.

Ferrous and non-ferrous metals.

In general metals are used in various constructions and different industries. For example, thousands of miles of railway track. All metals are divided into ferrous and non-ferrous metals. Ferrous metals are iron and its alloys (steel, cast iron etc.). Especially ferrous metals are of great importance. Machine tools and machinery, steamships and locomotives, automobiles and aeroplanes, rails and bridges, razor blades are turned out by the steel industry.

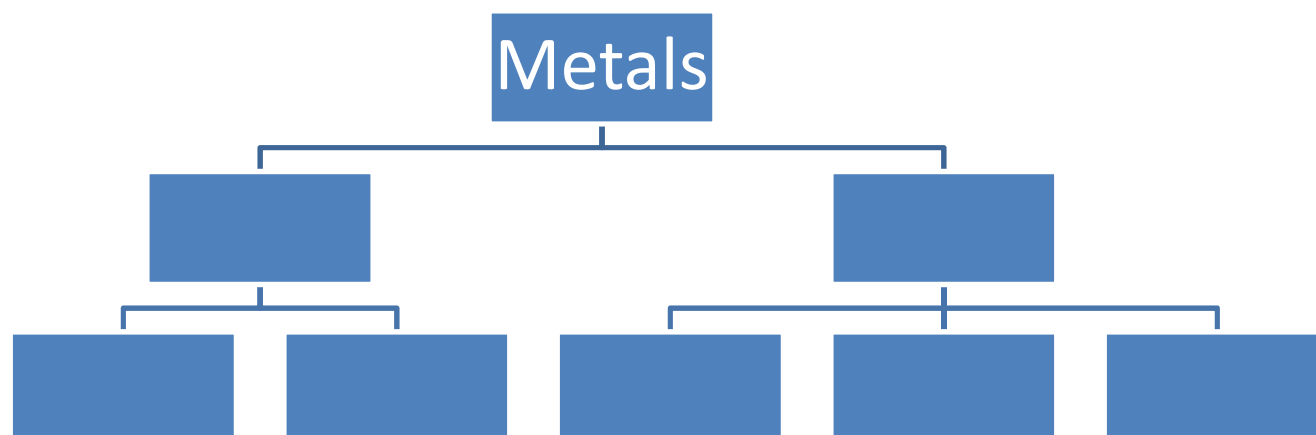
Non-ferrous are metals and alloys the main component of which is not iron but another element. It may be copper, aluminium, zinc. That's why copper and aluminium are belonged to as non-ferrous metals. Non-ferrous metals are extracted from minerals such as magnesite (magnesium carbonate), tinstone (tin oxides) etc. Non-ferrous metals have some characteristics. They are: high electric and heat conductivity, high corrosion resistance, non-magnetic qualifies, light weight and easiness to fabrication.

Task 24. Match the following words with their Russian equivalents:

1	non-ferrous metal	a	медь
2	an alloy	b	инструмент
3	a railway	c	мост
4	a network	d	цветной металл
5	a tool	e	сплав
6	a bridge	f	железная дорога
7	copper	g	сеть

1. ____, 2. ____, 3. ____, 4. ____, 5. ____, 6. ____, 7. ____.

Task 25. Read the text again and complete the spidergram.



Task 26. Complete the following sentences:

1. Ferrous metals _____.
2. _____, steamships and locomotives, automobiles and aeroplanes _____.
3. _____ are referred to as non-ferrous metals.
4. _____ are divided into _____.
5. In general, _____.
6. _____ have some characteristics.

Task 27. Read the following statements and say whether they are right or wrong. Correct false statements.

1. Thousands of miles of railway track form an intricate network of steel over the world, helping to carry daily billions of freight for different industries.
2. Copper, aluminium and some other metals are not referred to non-ferrous metals.
3. All metals are divided into ferrous and non-ferrous metals.
4. Metals in general and especially ferrous metals are of great importance in various constructions.
5. Ferrous metals are iron and its alloys.
6. Non-ferrous metals are extracted from minerals such as magnesite, tinstone etc.

Task 28. Put the following sentences in negative and interrogative form.

1. All metals are divided into ferrous and non-ferrous metals. _____
2. Ferrous metals are iron and its alloys. _____
3. Ferrous metals are of great importance in various constructions. _____
4. Non-ferrous are metals and alloys the main component of which is iron. _____
5. Copper, aluminium and some other metals are referred to as non-ferrous metals. _

Unit III. Air Transports.

Task 1. Read and translate the text.

AIR TRANSPORT

1. Modern air transport using craft which is heavier than air requires a good deal of power merely to stay in the air. It is for this reason that air transport uses more fuel to carry a ton over a distance of a mile than land or water transport. Another drawback of air transport is that whereas a ship, truck or train whose engines break down can stop until they are mended, an aircraft with the same trouble must land. This means that an aircraft must have several engines and this increases its cost. Safety precautions for air transport also tend to make it expensive. It cannot be relied upon for regular services in places or seasons with low clouds and mist. The great advantage of air transport being its high speed, all civilized countries try to develop it. If you want to save time, you will naturally fly by air.

2. Balloons. The earliest form of air transport was balloons, which are sometimes called «Free balloons» because having no engines they are forced to drift by the wind flow. This fact alone makes balloons not reliable enough for carrying people. If they were safer, they would be used more for obtaining information about the upper atmosphere, its density and other scientific subjects. Weather balloons are particularly used by meteorologists. They carry instruments whose readings are automatically sent back to the ground by the radio, the position of the balloon being obtained by radar. Small balloons released from air-fields are observed to obtain the direction and strength of the wind.

3. **Aeroplanes.** The heavier-than-air machines called aeroplanes were rather slow in being adopted for transport. The first aeroplane flight was made in 1884.

World War I quickened the development of aeroplanes enormously. By 1918 they were no longer unreliable things capable of only short flights, but powerful machines able to carry heavy loads at high speeds for long distances. What was more, the ending of the war meant that thousands of aeroplanes and skilled pilots were available.

The first aeroplanes were machines that had been used as bombers. They were quickly converted for use by passengers by fitting extra seats and windows. The first regular public air service from London to Paris was started in August.

4. During World War II the value of aeroplanes for carrying heavy loads was recognized. This led after the war to an increase in the practice of sending goods by air. Air freight is expensive but is often thought worth while for such goods as early vegetables, fruit and flowers, as well as for things urgently needed such as spare parts for machinery, medical supplies, films and photographs. Some parts of the world are hundreds of miles from a road, railway or waterway, and air transport is the only possible kind of transport. Such places are kept supplied wholly by air.

5. After World War II, bigger and faster airliners were introduced. Jet-propelled aircraft were first used in 1950. Air transport is very valuable for carrying passengers and carrying mail. If the letters are sent by air transport besides carrying passengers is carrying mail. If the letters are sent by air mail, they are not long in coming. Although

it is unlikely that aircraft will ever replace ships for carrying heavy and bulky cargoes such as oil, coal, minerals, grain and machinery, air transport is already proving a serious rival to passenger ships on some routes.

6. Helicopters and Hovercraft. *Modern air transport using craft which is heavier than air requires a good deal of power merely to stay in the air. It is for this reason that air transport uses more fuel to carry a ton over a distance of a mile than land or water transport. Another drawback of air transport is that whereas a ship, truck or train whose engines break down can stop until they are mended, an aircraft with the same trouble must land. This means that an aircraft must have several engines and this increases its cost. Safety precautions for air transport also tend to make it expensive. It cannot be relied upon for regular services in places or seasons with low clouds and mist. The great advantage of air transport being its high speed, all civilized countries try to develop it. If you want to save time, you will naturally fly by air.*

LONDON AIRPORT SERVES THE WORD

1. Why is an airport like a town?

If you have travelled by plane (we also say «by air»), you will probably agree that travelling by plane is very experience. An airport is so different from a railway station or a bus stop, the people you meet and the things you see are very interesting and new. What is more, a big airport is like a town – with its own shops, banks and police.

2. How do the passengers approach the centre of the airport?

London airport is one of the most modern in the world today and is a popular visiting place for both old and young. The airport covers over four square miles, and the road round it is 13 miles long. The airport has five main runways: the longest is 12,000 feet. The total number of people who work at the airport is nearly 36,000. London airport is one of the busiest in the world- more than 50 airlines operate from it every week. Every day of the week in the summer, over 800 planes land or take off.

London airport is unique in its layout. All passenger and control buildings are in the centre of the airport. The only way for passengers to approach these buildings is by a tunnel which has been constructed under the main runways.

Task 2. *Put a question tag.*

1. The bridge must withstand natural occurrences that include weathering, earthquakes, strong winds, _____?

2. The main feature that controls the bridge type is the size of the obstacle, _____?

3. The greatest bridge builders of antiquity were the ancient Romans, _____?

4. Cement reduced the variation of strength found in natural stone, _____?

5. Since 1779 most bridges began to be built of cast and wrought iron, _____?

6. Robert Stephenson designed and built a bridge of this type across Menai Strait, _____?

7. During the 18th century there were many innovations in the design of timber, _____?
8. Iron did not have the tensile strength to support large loads, _____?
9. Steel has a high tensile strength, _____?

Task 3. Translate the following words.

1	ravine		14	fiber	
2	obstacle		15	rope	
3	withstand		16	mortar	
4	span		17	suspension	
5	log		18	crude	
6	plank		19	pier	
7	ubiquitous		20	rot	
8	crossbeam		21	wrought iron	
9	reed		22	cast iron	
10	bamboo poles		23	tensile	
11	cavern		24	truss system	
12	deciduous		25	lashing	

Task 4. Match the parts of word combinations.

1	railroad	a	weight
2	to support	b	a plank
3	natural	c	civilization
4	to lay	d	track
5	to cross	e	bridges
6	mortar	f	caverns
7	Inca	g	occurrences

Task 5. Make up your own sentences with them.

Task 6. Write out from the text above the events which took place in the indicated period of time.

1. The Roman era
2. The Middle Ages

3. Since 1779
4. The Industrial Revolution

Task 7. Answer the following questions.

1. What is a bridge by definition?
2. Why must bridges be strong enough?
3. Were bridges a natural part of antique people's life?
4. Why were the Romans different in building bridges?
5. What civilization used rope bridges?
6. What were Darby's bridges made of?
7. Was low tensile strength of cast iron for bridges advantage or disadvantage?
8. Did iron have the tensile strength to support large loads during the Industrial Revolution?

Task 8. Fill in the blanks using the words below.

Romans, obstacle, humans, century, wooden, wet, cement, stone, plank, feature, timber, bridges, many, ancient.

1. _____ are structures built over a river, railroad track, road etc.
2. They laid a _____ or log down over a stream to keep from getting _____.
3. The main _____ that controls the bridge is the size of the _____.
4. In _____ times the first bridges made by _____ were probably spans of _____ logs.
5. The _____ also used _____, which reduced the variation of strength found in natural _____.
6. During the 18th _____ there were _____ innovations in the design of _____ bridges by Hans Ulrich and others.

Task 9. Read the text again. Entitle each part.

Task 10. Retell the text above.

Task 11. Translate the text into English.

В России первые железные мосты появились в 1780-е г.г. и отличались от европейских тем, что были большей частью именно железными, а не чугунными. Один из них был сделан по проекту Дж. Кваренги для парка в Царском селе. Затем последовала серия мостов, изготовленная на Сестрорецком оружейном заводе. Два железных моста 1793-1794 находятся в Таврическом саду в Петербурге. Эти памятники инженерного искусства лишь по случайности удалось спасти от сноса -

совершенство их конструкции таково, что долгое время их считали произведениями значительно более позднего времени.

В начале XIX в. в Петербурге появляется новый тип мостов - "из полых чугунных ящиков", первым из которых был "Бердов мост" (1805-1806) на одном из притоков Невы. В 1807 г. Гесте составил для Петербурга первый в мире образцовый проект чугунного моста и в 1810-20-е гг. в городе появилось около десяти этих сооружений, казавшихся в то время необычно легкими.

Первое десятилетие XIX в. стало временем возникновения мостов вантовой конструкции (или американо-европейской системы); начало их строительству было положено американцем Джоном Фидлеем, юристом по образованию, рассматривавшим строительство мостов как дополнительное средство заработка. В это же время идея вантового моста пришла в голову архитектора Витберга. Интересен факт отсутствия точных расчетов конструкции в первых железных мостах. До 1820-х гг. расчеты заменялись моделью в 1/3 величины реальной постройки, что объясняется неустойчивостью качества выплавки железа в ранний период.

Task 12. *Come up with the best title for the text above.*

Task 13. *Read and translate the text.*

The mystery of the tunnels of South America.

Recently, Erick von Daniken reported that he'd had been in a network of tunnels that run for thousands of miles beneath the South American continent. He saw immense rooms filled with metallic plaques. They constitute a possible record of the ancient world. The first knowledge about these immense underground tunnels came when the Conquistadores invaded ancient South America.

It is believed by some treasure hunters that the llama loads of gold were hidden in these ancient tunnels. Indian legends say the gold was secreted "in such a place that even we do not know the location."

Among the artifacts that vanished were the mummified bodies of thirteen Inca emperors. They had sat on golden chairs in the Temple of the Sun, the chairs resting on a huge slab of gold. The mummified remains of Inca rulers were placed around the temple decorated with golden jewelry and precious stones. Near the mummies were large gold plates engraved with a picture of the Inca as they appeared during life.

The important buildings in the Coricancha were connected by underground tunnels with the fortress. Entrances to these tunnels started at the Chincana, "the place where one gets lost." Too many adventurous treasure hunters were going in to the caverns and disappearing.

The masonry is for the most part, as solid as if built only a few years ago, and the passages are so extensive that we were able to spend the whole day exploring the recesses of this building which must have been reared three thousand years ago. No such walls are built in that region today. In a place where four corridors meet stands the famous idol of Chavin.

Rumors of these massive tunnels were so persistent during the 1850's that a viceroy of Peru decided to find the entrance. An expedition was outfitted and sent to find an entrance into the subterranean passages.

The tunnels started at Cuzco and ran underground to Lima, a distance of around 380 miles by air. At Lima the tunnels turn southward into what is now modern Bolivia. This is a distance of some thousand miles!

We can assume that the ancient builders of the tunnels anticipated possible grave robbers. They probably created a deadly trap for unwary ghouls.

The concept of vast underground passages is enough to boggle the mind. That such tunnels could be constructed indicates a science in pre-Inca or Inca days. It means there was a technology capable of building a labyrinth beneath the earth.

And for what purpose? It is one thing to construct an underground shelter in the event of a catastrophe. Such a cavern, man-made or naturally formed, would provide safe refuge against an impending disaster. To construct tunnels that run for a hundred or a thousand miles beneath the South American continent is beyond the boundaries of present knowledge. Exactly who built the tunnel and why, remains a mystery.

Perhaps the mystery of the tunnels will be solved someday in the future. Until then, we might consider that these structures were probably in South America prior to the reign of the Incas. Some scholars have suggested that the tunnels were built by the Atlaneans. Others have speculated that an unknown race that existed before the flood constructed the tunnels.

Task 14. *Transcribe the following words.*

1. tunnel
2. beneath
3. ancient
4. treasure
5. mummified
6. precious
7. adventurous
8. subterranean
9. southward
10. assume
11. ghoul
12. science
13. labyrinth
14. catastrophe
15. boundaries

Task 15. *Answer the following questions.*

1. What is your impression of the text?
2. Why is the text called as the mystery of tunnels?
3. What remained in the tunnels?
4. What do the scientists say about the manner of building and decorating of these tunnels?
5. Is it known exactly now what purpose did the ancients have to build the tunnels?
6. What points of views exist among the scientists on the subject of purpose of building tunnels?

Task 16. *Put the verbs in brackets in suitable tense-form.*

A tunnel _____ (to be) an underground passageway for trains or automobiles, through or under an obstruction, as a city, mountain, river, harbor, or the like. It _____ (to be) also an approximately horizontal gallery or corridor in a mine.

The definition of what constitutes a tunnel _____ (to be) not universally agreed upon. However, in general tunnels _____ (to be) at least twice as long as they _____ (to be) wide. In addition, they should be completely enclosed on all sides, save for the openings at each end. Some civic planners _____ (to define) a tunnel as 0.1 miles (0.16 km) in length or longer, while anything shorter than this should be called an underpass or a chute.

A tunnel may _____ (to be) for pedestrians or cyclists, for general road traffic, for motor vehicles only, for rail traffic, or for a canal. Some _____ (to be) aqueducts, constructed purely for carrying water — for consumption, for hydroelectric purposes or as sewers — while others _____ (to carry) other services such as telecommunications cables. There _____ (to be) even tunnels designed as wildlife crossings for European badgers and other endangered species. Some secret tunnels _____ also _____ (to make) as a method of entrance or escape from an area. Some tunnels _____ (to be) not for transport at all but are fortifications.

In the United Kingdom a pedestrian tunnel or other underpass beneath a road _____ (to call) a subway. This term _____ (to use) in the past in the United States, but now _____ (to refer) to underground rapid transit systems.

The central part of a rapid transit network _____ usually _____ (to build) in tunnels. To allow non-level crossings, some lines _____ (to run) in deeper tunnels than others. Rail stations with much traffic usually _____ (to provide) pedestrian tunnels from one platform to another, though others _____ (to use) bridges.

Unit IV.

Types of transport.

Task 1. Read and translate the text.

The coming revolution in transportation.

You ride toward the city at 90 miles an hour, glancing through the morning newspaper while your electrically powered car follows its programmed route on an automated "guideway". You leave your car at the city's edge - a parklike city without streets - and enter a small plastic "people capsule". Inside, you dial your destination on a sequence of numbered buttons and settle back. Smoothly, silently, your capsule accelerates to 80 miles an hour. Guided by a distant master computer, it slips down into the network of tunnels under the city and takes precisely the fastest route to your destination.

Far-fetched? Not at all. Every element of this fantastic system is already within range of our scientists' skills. Indeed, the system utilizes only a few of the exciting new people-moving machines that have reached or passed the experimental stage.

Automated highways - engineers call them guideways - are technically feasible today. General Motors successfully demonstrated an electronically controlled guidance system. A wire was embedded in the road, and two pick-up coils were installed at the front of a car to sense its position in relation of that wire. The coils sent electrical signals to the steering system, to keep the vehicle automatically on course. They tested a system that also controlled spacing and detected obstacles. It could slow down or stop an overtaking vehicle until the road was clear.

Other companies are also experimenting with guide ways. In some systems, the car's power comes from an electric transmission line built into the road. In others, vehicles would be carried on a high speed conveyer, or perhaps in a container.

Computer-controlled highways will almost surely become a reality, for when the human element is removed, vehicles can travel with greater safety at faster speeds, closer together. In fact, most experts believe that each lane of automated highway could move the traffic of three or four of today's uncontrolled lanes.

"People Places". And when all this comes true, will we drive into even more nightmarish traffic tangles on city streets? The answer to this was found in Sweden. As you stroll across a fountain-dotted plaza lined with attractive shops, you don't hear any traffic noise here; this is "a walking plaza", "a people place", and the key to its success is the network of tunnels beneath it. Down there, trucks are supplying the stores with merchandise, and a subway carry people to and from nearby Stockholm.

Underground Highways? Most transportation experts don't consider them extravagant at all. Improved boring methods laser beams, chemicals, water or flame jets - will make tunneling cheaper. Moreover, underground highways are not affected by weather, and they do not provoke the bitter debates that have erupted in many cities over the displacement of people by surface construction.

Many of the transportation authorities are enthusiastic about Stockholm's "walking plaza" concept. The idea is to provide for most of the people's needs in a more concentrated area, so that they have less reason to travel outside their own community.

Still, people must travel to their place of work - which is not necessarily near where they live - and this causes an almost universal problem in our cities. Some recent studies point toward solution. For example, a bus line picks up passengers practically at their doors (for a monthly charge) and carries them, directly to their place of work. In the future, such personalized computer services may be provided by mini-buses. One proposal calls for special metal plates connected to a central computer, installed throughout a neighborhood. When someone pushes a plate, it signals the computer which orders the nearest mini-bus to pick him up.

Task 2. *Answer the following questions.*

1. What will the city of the future look like?
2. Can you explain what an automated "guide way" mean?
3. What is a "people capsule"? Is it fantasy?
4. What is a small computer in the automated autos used for and where is it placed?

5. What are the advantages of automated highway lanes as compared with uncontrolled lanes?
6. How did the specialists in Sweden solve the transportation problem in the busy centre of the city?
7. What are the advantages of the underground highways as compared with the surface highways?
8. What services may be provided by mini-buses in the future city?

Task 3. Unscramble the words.

edawyugi _____
 stediotaion _____
 leuscpa _____
 hielvec _____
 vorkepo _____
 ghdoonobrhi _____
 telericc _____

Task 4. Make the following interrogative.

1. You leave your car at the city's edge and enter a small plastic "people capsule".
2. You dial your destination on a sequence of numbered buttons.
3. Other companies are also experimenting with guide ways.
4. Vehicles would be carried on a high speed conveyer or in a container.
5. You don't hear any traffic noise here.
6. Trucks are supplying the stores with merchandise.
7. This causes an almost universal problem in our cities.
8. A bus line picks up passengers practically at their doors.
9. Personalized computer services may be provided by mini-buses.
10. The computer orders the nearest mini-bus to pick him up.

Task 5. Translate sentences into English.

1. Просматривая утреннюю газету _____
2. Вы оставляете свою машину на окраине города _____
3. Достигать 80 миль в час _____
4. Посылать электрический сигнал _____
5. Подземные шоссе не зависят от погоды _____
6. Установленный в окрестностях _____
7. Персональные компьютерные службы _____

Task 6. Complete the sentences.

1. You leave your car at the city's edge - a parklike city without streets – and

2. Guided by a distant master computer, it slips _____
 3. The system utilizes only _____
 4. The coils sent electrical signals to _____
 5. When the human element is removed, vehicles can _____
-
6. The key to success of "a people place" is _____
 7. Underground highways do not provoke _____
 8. When someone pushes a plate, it _____

Task 7. Read and translate the text.

The use of underground space in big cities.

At a conference held in Tokyo in 1974 leading representatives of New York, London, Paris, Moscow and Tokyo met to discuss the problems of the World's Great Cities.

The representatives spoke of the extremely rapid intensification of urban space density, of the absolute shortage of services, sewers, roads and other urban facilities as well as new urban problems.

In this connection the exploration of urban subspace for the movement of goods, freight, persons has become vitally important.

Moscow has a total and comprehensive view of the subsurface: the use of underground space in cities like Moscow, where there is a considerable number of historical architectural structures of value, especially in the central part, is the way towards solving the transportation problem.

The complex scheme of utilizing underground space which has been worked out, involves an underground network of tunnels for cars under the central part of the city, duplicating the surface transportation network as well as underground garages.

New York too has a vast and expanding transport system carrying some 7.5 million people each business day.

The simple statistics that the subways of New York alone carry more passengers than all US domestic airlines combined show the great importance of transportation underspace.

Task 8. Find the explanation of these words in vocabulary.

1. representative _____
2. intensification _____
3. density _____
4. sewer _____
5. facility _____
6. exploration _____
7. freight _____
8. network _____
9. duplicate _____
10. expand _____
11. domestic _____

Task 9. Make up your own sentences with them.

Task 10. Fill in the table.

<i>Noun</i>	<i>Verb</i>
leader	
	to discuss
intensification	
	to serve
shortage	
	to move
connection	
	to expand
exploration	
	to combine

Task 11. Write out all *ing*-forms and tell what part of speech they are.

Task 12. Answer the following questions.

1. Who met in Tokyo to discuss the problem of big cities?
2. What was the problem discussed by the representatives?
3. Has the exploration of urban space or subspace become vitally important?
4. Why does the use of underground space in big cities seem the real way out of the problem?
5. How do the scientists present us the scheme of utilizing subsurface?
6. Do the New York subways carry fewer passengers than all US airlines?
7. Do you suppose the underground tunnels are important for nowadays cities and why?

Task 13. Choose the right variant.

1. A conference was held in _____.
a. Tokyo; b. Moscow; c. New York; d. London.
2. There weren't any representatives of _____ at the conference.
a. Paris; b. Washington; c. Moscow; d. Rome.
3. The discussed topic was the exploration of _____.
a. urban airspace; b. urban subspace; c. urban subwaterspace.
4. The complex scheme of utilizing subspace involves _____.
a. underground houses; b. underground pubs; c. underground garages.
5. Each day New York transport system carries more _____.

a. 7,5 million people; b. 7,5 thousand people; c. 7,5 billion people.

Task 14. Tick (✓) the sentences which are true.

1	The presidents of New York, London, Paris, Moscow and Tokyo met at the conference to discuss the problems of big cities space.	
2	The representatives spoke of the extremely rapid intensification of urban space density.	
3	The absolute shortage of services, sewers, roads is old and unimportant urban problems nowadays.	
4	The use of underground space in big cities is the real way towards solving the transportation problem.	
5	The New York subways carry much more passengers than all international airlines combined.	

Task 15. Make up sentences.

1. freight, in this, of goods, the exploration ,vitally, subspace, the movement, for, become, persons, has, connection, important, of urban. _____

2. the, Moscow, in cities, like, use, is, towards, solving, space, the, of, transportation, the way , problem, underground. _____

3. the, the, statistics, great, underspace, importance, simple, of, transportation, show. _____

Task 16. Entitle the text above.

Task 17. Make up the plan of this text and retell it.

Task 18. Read and translate the text

Moscow metro.

More than 40 years ago, in June 1931, it was decided to start preparations for the building of the Metro in Moscow. In the spring of 1932 the project drawn up by Soviet engineers and architects was endorsed. Thousands of young specialists and mine workers, construction workers from the Donbas and from Moscow Region, from the Urals, and Dneprostroi went underground into Metro shafts and tunnels. In a short time (it was called a record time by the world press) the first line was constructed. More than eleven kilometers of track connected the Sokolniki district with the Gorky Park district. There were ten stations on this line. The construction work was done in difficult geological conditions, of a kind never encountered by European or American Metro builders.

So this day saw the first section of a double track line 8 miles long put into operation.

The Metro was opened on May 15, 1935. Since then building work on the Metro has not stopped for a single day. Even at the time when the fascist hordes were near Moscow, the Metro builders continued their work.

After the war the scale of construction increased considerably. The construction of the belt line was completed and it connected all the radial routes. The new routes and stations began appearing in new housing districts. Some of the lines go overland, across new bridges and aqueducts.

Moscow's rapidly increasing population, the growth of its industrial enterprises and cultural institutions required the capital to have efficient and convenient means for accommodating passenger traffic.

The Soviet people wanted the Metro to be the best in the world.

There are many stations in the Metro; their surface buildings and underground halls are spacious, well ventilated and well lit. They differ widely in architectural design and are decorated with marble, bronze, aluminium and glass. The present Metro coaches are much better than the early ones. They are -considerably lighter in weight, and the seats are soft. Muscovites and the visitors to the city do not have to wait long for trains, for the interval between them is always short. "Clever" machines have appeared in the Metro recently. An experimental automatic driver conducts trains according to the timetable and stops precisely as required.

The Moscow Metro is developing rapidly. The capital is growing and new Metro lines are being constructed every year.

Task 19. Find out all mistakes and write down the right variant.

1. priperation _____
2. enjiners _____
3. canstryction _____
4. konditionz _____
5. dable _____
6. opereition _____
7. incrised _____
8. popjulation _____
9. wentilated _____
10. avtometric _____

Task 20. Make up your own sentences with them.

Task 21. Transcribe the following words.

building	
architect	
thousands	
region	
encounter	
fascist	

considerably	
aqueducts	
efficient	
surface	
widely	
interval	
experimental	
precisely	
required	

Task 22. Match the columns.

1	drawn up	a	шахтеры
2	mine workers	b	промышленные предприятия
3	go overland	c	вагоны метро
4	industrial enterprises	d	разработанный
5	well lit	e	проходить над поверхностью земли
6	metro coaches	f	мрамор
7	marble	g	хорошо освещенный
1 ___, 2 ___, 3 ___, 4 ___, 5 ___, 6 ___, 7 ___.			

Task 23. Write out all phrases with Passive Voice and transform them into Active Voice.

1. _____
2. _____
3. _____
4. _____
5. _____

Task 24. Unscramble the words.

1. jtprcoe _____
2. netnul _____
3. ilne _____
4. sionsta _____
5. actkr _____
6. psgensare _____
7. ouisapc _____
8. zborn _____
9. atrnsi _____
- 10.otsf _____

Task 25. Fill in the table.

<i>Infinitive</i>	<i>Past Indefinite</i>	<i>Participle II</i>	<i>Participle I</i>
	decided		

to build			
		drawn	
to be			
			doing
	saw		
to open			
		begun	
to grow			
	wanted		
to lit			
			stopping

Task 26. Answer the questions.

1. Who was endorsed for building the Moscow Metro?
2. How much time did it take to construct the first line?
3. What was the difference between the construction of the European and the Soviet metro?
4. Did the Moscow Metro stop during the time when the fascists were near Moscow?
5. What was the reason for the capital to have efficient and convenient means for accommodating passenger traffic?
6. What building materials are used for decorating the Metro nowadays?
7. What does “clever” machine mean/
8. Do you think that the future is for the underground constructions? Why?

Task 27. Translate into English.

1. Мы хотели, чтобы вы показали нам московское метро.
2. Они знают, что вы хороший строитель.
3. Пассажиры видели, как поезд подошел к платформе.
4. Известно, что залы Московского метро хорошо освещены и имеют хорошую вентиляцию.
5. Ожидают, что строительство этого тоннеля будет закончено в срок.

Task 28. Match beginnings and endings of sentences.

1	In June 1931 it was decided	a connected the Sokolniki district with the Gorky Park district.
2	More than 11 km of track	b completed and it connected all the radial routes.
3	On May 15, 1935	c trains according to the time-table and stops precisely as required.
4	The construction of the belt line was	d to start the building of the Metro in Moscow.
5	An experimental automatic driver conducts	e the Metro was opened.

1 ____, 2 ____, 3 ____, 4 ____, 5 ____.

Task 29. Divide the text into 3 logical parts and define the key idea of each one.

Task 30. Write a short resume of the text.

Task 31. Read and translate the text.

The first trams.

The very first tram was on the Swansea and Mumbles Railway in south Wales, UK; it was horse-drawn at first, and later moved by steam and electric power. The Mumbles Railway Act was passed by the British Parliament in 1804, and the first passenger railway (similar to streetcars in the US some 30 years later) started operating in 1807. The first streetcars, also known as horse cars in North America, were built in the United States and developed from city stagecoach lines and omnibus lines that picked up and dropped off passengers on a regular route without the need to be pre-hired. These trams were an animal railway, usually using teams of horses and sometimes mules to haul the cars, usually two as a team. Occasionally other animals were put to use, or humans in emergencies.

The first streetcar line, developed by Irish-American John Stephenson, was the New York and Harlem Railroad's Fourth Avenue Line which ran along the Bowery and Fourth Avenue in New York City. Service began in 1832. It was followed in 1835 by New Orleans, Louisiana, which has the oldest continuously operating street railway system in the world, according to the American Society of Mechanical Engineers.

The first electric street tramway in Britain, the Blackpool Tramway, was opened on 29 September 1885 using conduit collection along Blackpool Promenade. Since the closure of the Glasgow Corporation Tramways 1962, this has been the only first-generation operational tramway in the UK.

Task 32. Write down all the numerals and dates from the text by words.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Task 33. Find English equivalents in the text.

1. южный Уэльс _____
2. запряженная лошадьми _____
3. паровая и электрическая тяга _____

4. начала существование _____
5. постоянный маршрут _____
6. тащить за собой машину (вагон) _____
7. протянуться вдоль _____

Task 34. Complete the sentences from the text.

1. The very first tram was _____ at first, and later moved by _____.
2. The first streetcars were built _____ and also known as _____.
3. Stagecoach lines and omnibus lines were _____, usually using teams of _____ to haul _____.
4. According to the _____ New Orleans, Louisiana have the _____ in the world.
5. Since 1962 the _____ Tramway has been the only _____.

Task 35. Define Tense form of verbs.

1. was passed
2. started
3. were built
4. was followed
5. has
6. has been
7. was opened

Task 36. Make up a few questions on the topic.

Task 37. Write a report on first trams in Irkutsk.

Task 38. Read and translate the statements, then point out advantages and disadvantages of using trams.

Pros and cons of tram systems.

1	Unlike buses, trams give off no exhaust emissions at point of use. Compared to motorbuses the noise of trams is generally perceived to be less disturbing. However, the use of solid axles with wheels fixed to them produces a characteristic loud, high frequency noise often referred to as a "squeal."	
2	Trams can cause speed reduction for other transport modes (buses, cars) when stops in the middle of the road do not have pedestrian refuges, as in such configurations other traffic cannot pass whilst passengers alight or board the tram.	
3	The trams' stops in the street are easily accessible	

4	They can use overhead wire set to be shared with trolleybuses (a three wire system).	
5	Tram infrastructure occupies urban space at ground-level, sometimes to the exclusion of other users, including cars.	
6	The opening of new tram and light rail systems has sometimes been accompanied by a marked increase in car accidents, as a result of drivers' unfamiliarity with the physics and geometry of trams.	
7	Trams can adapt to the number of passengers by adding more cars during rush hour (and removing them during off-peak hours). No additional driver is then required for the trip in comparison to buses.	
8	The capital cost is higher than for buses, even if a tramcar usually has a much higher lifetime than a bus.	
9	Trams can run on renewable electricity without the need for very expensive and short life batteries.	
10	In the event of a breakdown or accident, or even road works and maintenance, a whole section of the tram network can be blocked.	
11	Passenger comfort is normally superior to buses because of controlled acceleration and braking and curve easement. Rail transport such as used by trams provides a smoother ride than road use by buses.	
12	Because the tracks are visible, it is easy for potential riders to know where the routes are.	
13	Light rail vehicles are often heavier per passenger carried than heavy rail and monorail cars, as they are designed with higher durability (which means more mass) to survive collisions, since they cannot swerve to avoid oncoming objects in emergencies.	

Grammar tables.

to be *Simple Active*

Present	Past	Future
(I) am (he, she, it) is (we, you, they) are	was (ед. ч.) were (мн. ч.)	shall be (1-е л.) will be

to have *Simple Active*

Present	Past	Future
have (got) has (got)	had	shall have will have

Сводная таблица модальных глаголов и их эквивалентов

	Present	Past	Future
Долженствов ание	I must meet him.		
	I have to meet him.	I had to meet him.	I shall have to meet him.
	I am to meet him.	I was to meet him.	I'll be to meet him.
	I should meet him.		
Способность или возможность совершения действия	He can help you.	He could help you.	
	He is able to help you.	He was able to help you.	He will be able to help you.
Разрешение или возможность	I may use this device.	I might use this device	
	I am allowed to use the device.	I was allowed to use the device.	I shall be allowed to use the device.

Simple Active Tenses

Форма	Present Simple	Past Simple	Future Simple
Утвердительная	My friends study French. He speaks English.	My friends studied French at school. He spoke English at the conference.	My friends will study French at the Institute. The teacher will speak about our English exam.
Вопросительная	Do your friends study French? Does he speak English?	Did your friends study French at school? Did he speak English at the conference?	Will your friends study French at the Institute? Will the teacher speak about our English exam?
Отрицательная	My friends don't study French. He doesn't speak English.	My friends did not study French. He didn't speak English at the conference.	My friends won't study French at the Institute. The teacher won't speak about our English exam.

Progressive Active Tenses

Форма	Present Progressive	Past Progressive	Future Progressive
Утвердительная	The are having an English class. He is still writing an exercise.	They were having an English class when I came to see them. He was writing an exercise from 6 till 8 o'clock.	They will be having an English class tomorrow at 9 o'clock. He will be writing an exercise from 6 till 8 o'clock tomorrow.
Вопросительная	Are they having an English class? Is he still writing an exercise?	Were they having an English class when I came to see them? Was he writing an exercise from 6 till 8 o'clock.	Will they be having an English class tomorrow at 9 o'clock? Will he be writing an exercise from 6 till 8 o'clock tomorrow?

Отрицательная	They aren't having an English class, they are having a Russian class.	They weren't having an English class when 1 came to see them, they were having a Russian class .	They will not be having an English class tomorrow at 9 o'clock, they will be having a Russian class.
	He isn't writing an exercise, he is reading a book.	He wasn't writing an exercise from 6 till 8 o'clock, he was reading a book.	He won't be writing an exercise from 6 till 8 o'clock tomorrow, he'll be reading a book.

Perfect Active Tenses

Форма	Present Perfect	Past Perfect	Future Perfect
Утвердительная	I have sent the letter.	I had already sent the letter by 6 o'clock yesterday.	I shall have sent the letter by tomorrow evening.
Вопросительная	Have you sent the letter?	Had you sent the letter by 6 o'clock yesterday?	Will you have sent the letter by tomorrow evening?
Отрицательная	I have not sent the letter yet.	I had not sent the letter by 6 o'clock yesterday.	I shall not have sent the letter by tomorrow evening.

Simple, Progressive, Perfect Tenses in Passive Voice

	Simple to be + Participle II	Progressive to be + being + Participle II	Perfect to have + been + Participle II
Present	The letter is translated	The letter is being translated	The letter has been translated
	Is the letter translated?	Is the letter being translated?	Has the letter been translated?
	The letter isn't translated	The letter isn't being translated	The letter hasn't been translated.
Past	The letter was translated	The letter was being translated	The letter had been translated

	Was the letter translated? The letter wasn't translated.	Was the letter being translated? The letter wasn't being translated	Had the letter been translated? The letter hadn't been translated?
Future	The letter will be translated Will the letter be translated? The letter won't be translated	He употребляются.	The letter will have been Will the letter have been translated? The letter won't have been translated.

Структура специальных вопросов

Вопросительные слова	Вспомогательный глагол	Подлежащее и определение к нему	Смысловой глагол в форме инфинитива	Другие члены предложения
What Where When	do did will	you he your sister	do go return	in the evening? yesterday? home?

Таблица производных слов от some, any, no, every

Местоимения	+ thing	+body, one	+where	Употребление
some некоторый какой-то какой-нибудь несколько	something <i>что-то, что-нибудь</i>	somebody someone <i>кто-то кто-нибудь</i>	somewhere <i>где-то, куда-то, где-нибудь, куда-нибудь</i>	в утверд. . предл.
any 1) <i>всякий любой</i> 2) <i>какой-нибудь</i>	anything 1) <i>всё</i> 2) <i>что-то</i> 3) <i>что-нибудь</i>	anybody anyone 1) <i>всякий,</i> 2) <i>кто-то, кто-нибудь</i>	anywhere 1) <i>везде,</i> 2) <i>где-нибудь, куда-нибудь</i>	1) в утверд. 2) в вопросит, предл.
no, not any <i>никакой + не</i>	nothing (not anything) <i>ничто + не ничего</i>	nobody (not anybody), no one <i>никто + не</i>	nowhere not anywhere <i>нигде, нигде + не</i>	в отрицат. предл.

every <i>всякий, каждый</i>	everything <i>всё</i>	everybody everyone <i>все</i>	everywhere <i>езде, повсюду</i>	в утверд., вопросит, и отрицат. предл.
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Словообразовательные аффиксы

Существительные - ion / - sion /-tion - er / -or -ing -ment -ty / -ity -ance / -ence -ness -ure / -ture	- discussion, transmission, combination - writer, inspector - opening - development - activity - importance, difference - darkness - mixture
Прилагательные -ic -ive -able / -ible -ant / -ent -ous -al -ful -less -un / -in / -ir / -il / -im	- democratic - progressive - valuable, accessible -resistant, different - dangerous - central - hopeful - hopeless - uncomfortable, indirect, irregular, illogical, impossible
Глагол -ize re-	- to characterize - to rewrite

Irregular verbs.

<i>Infinitive</i>	<i>Past</i>	<i>Participle II</i>	<i>Translation</i>
arise	arose	arisen	возникать
awake	awoke	awaked	будить, проснуться
be	was, were	been	быть
bear	bore	born	носить, родить
beat	beat	beaten	бить
become	became	become	стать
begin	began	begun	начать
bend	bent	bent	согнуться
bind	bound	bound	связать
bite	bit	bitten	кусать
blow	blew	blown	дуть
break	broke	broken	ломать
bring	brought	brought	приносить
build	built	built	строить
burst	burst	burst	разразиться, взорваться
buy	bought	bought	покупать
catch	caught	caught	ловить, поймать
choose	chose	chosen	выбирать
cut	cut	cut	резать
deal	dealt	dealt	иметь дело
dream	dreamt	dreamt	мечтать
do	did	done	делать
draw	drew	drawn	тащить, рисовать
drink	drank	drunk	пить
drive	drove	driven	ехать
eat	ate	eaten	есть, кушать
hear	heard	heard	слушать
hit	hit	hit	ударить, попасть
hold	held	held	держать
hurt	hurt	hurt	причинять боль
know	knew	known	знать
keep	kept	kept	держать
lay	laid	laid	класть, положить
lead	laid	laid	вести
leap	leapt/leaped	leapt/leaped	прыгать
leave	left	left	оставлять
lend	lent	lent	одолжить
let	let	let	пустить, дать
lie	lay	lain	лежать
lose	lost	lost	терять
make	made	made	делать
meet	met	met	встречать

pay	paid	paid	платить
put	put	put	класть
read	read	read	читать
ride	rode	ridden	ездить верхом
ring	rang	rung	звонить
rise	rose	risen	поднимать
run	ran	run	бежать
say	said	said	говорить, сказать
see	saw	seen	видеть
sell	sold	sold	продавать
send	sent	sent	послать
set	set	set	устанавливать
shake	shook	shaken	трясти
shine	shone	shone	светить, сиять
shoot	shot	shot	стрелять
show	showed	shown/showed	показывать
sing	sang	sung	петь
sink	sank	sunk	опускаться
sit	sat	sat	сидеть
sleep	slept	slept	спать
slide	slid	slid	скользить
speak	spoke	spoken	говорить
spend	spent	spent	тратить
steal	stole	stolen	украсть
stick	stuck	stuck	втолкнуть
strike	struck	struck/stricken	ударять, бастовать
swear	swore	sworn	клясться
swim	swam	swum	плавать
take	took	taken	брать
teach	taught	taught	учить
tell	told	told	говорить
think	thought	thought	думать
throw	threw	thrown	бросить
wake	woke	woken	просыпаться, будить
wear	wore	worn	носить
weep	wept	wept	плакать
win	won	won	выигрывать
wind	wound	wound	заводить
write	wrote	written	писать