

Федеральное государственное бюджетное
образовательное
учреждение высшего профессионального образования
«Московский государственный университет путей
сообщения»

Институт пути, строительства и сооружений
Кафедра «Языкознание»

Английский язык в профессии

Под ред. Т.И.Лаловой

Рекомендовано редакционно-издательским советом
университета в качестве учебного пособия
для всех специальностей ИПСС

Москва - 2014

УДК 44
Л 20

Баранова А.В., Винникова О.М., Коптелова Н.Р., Кумскова Л.А., Лаврушина С.В., Меер Т.П., Парастаева С. Г., Пестряева С. Ю., Плющёва О.Н., Уханова Д. А., Филичева О.С. Английский язык в профессии: Учебное пособие/ под общей ред. Т.И. Лаловой. – М.: МГУПС (МИИТ), 2014. -372 с.

Пособие представляет собой коллективную работу сотрудников кафедры «Языкознания», в которой представлены материалы, используемые в преподавании английского языка студентам технических специальностей. В пособие включены тексты для групп таких специальностей, как «Строительство мостов и тоннелей», «Управление качеством в производственно-технологических системах», «Гражданское строительство», «Строительный менеджмент», «Система автоматизированного проектирования», «Строительство автомобильных дорог», «Строительство железных дорог», «Управление техническим состоянием пути», «Землеустройство и кадастры». Пособие нацелено на обучение студентов навыкам чтения, перевода, пересказа по строительным специальностям и умение вести беседы и рассуждать на профессиональные темы.

Рецензенты: к.ф.н., профессор, зав. кафедрой иностранных языков МГАВТ Мусагулова Р.Э.; Ст.пр. кафедры иностранных языков МГУ ДТ Соболева О.С.

©МГУПС (МИИТ), 2014

Пособие ставит своей целью систематизирование и расширение словарного запаса, характерного для специализированной литературы, а также развития умения использовать в устной монологической и диалогической речи специальных технических терминов.

Сборник нацелен на обучение студентов навыкам чтения, перевода, пересказа по строительным специальностям и умение вести беседы и рассуждать на профессиональные темы.

Материалы учебного пособия сгруппированы по разделам, каждый из которых включает ряд текстов по определённой специальности, перед каждым текстом представлен словарь, в котором перевод слов из соответствующего текста осуществляется с учётом специфики употребления в данной специализации. Вопросы после текстов способствуют проверки понимания, а также организации дискуссии по изучаемой теме. После вопросов предлагаются лексические и грамматические упражнения, связанные с текстами и направленные на тренировку словаря, грамматических конструкций, а также на развитие навыков устной речи.

Главное внимание обращается на подготовку студентов любого уровня к устному экзамену, так как адаптированные тексты с соответствующим словарём рассчитаны на восприятие, понимание и пересказ, однако с учётом содержания и языковых особенностей предлагаемого материала часть текстов, более сложных в

содержательном и языковом отношении, предназначены для чтения, перевода, извлечения информации.

Тексты, выбранные и адаптированные из современной учебной литературы, с использованием электронных энциклопедий, расположены по принципу возрастания трудностей: от простого к сложному, поэтому при работе с пособием рекомендуется соблюдать предлагаемую последовательность учебного материала.

Авторы желают успешной работы студентам и преподавателям по данному пособию. В наше скоростное время очень важно, чтобы информация предоставлялась понятно, быстро, удобно, к чему также стремились и авторы настоящей книги

CONTENTS

English in Bridge Engineering.

Unit 1. Bridges classification.	9
Unit 2. Bridge or tunnel.	17
Unit 3. Reinforced concrete bridges.	24
Unit 4. Beam bridge.	30
Unit 5. Timber and masonry bridges.	38

English in Business Management.

Unit 1. Advertising.	47
Unit 2. Office characters.	53
Unit 3. Hard to reach.	59
Unit 4. Success. Passion into profit.	66
Unit 5. Image.	72
Unit 6. Etiquette.	80
Unit 7. Data. No privacy.	87

English in Civil Construction.

Unit 1. Construction documents.	92
--------------------------------------	----

Unit 2. Health and safety.....	98
Unit 3. Civil construction.....	104
Unit 4. The building team.	111
Unit 5. Construction materials.	117
Unit 6. Building stones.....	124
Unit 7. Concrete.	129
Unit 8. Strip foundations.....	133

English in Computer-aided Design.

Unit 1. The digital age.....	137
Unit 2. Computers for the disabled.	142
Unit 3. What is a computer?.....	148
Unit 4. What is inside a PC system?	154
Unit 5. Computer languages.....	160

English in Highway Engineering.

Unit 1. Problematic passion of having a car.	166
Unit 2. How traffic problems can be solved	172
Unit 3. Hurricane landfall site protection.....	178
Unit 4. Right-of-Way	184

Unit 5. Road surface.....	190
---------------------------	-----

English in Land Cadaster.

Unit 1. Land use planning.	197
Unit 2. The types of land use planning.	203
Unit 3. What is land cadastre.	208
Unit 4. Role of the government in land cadastre.....	214
Unit 5. Problem of automating land records.	220

English in Quality Management.

Unit 1. Occupation or profession?	227
Unit 2. Getting the right staff.	232
Unit 3. Forecasting.....	236
Unit 4. Optical instruments	241
Unit 5. Reinforced -concrete production.....	246

English in Railway Construction.

Unit 1. Eurostar tops 10 million passengers	251
Unit 2. Houston opens second light rail line	257
Unit 3. Railway stations	263
Unit 4. Railway track construction	268

Unit 5. Double-deck train concept	276
---	-----

English in Railway Maintenance.

Unit 1. Earth track solutions – rails sleeper replacement, track maintenance and construction.	283
---	-----

Unit 2. Network Rail company.	291
------------------------------------	-----

Unit 3. Network Rail company.	297
------------------------------------	-----

Unit 4. Sperry Rail - rail flaw detection systems.	303
---	-----

Unit 5. Sperry Rail - rail flaw detection systems.	310
---	-----

English in Tunnel Engineering.

Unit 1. Tunnels.....	318
----------------------	-----

Unit 2. History of tunneling.	325
------------------------------------	-----

Unit 3. The Channel Tunnel.....	333
---------------------------------	-----

Unit 4. Tunnel jobs.....	343
--------------------------	-----

Unit 5. Tunnel construction techniques.	354
--	-----

Unit 6. Design and construction methods.	363
---	-----

English in Bridge Engineering.

Unit 1. Bridges Classification.

Vocabulary.

mention - упоминать

in a wide sense - в широком смысле

provide a crossing over - обеспечить возможность пересечения

be classified - классифицироваться

function - функция

reinforced concrete - железобетон

cable-stayed - вантовый

include - включать

flexible - гнущийся

rigid - негнущийся

service life - срок службы

It has already been mentioned that bridges in a wide sense of this term mean constructional works comprising a superstructure and a substructure. In a narrow sense this term means a structure built to provide a crossing over a river.

In technical literature bridges are classified according to their indications as follows:

Indication №1—by the main road function.

1. Railway bridges.
2. Motorway bridges.
3. Foot-bridges (Pedestrian bridges).
4. City bridges.
5. Pipe lines.
6. Metro-bridges.
7. Combined systems or road-cum-rail bridges (carrying various means of transport).

Indication №2 - by the superstructure material.

- 2.1. Timber bridges (wooden bridges).
- 2.2. Stone bridges (masonry bridges).
- 2.3. Reinforced concrete bridges.
- 2.4. Metal bridges.
- 2.5. Steel reinforced concrete bridges (composite bridges).
- 2.6. Suspension bridges.
- 2.7. Cable-stayed bridges.

The suspension and cable-stayed bridges include the structures with the flexible stayed ropes as the main carrying element. Curvilinear ropes are used for suspension bridges and rectilinear ropes are used for cable-stayed structures. The ropes

are made of metal wire strands and that is why suspension and cable-stayed structures can be regarded as variants of metal bridges.

Indication № 3 – by a structural model.

1.

Beam bridges. (Spans of rectangular shape rest on supports).

2.

Arch bridges. (A curvilinear structure produces a horizontal thrust through skewbacks to the supports).

3.

Frame-type bridges. (Spans and supports are all indivisible rigid structure).

4.

Cantilever bridges. (These structures include cantilever arms, i.e. elements built out of their supports).

5.

Combined systems. (They consist of several simple structures – beam + arch).

Indication № 4 – by the position of the bridge floor.

1.

Deck bridges.

2.

Through bridges.

3.

Half-through bridges.

Indication № 5 – by the overall bridge length.

1.

Short bridges (up to 25 m long).

2.

Medium bridges (from 25 to 100 m long).

3.

Long bridges (more than 100 m long).

Indication № 6 – by the number of spans.

1.

Single-span bridges.

2.

Double-span bridges.

3.

Three-span bridges.

4.

Multi-span bridges.

Indication № 7 – by the service life.

1.

Permanent bridges. (Service life is 80-100 years.)

2.

Temporary bridges. (Service life is about 10-15 years.)

3.

Short-term bridges. (They are built for the period from two – three days to one year.)

In addition to the mentioned bridge types there are drawbridges (movable bridges), floating (raft) bridges and the ferrying.

Answer the questions:

1. How bridges are classified in technical literature?
2. What are the advantages and disadvantages of beam bridges?
3. What are the advantages and disadvantages of truss bridges?
4. What are the advantages and disadvantages of cable-stayed bridges?
5. What materials are most commonly used and why?

Exercises:

1) Find the equivalents:

трубопровод

совмещенный мост (для автомобильного и ж/д транспорта)

железобетонный

вантовый мост

балочный мост

рамный мост

балочно-консольный мост

комбинированный мост с ездой посередине

мост с ездой понизу

сквозная ферма с ездой понизу

разводной; подъемный мост

2) Match the opposite adjectives:

long, temporary, pedestrian, single-span, vertical, flexible

1. short bridge \neq

2. multi-span bridge \neq

3. permanent bridge \neq

4. motorway bridge \neq

5. horizontal thrust \neq

6. rigid structure \neq

3) Complete the sentences:

1. The term «bridge» means ...

2. According to their function bridges are classified into ...

3. According to the superstructure material bridges are classified into ...

4. A suspension bridge consists of ...

5. Service life of temporary bridges is ...

6. Combined systems consist of ...

7. I know different types of bridges, for example ...

4) Change the sentences from Active into Passive Voice:

1. We consider bridge building to be a science.
2. We believe many bridges to have been constructed 2000 years ago.
3. Nature has given to man the idea of bridge.
4. We know the Romans to have brought arch bridge construction to its high degree of perfection.

References:

<http://www.shortspansteelbridges.org/Gallery/Images.aspx>

Unit 2. Bridge or Tunnel.

Vocabulary.

obstacle — препятствие

water space — водный массив

by means of — с помощью

connect — соединять

rapid increase — быстрый рост

land-based — наземный

trade and commerce — торговля

cross over — пересекать

bear in mind — иметь в виду

sea current — морское течение

vessel — судно

seabed — морское дно

provide — обеспечивать

sufficient — достаточный

require — требовать

embankment- насыпь

depend (on) — зависеть

put into operation — запускать

high-speed — высокоскоростной

severe — суровый

The vast water areas all over the world represent the world obstacles for people's communication. A man has been striving to subdue water spaces by means of the main road connecting continents, islands, etc. because the economy becomes globalised.

The English Channel separating Great Britain and Europe the Straits of Gibraltar between Europe and Africa, the Bosphorus between Europe and Asia, the Bering Strait connecting the Eurasian and American continents, Japanese-islands might offer the missing link for rapid increase land-based transportation to promote improved trade and commerce to facilitate greater economic integration.

Builders always have the choice between bridging and tunneling in crossing over or under a large waterway. Each sort of a structure offers its advantages and shortcomings. One should bear in mind the influence of strong sea currents, great water depth, and large capacity vessels with great boundary dimensions (the under clearance of the bridges must be about 65 m high not to prevent shipping), complicated geological seabed structure. Seabed silt is a rather soft foundation for supports footing. In addition these regions are seismically

dangerous and constructional works must provide sufficient strength against seismic waves.

The advantages of the bridge crossing may be the following:

1. Low cost of construction in comparison with a tunnel structure though sometimes it may be quite the opposite.
2. Bridges require lower maintenance costs because tunnels call outlays for water discharging, ventilation, illumination, etc. The longer subaquatic structure is, the heavier outlays are required.

The advantages of the tunnel are:

1. Free shipping is very important under intensive navigation. Tunnels are much safer as compared to the bridge crossing because bridge supports must be calculated for the berthing impact. Being deep beneath the water surface, tunnels do not interfere with navigation. In addition, weather conditions cannot influence the traffic.
2. The architectural view of the tunnel is more attractive because there is no need for high approach embankments.

The final decision for choosing a bridge or a tunnel depends on many factors and not only on technical ones. In some cases bridges are much more preferable. In 1974 the bridge across the Bosphorus was erected. In 1985 the bridge crossings connected some Japan islands.

The strait separating Denmark and Europe was also spanned by a bridge.

But the choice fell on a tunnel underneath the English Channel. In 1994 the railway tunnel from Great Britain to France was put into operation. It provides a high-speed rail link with shuttle trains reducing the travel time between the two countries to three-and-a-half hours. Needless to say that the cost of this tunnel is enormous. Another group of Japanese-islands were also connected by the tunnels in 1987.

The problem «a bridge or a tunnel» is being discussed for the type of structures in the nearest future in Italy and across the Straits of Gibraltar and the Bering Strait. The choice falls on a bridge crossing in Europe and on a tunnel for the severe northern conditions.

Answer the questions:

1. What are the advantages of tunnels?
2. What are the disadvantages of tunnels?
3. What are the advantages of bridges?
4. What are the disadvantages of bridges?

Exercises:

1) Find the equivalents:

world obstacles; sea currents; boundary dimensions; seabed silt; maintenance costs; bridge supports; weather conditions; railway tunnel; travel time

2) Choose the best variant:

1. There always was a choice between bridging and tunneling in ... over or under a large waterway.

a) crossing b) crippling c) cruising

2. Bridges require lower maintenance ... than tunnels.

a) corrosion b) corrugations c) costs

3. Tunnels are much ... as compared to the bridge crossing.

- a) saving b) saver c) safer

4. Weather conditions cannot influence the ... through tunnels.

- a) traffic b) transfer c) transit

5. The cost of the tunnel under the English ... is enormous.

- a) Cheddar b) Channel c) Canal

3) Find the opposites to the words:

gathering _____

slow _____

drawback _____

allow _____

bound (adj.) _____

lessening _____

small _____

shallow _____

4) Are the sentences True or False? Correct the wrong ones:

1. _____ The Straits of Gibraltar separates Europe from Africa.
2. _____ The under clearance of the bridges must be over 60 m high not to prevent shipping.
3. _____ For the first time the Bosphorus was bridged in 1973.
4. _____ Tunnels require lower maintenance costs.
5. _____ Vessels can navigate much easier if there are no bridges.
6. _____ The Bosphorus bridge managed to withstand the wind blows up to 162 km per hour.

References:

<http://www.bris.ac.uk/civilengineering/bridges/Pages.html>

Unit 3. Reinforced Concrete Bridges.

Vocabulary.

reinforced concrete — железобетон

possess — обладать

substitute — заменить

ribbed - ребристый

work in compression — работать на сжатие

reinforcement — арматура

competitive — конкурентоспособный

beforehand — заранее

prestressed — преднапряженный

jack—домкрат

bughole — дыра

Concrete being an artificial stone possesses the same good qualities as natural stones. It works well in compression and bad in tension. That is why concrete has substituted natural stone in arch bridges because an arch works in compression.

At the beginning of the 19-th century concrete was reinforced by metal bars. The idea was to transfer the tension stress from the concrete to the reinforcement. This resulted in a new

building material, which is known as reinforced concrete.

At present reinforced concrete bridges are widely spread because this building material is in line with short and medium spans (up to 40 – 60-m). It is also rather competitive with metal for long span structures.

The reinforced concrete spans are of a great variety because of their ability to work in compression and tension as well as flexure. It is used for producing simple beams, continuous beams, cantilever-beam systems, arches, frames and combined systems (arch + beam or arch + truss), etc.

The builders use monolithic reinforced concrete laid in situ, prefabricated reinforced concrete, which is made at the works beforehand and the bridge is assembled in-situ from the reinforced concrete segments. Prefabricated monolithic concrete is the combination of both mentioned types. To make the reinforced concrete highly strong and stiff it is prestressed by jacks and reinforcement of high strength wire.

Sometimes to reduce the structure weight they substitute the most usual coarse aggregate such as crushed rock, pebbles, and

gravel by slag and bloating clay. This results in light concrete.

In comparison with other building materials the bridges made of reinforced concrete offer the following advantages: a substantial saving of steel, which is scarce to supply; elimination of maintenance cost as compared with metal bridges; greater rigidity as against metal bridges; long useful life (80 – 100 years); the variety of structural forms improving bridge appearance and architecture.

The disadvantages of the reinforced concrete bridges may be the following: great dead weight; great labor-consuming character of the bridge segments producing; hidden bugholes may cause dangerous complications and they are difficult to be reconditioned; difficulties of concrete laying in winter.

Answer the questions:

1. Is there any difference between concrete and reinforce concrete?
2. What is the best length for the reinforced concrete spans and why?
3. What structural model is most preferable for the reinforced concrete bridges?

Exercises:

1) Find the equivalents:

железобетонный мост

заменять, замещать

пред напряженная арматура

заранее

обычная арматура

плитное пролетное строение

ребристое пролетное строение

раскос

жесткий нижний пояс балки

стенка

шпала

отверстия

отогнутый

домкрат

сварочная сталь

2) Choose the right answer:

1. Concrete has substituted natural stone in arch bridges because

A it works well in tension.

B it works well in bending.

C it works well in compression.

D it works well in torsion.

2. Prefabricated monolithic concrete is...

A. usually called monolithic reinforced concrete.

B. the combination of monolithic reinforced concrete and prefabricated reinforced concrete.

C. usually called prefabricated reinforced concrete.

D. the combination of monolithic reinforced concrete and prestressed concrete.

3. The disadvantages of the reinforced concrete bridges are

A a substantial saving of steel; elimination of maintenance cost; greater rigidity.

B the variety of structural forms; difficulties of concrete laying

in winter; hidden bugholes.

C hidden bugholes; a substantial saving of steel; elimination of maintenance cost.

D great dead weight; difficulties of concrete laying in winter; hidden bugholes.

3) Divide the words into pairs:

metal

high-strength

bug

concrete

structure

prestressed

laying

wire

bar

concrete

holes

weight

4) Fill in the blanks:

erected, reinforced, design, spans, longest, are

1. The longest spans among lattice trusses ... 63m in Russia.
2. The first concrete arch bridge was ... in France in 1875.
3. The first ... concrete bridges were constructed in 1877.
4. The earliest Russian reinforced concrete beam bridge was built to professor Belelyubsky's ... in 1893.
5. The ... spans among continuous beam systems are 105 m in Japan.
6. The longest ... among arch bridges are 228 m in the Ukraine.

References:

<http://www.bris.ac.uk/civilengineering/bridges/Pages/Bridgesasart.htm>

ml

Unit 4. Beam bridge.

Vocabulary.

Beam - балка

Compression – сжатие, компрессия

Tension - напряжение, натяжение, давление

Twisting – закручивание, скручивание

Bending – изгибание, кривизна

Tensile – прочность растяжения при изгибе

To span – соединять, протягиваться,

Dissipate – распределять, уменьшать

Piling – отсыпка, грунт

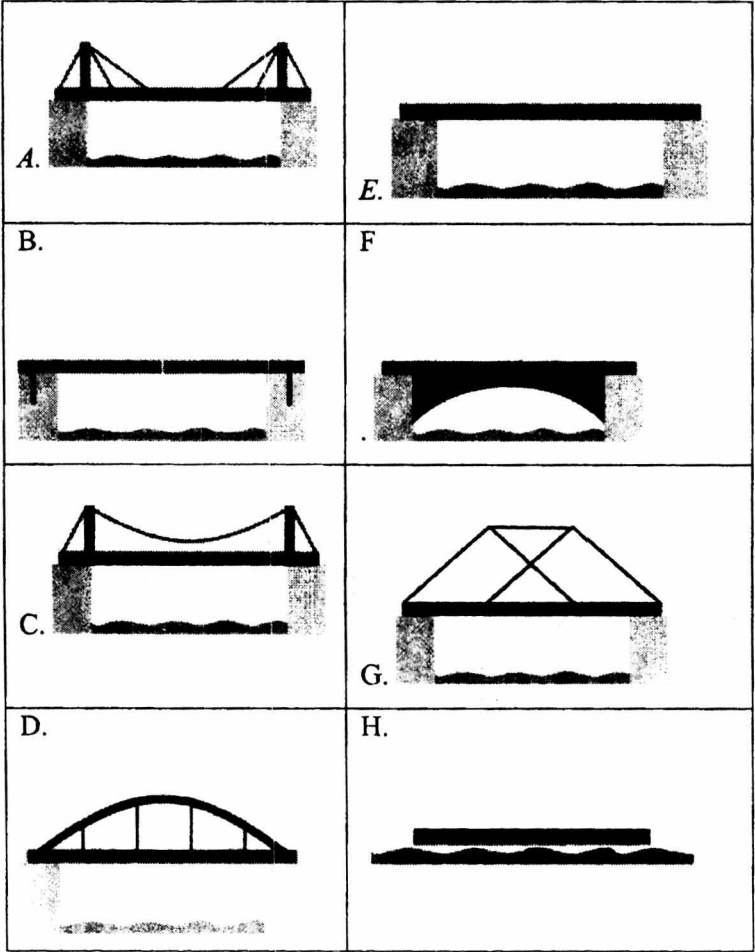
Daisy-chaining – последовательное соединение, гирляндная цепь

Lead-in

What is a bridge? What obstacles are usual to cross?

How long can bridges be? How do bridges differ?

3. What types of bridges according to their functions can you name?
4. Look at the illustrations. Which types of bridges do they match?



A beam bridge, sometimes called a girder bridge, is a rigid structure that consists of one horizontal beam supported at each end, usually by some kind of pillar or pier. In structural terms, it is the simplest type of bridge and is a popular selection because of its inexpensive construction costs. It began as a felled log supported by opposing river banks that was used to span a river or other body of water. Today, it is commonly made from reinforced concrete or steel beams for everything from pedestrian bridges to highway overpasses.

This type of bridge works on the principles of compression and tension, that's why it needs a strong beam to resist twisting and bending under the weight it must support. When a load, for example a group of traveling cars, pushes down on the beam, the weight of the beam pushes down on the piers. The beam's top edge is pushed together as the result of compression, and tension causes the bottom edge to stretch and lengthen. The top reaches maximum compression while the bottom snaps under too much tension.

Many beam bridges for road construction are made from concrete and steel because these materials are strong enough to bear the forces of compression and tension. The distance a

beam can span is directly related to its height, because higher beams offer more material to dissipate tension and need reinforcement.

In spite of reinforcements like concrete, steel, and trusses, this type of bridge is limited by its length, so they rarely span more than 250 feet (76.2 m). But daisy-chaining bridge sections allow to reach longer distances. One of the world's longest bridges is a continuous span beam bridge. It's located in Louisiana as a pair of parallel bridges of the Lake Pontchartrain Causeway that measure almost 24 miles (38.5 km) long and are supported by 9,500 concrete pilings.

Answer the following questions:

1. What does a beam bridge consist of?
2. What loads does a beam carry by bending?
3. What materials are frequently used in beam bridge construction? Why?
4. Where are beam bridges most commonly used?
5. What does the distance of a span related to? Why?
6. What the world's longest beam bridges do you know?

Exercises:

1) Decide whether the following statements are true or false according to the text:

- 1) A beam bridge consists of a rigid horizontal member.
- 2) Beam is supported at each end by some kind of pile.
- 3) Less beam bridges are made from concrete and steel to hold out against the forces of compression and tension.
- 4) Beam bridges are rarely used in highway construction.
- 5) The biggest limitation of this type of bridge is still its length.
- 6) The deck of beam bridge is composed of one or several beams, which are supported by piers across the space.
- 7) Beam bridges typically span the greatest distance.
- 8) Today beam bridges are not built as foot-bridges.

2) List advantages and disadvantages for the beam construction used. Divide them into two columns:

Limited span; inexpensive relative to other bridge types; does not allow large ships or heavy boat traffic to pass underneath;

easy to build; design generally not considered very interesting or eye-catching; used widely in urban and rural settings.

Advantages:	Disadvantages:

3) Learn information in the text how tension and compression forces impact bridges. Look at the figure 1 and decide what sort of force is it? Write down the force in the box.

FORCE:	DESCRIPTION OF FORCE ACTING:
	As live loads, such as cars and trucks, travel across the bridge, this force acts on the top of the roadway and passes down into the piers.
	This force acts on the underside of the roadway, which is pulled apart by the live loads pressing down on the top of the roadway.

4) Fill in the missing words from the list:

Adjacent, roadway, vertical piers, span, design, horizontal beams, strength.

Beam bridges are the oldest known bridges and tend to be the simplest to and build. Roughly half of all bridges in the world are beam bridges. They consist of.....and A beam bridge's depends on the strength of the and can be increased by adding additional piers. While beam bridges can be quite long, the, or distance between piers, is usually small.

5) Make up the word combinations using the derivatives from the words in brackets:

(strong), of the material, bridge (construct), (suspend) bridges, (available) of steel, to be (embed) into the banks, (addition) support, ropes (suspend) from rocks, elaborate (scaffold), period of railroad (expand), to cost (consider), one of the most (common) used, concrete (reinforce) with steel bars.

Unit 5. Timber and Masonry Bridges.

Vocabulary.

masonry — каменный

limit — ограничивать

durable — долговечный

weather proof— погодоустойчивый

thawing — оттепель

limestone — известняк

adorn — украшать

elimination— сокращение

density — плотность

pile — свая

cribs — сруб

pine — сосна

larch — лиственница

arid — высушенный

dowel — шпонка

log — бревно

square sawn timber - брус

plywood — фанера

The early bridges were made of stone and timber because these building materials could be easily found everywhere. The earliest type of stone bridge is one that requires no designing. When large flat stones could be found it was a simple enough matter to build piers of square stones in the stream and lay the large flat slabs on the tops of the piers. Obviously, such a construction was very limited in application, for to find a flat stone large enough to span a reasonable distance was hard enough to start with, and when found would be difficult to handle with primitive tools owing to its weight. The local name for these is clapper bridges, and the Postbridge clapper bridge has three spans of 15 feet each. Such bridges are examples of beam or girder bridges in stone.

Stone used for bridge construction must be durable, weather proof and resistant to freezing and thawing. Sometimes the builders use the artificial stone i.e. concrete made of cement, crushed rock or pebbles, sand and water.

As the stones were “dressed”, that is cut, shaped and finished by stone masons, buildings in dressed stone are called masonry. The greater the skill of the masons the longer does the building last, and this applies to bridges as well as houses and castles. Of

course, wars and weather play their part too, but other things being equal, a bridge built of carefully wrought masonry will last longer than one stuck together, as it were, with cement or mortar. The Romans knew this, although they were experts at making concrete. But the Romans frequently depended entirely on a good fit between the stones for many of their greatest works.

Today it would require quite careful design by engineers to construct a bridge by up-to-date methods, using modern materials. But the Romans had nothing to guide them but common sense and experience.

The masonry bridges offer the following advantages:

1. Long durability. Some Roman bridges survive to our days. The only reasons for their destruction are wars and disasters.
2. Aesthetic values of these bridges adorn many cities.
3. Greater rigidity under the extra heavy super load.
4. Considerable elimination of maintenance cost.

Possible disadvantages of masonry bridges are:

1. Greater dead weight as a stone density is between 2 and 2.7 t/m³
2. Only the arch structure may be used. It produces the horizontal force – the thrust, which requires powerful foundations and solid ground to rest on.
3. Masonry bridge construction is difficult to be mechanized. It requires much handwork. So it takes the builders much more time to erect a masonry bridge in comparison with other bridge types.

Timber bridges are used as temporary structures during 10 – 15 years. Piles and cribs made of wood are often applied as bridge foundations. But metal spans save much time during bridge construction because they may be much longer than those made of wood.

The best timber for bridge building is pine, fir-tree and other soft wood as well as larch, arid cedar. The expensive timber

species such as oak, hornbeam, and beech are used only for the most important elements – the caps and dowels.

To increase its waterproof, timber is impregnated with antiseptics. It results in the service life prolongation up to 25 – 30 years. Plywood structures are widely used abroad and the spans made of this material are more durable, rigid and lighter than those made of logs and square sawn timber.

A. Examples of bridges of this type are found in Cornwall and Devon, owing to the prevalence of flat granite slabs on the moors, and a good example is still to be seen at Postbridge on Dartmoor.

B. Some of their bridge piers had, in fact, to be demolished by dynamite when the bed of the River Humber was deepened some 1500 years after their construction.

C. This sound wood is easily treated and does not decay.

D. Most favorable rock for this purpose is granite, basalt,

dolomite and widespread and rather cheap sandstone and limestone.

E. Wood is also used for bridge supports and spans.

Answer the questions:

1. What were the earliest building materials for bridges?
2. What is the most durable material for bridge building?
3. What building materials are used for stone bridges?
4. Why were the bridges the Romans built very solid and durable?
5. What bridges are difficult to mechanize?

Exercises:

1) Find the equivalents:

каменная кладка

таяние; оттепель

известняк

украшать

исключение

плотность

свая

сруб; клеть; ряж

сосна

лиственница

высушенный

насадка

шпонка

бревно

брус

2) Match the synonyms:

1.	2.
timber	solid
construct	momentary
temporary	build
eliminate	wood
adorn	strong
sound	cancel
durable	decorate

3) Describe the following terms:

1. Timber bridge foundations.
2. Timber bridge supports.
3. The basic types of timber bridge spans.

4) Complete the sentences:

1. Possible advantages of timber bridges are minimal construction cost, minimal weight of its elements for transportation and erection, etc.
2. One of the disadvantages of timber bridges is ...
3. The best timber species are ...
4. Durability of a building depends on ...
5. Most favorable rock for masonry bridges is ...
6. While bridge building the Romans were good at ...

References:

<http://www.wisegeek.org/what-is-a-beam-bridge.htm>

<http://thesaurus.com/browse/applicable>

<http://dictionary.Reference.com/browse/chord?&o=100074&s=t>

<http://www.bris.ac.uk/civilengineering/bridges/Pages.html>

English in Business Management.

Unit 1. Advertising.

Vocabulary.

Advertising – реклама, рекламирование

Especially – особенно, главным образом

Success – успех

Ripe – спелый, зрелый

Movement – движение

Pour – лить, наливать

Associate – связывать, соединять

Research – исследование, изучение

To claim – требовать, претендовать

To taste – пробовать на вкус

Mouth-watering – аппетитный

Image – образ, картина, изображение

Advertising is about creating images, and this is especially true when advertising food and drink. What the foods look like is more important than what it tastes like.

To sell food successfully, it must look appetizing. Milk must look cold, bread must look freshly-baked, fruit must look ripe and juicy. Television advertising often uses movement. Apparently, food looks especially appetizing if it moves. Chocolate sauce looks more delicious when you see it being poured over ice cream than it is in a jug.

Sound effect, but not back-ground music, also help to sell food: sausages sizzling in a frying pan are mouth-watering.

A TV-advertising for a brand of coffee had the sound of coffee percolating in the back-ground. The advertisement was so successful that it lasted five years.

The colour of food and the colour of packing is also very important. If the colour of the food looks wrong, people won't eat it because they associate food with certain colours. Nobody would seriously eat blue bread or drink blue beer. Other unpopular food colours are purple, grey and, in some case, white.

How people expect something to taste often influences how it actually does taste. Researchers gave some mineral water to two groups of people. They told one group that the water was mineral water and asked: "What does it taste like?" The answer was: "It tastes nice". Then the researchers told the other group that the mineral water was tap water. This second group said the water tasted a bit strange and not very nice. The word "tap" created an unpleasant image of chlorine.

It is the same with packing. A food manufacturer was trying to decide whether to sell his product in a glass jar or a can. He gave a group of people the same product in both a glass jar or a can, and asked them to taste it. They all claimed that the product in the glass jar tasted better.

So it seems to be true, image is everything!

Answer the questions to the text:

1. How should food look like to sell successfully?
2. What does television advertising often use?
3. Why is the colour of food important in advertising?

4. How long did the advertisement with the sound of coffee percolating in the back-ground last? Why?
5. Is packing of great importance for advertising?

Exercises:

1) Read and guess the meaning:

Image

Appetizing

Ripe

Pour

Sound

Effect

Sizzle

Percolate

Associate

Tap

Jar

Claim

2) Choose the right answer:

It helps to advertise food if you have –

- a) background music
- b) sound effect of food
- c) percolating coffee in the background.

In an experiment, the people who said their water didn't taste nice were tasting –

- a) mineral water
- b) tap water
- c) chlorinated water

The people in the glass jar and can experiment were tasting-

- a) the same product
- b) different products.

3) Match the job activities a-f with the people who perform them 1-3.

1. manager 2. clerical staff 3. underwriters

- a) Take care of general administration.
- b) Handle online and telephone applications and claims.

c) Agree to accept a risk or not.

d) Manage staff.

e) Deal with the majority of applications and claims.

f) Take decisions on special cases.

4) Match the job activities a-f with the people who perform them 1-3.

1. manager 2. clerical staff 3. underwriters

a) Take care of general administration.

b) Handle online and telephone applications and claims.

c) Agree to accept a risk or not.

d) Manage staff.

e) Deal with the majority of applications and claims.

f) Take decisions on special cases.

Reference: Adapted from the Financial Times, February 2, 1980,

Morgan Witzel, p.7

Unit 2. Office Characters.

Vocabulary.

To appear – показаться, появляться

Urgent- срочный, экстренный

Annoyed – раздражённый, недовольный

Mood – настроение

Bossy – любящий командовать

To receive – получать

Repetitive – повторяемый, скучный

Compliment – комплимент, поздравления

To get a date – назначить встречу, свидание

This person is always very keen to appear to be your “friend”. They often ask you about your weekend or your family. But the next minute they are asking you whether you’ve written that urgent report. They are often annoyed of making jokes – which you have to laugh at. But the worst thing is that their moods change so quickly. When there is a crisis in the office this

happy joking “friend” disappears and is replaced by a bossy boots.

For most people the office is a place where you work from nine to five. But for this person, the office is their home. In fact they spend much less time at home than they do at their desk. If they have to take a holiday, they always make sure they have their cell phone and laptop with them so they can send and receive emails. And they make more business calls than when they are at work.

He or she is usually the youngest person in the office, but is also the person with the most energy and enthusiasm. They have probably just finished school and are getting some work experience before they start university. No task is too boring for them and no job is too repetitive. They just love making coffee and really don't mind doing all that last-minute photocopying.

This person spends more time chatting with their colleagues than working. They find work boring and they are always trying to make life in the office a little more interesting. They have always got a smile and a compliment for a visitor – especially if they are young and good-looking. They spend very

little time at their desk and they may be found by photocopier or the coffee machine, trying to get a date for the next office party.

Answers the questions according to the text:

1. Who asks you often about your weekend or your family?
2. When does your joking "friend" disappear?
3. Who spends much less time at home then at their desk?
4. Who is the most energetic and enthusiastic in the office?

Exercises:

1) Match the verbs in column.

A to the phrases in column B in as many ways is possible:

A

1 do

2 make

3 receive

4 send

B

an email

a phone call

a report

a photocopy

2) Match the types “the office joker”, “the lazy worker”, “the gossip” :

- Which office type
- a) has a habit of making terrible jokes?
 - b) does the most work and spends the most time in the office?
 - c) spends the least time at their desk?
 - d) is always very enthusiastic?
 - e) is friendly one minute and angry the next?
 - f) takes fewer days on holidays than anyone else?
 - g) usually makes the coffee for everyone else?
 - h) thinks that chatting is more interesting than working?

3) How sensual are you? Test yourself (+ equal to 1).

- 1. Do you have a favorite season?
- 2. Do you have favorite smells?
- 3. Do you like rainbows?
- 4. Do you enjoy tasting new foods?
- 5. Do you enjoy beautiful sunsets?
- 6. Do you like having a massage?
- 7. Do you like touching people you like?
- 8. Does music ever make you cry?

9. Do you like touching certain special fabrics?
10. Do smells and sounds have special memories for you?

☛ **Check your score:**

7-10: You are a very sensual person. You get great pleasure from beautiful sounds, sights and smells.

3-6: Your senses are quite well developed. You have some very sensual moments.

Less than 3: You are a cool person. Nothing excites you very much and you do not care very much about sensual pleasures.

4) Find out four main office types in the text and describe them in details.

Supplementary. Underline the word which best describes how you fit each question:

1 2 3 4

Can you work long hours?

Always Sometimes Occasionally Never

Do you have persistence and stamina?

All the time Most of the time Occasionally Rarely

Is this business important?

Completely Much more Important Less important

Have you ever thought of a survivor?

Always Usually Occasionally Never

Are you self-confident?

Always Usually Sometimes Occasionally

Do you keep going until a task complete?

Always Usually Sometimes Occasionally

Can you delegate to others?

Yes Sometimes With difficulty No

- Look at the pattern of underlined words, the more underlined in columns 1 and 2, the greater you are successful as a businessman.

References: Adapted from The Guardian May 15, 1983 Duncan
Campbell, p.4.

Unit 3. Hard to reach.

Vocabulary.

Consumer – потребитель

Customer – клиент

Direct mail – почтовая реклама

Discount – скидка

Flyer – рекламная листовка

Marketing – маркетинг

Sales – продажи

Sales pitch – продвижение продукта

Sales representative – менеджер по продажам

Many manufacturers sell their products through retailers, but they may also sell direct to the consumer by telephone or on the internet, or they may employ sales representatives. A lot of companies sell products and services business to business, or B2B. Product information is created in

the form of flyers or catalogues and some companies send this information to large numbers of potential customers through the post. This method of selling is called direct mail. Marketers are always looking for ways to promote their products to new kinds of customer.

Mario Capelli

Perhaps the most effective way to promote products to a large number of people is to advertise. There are several different advertising media that we can use, for example TV and radio. There's also the press - that's newspapers and magazines - and the cinema. And, of course, the internet is extremely important now. Advertising is a good way to reach a lot of potential customers - but there are other selling techniques as well.

There's personal selling, for example. This means employing sales representatives to make regular sales visits to customers and potential customers.

Then there are sales promotions. These include special offers, for example: «Buy satellite TV and get free installation» and discounts that encourage people to buy.

Other examples of sales promotions include competitions and free gifts.

Another method of promotion is public relations. This involves creating news and getting information about the company or its products in the press or on TV. For example, when a pop star launches a new album, people write about it in the music magazines. And this brings publicity for the company.

The next method is direct marketing. This includes all sales activities where consumers can buy the product immediately. An example is direct mail - where you send information to potential customers by post. We can also include TV and internet shopping in this category. And then there's telephone selling, where sales staff telephone people and try to sell products over the phone.

And finally, we have sponsorship. A company pays money to have its name linked to an event or a person such as a sports personality. The person wears clothing with the name of the company on it.

Answer the questions according to the text:

1. How can companies attract attention when they launch a new product?
2. What do companies use to promote their products?
3. Is advertising a good way to reach many customers?
4. What do sales promotions include?
5. What does it mean a sponsorship?

Exercises:

1) Look at the examples of the present perfect and past simple. Translate the sentences.

— Consumers have benefited greatly from advances in food production.

— In recent years, Unilever has cut its workforce by 33,000.

— Has the price of soft drinks fallen recently?

— The price of energy rose by 15 per cent last year, but it hasn't risen in the last 12 months.

— A year ago, the price of oil was \$32 a barrel; now it has reached \$52 a barrel.

Choose the correct option in *italics* to complete the rules.

1. We form the present perfect by using the past participle of the verb with *has* or *have* / *no auxiliary verb*
2. We form present perfect questions with *has* or *have* / *do* or *does*.
3. We form the present perfect negative by using *hasn't* or *haven't* / *didn't*.
4. We use *the present perfect* / *the past simple* to talk about things that happened at a specific time in the past
5. We use *the present perfect* / *the past simple* to talk about recent events and events that affect the present situation.

2) Complete the sentences.

1. The cost-plus method of pricing: 'You calculate what it costs to _____ an item and then you add the _____ you'd like to have.'
2. Another method: 'Find out what your _____ are ready to _____ on that product.'
3. A third way: 'Look at the _____'.
4. Before setting a price, companies should ask two questions: Who are the _____ ?

5. What kind of _____ or _____ are we _____ ?
6. You shouldn't develop a product and then say: 'Ok, now let's _____.'

3) Choose the correct words:

- 1) The sun set/set up at 6:30 yesterday.
- 2) I'm planning to set/set up a new business, selling holidays abroad.
- 3) If you run/run out of money, you may have to ask the bank for alone.
- 4) Many people leave their jobs to run/run out their own business.
- 5) We sold/sold out 50 tickets for the show cruise tomorrow night.
- 6) I wanted a ticket for the cruise, but they were sold/sold out.
- 7) The market for luxury cruises is growing/growing up.

8) Tom's children are growing/growing up .They are now 12 and 14 years old.

9) It took 20 years to build/build up the business to a chain of supermarkets.

10) It took six months to build/build up the new block for our regional offices.

4) Choose the correct time preposition:

- a) The guarantee is valid *until/for/by* three years.
- b) The warranty runs out *within/in/until* September.
- c) It's due for renewal *at/on/in* the beginning of the month.
- d) We must have that part *on/by/in* next Friday.
- e) The guarantee runs *for/until/in* next June.
- f) If the machine breaks down *on/during/for* the guarantee period, we offer an immediate replacement.
- g) We usually take on extra fitters *on/until/at* peak times.

References:

Adapted from Intelligent Business by Christine Johnson,p.85.

Unit 4. Success. Passion into profit.

Vocabulary.

Bankrupt - банкрот

Business plan - бизнес-план

Company - компания

Competition – соревнование, конкуренция

Demand - спрос

Distribution - распределение

Entrepreneur - предприниматель

Finance - финансы

Loss - убытки

Market share – доля рынка

Profit - прибыль

Start-up - компания, недавно появившаяся на рынке, пуск в эксплуатацию

A start-up is a new business. Many people decide to start up their own business because they have what they think is a good business idea and they want to become entrepreneurs. But it is important to prepare a good business plan before you start. You need to know if there is a demand for the products or services you want to offer. If you can finance the operation, find customers and beat the competition, you have a good chance of making a profit. Then you can call your business a success.

To begin with, of course, a successful company has to make a profit. That means that it has to keep costs as low as possible – the cost of manufacturing, for example. Secondly you need to make big sales so there has to be a demand for your products. And of course, you want to be competitive. If your competitor brings out a better product, you can lose customers. The most successful companies control the market. That means they have a bigger percentage of sales and a bigger market share than their competitors. Their product is market leader. It sells more than any other product in that sector. Another factor for success is growth. No company wants to stand still. Successful companies are always finding new markets and new opportunities to grow.

Well the first step, of course, is to develop a new product idea. Many people decide to start a business because they have a good idea. But you have to remember that about 80 per cent of new business ideas fail. Usually it is because people don't understand the market. So the second step is to conduct market research. Your business. We wanted to find a firm that could become market leader in a short time. So, our decision was to make an offer for Annie's Kitchen. This firm had financial difficulties and its owner was ready to accept a low offer from us. Because we are a big company, we were able to deal with the company's financial problems. We paid for a new factory and put money into improving production. So Annie's Kitchen started to make a profit. The owner stayed on as the company's managing director. This worked out very well. Annie's Kitchen is now second in the market with a 32 per cent share. We hope that we will soon be number one!

Answer the questions according to the text:

1. What can companies do to make more profit?
2. What happens if a competitor brings out a better product?
3. What does it mean when you say that 'no company wants to stay still'?
4. What makes a successful company?
5. What is it important before you start up?

Exercises:

1) Which location is best for each of the business activities 1-5? Choose from the list a-e.

- | | |
|--------------------|----------------------|
| 1) bank | a) at an airport |
| 2) big supermarket | b) near the sea |
| 3) petrol station | c) in a town center |
| 4) duty-free shop | d) out of town |
| 5) ship-building | e) beside a motorway |

2) Match the definitions 1-6 with a phrase combining a word from A and a word from B.

A	B
capital	bank
investments	company
multi-national	mall
service	market office
shopping	sector
regional	

3) Guess what the definitions mean:

1) The companies in an economy that don't manufacture anything but provide services such as banking, insurance.

2) A company's local office in a different country or city from their main office.

3) A place where people and business can deal in stocks and share, raise finance and make investments.

4) A financial institution that specializes in buying stocks and also gives financial advice to business.

5) A large area often inside a huge building where there are lots of shop.

6) A large corporation with activities in many different countries.

4) Use a collocation from exercise 2 to complete the sentences.

1) Shell is an example of a (n)_____.

2) Hotels, restaurants and travel agents belong to the _____.

3) Christian Hansen works as a share dealer for ABM Amor's (n) _____.

4) Fred Pierce is going to work abroad for two years at his company's _____.

5) I'm going to the _____ to buy some clothes for my trip.

6) Many wealthy people invest their money in the _____.

References:

Adapted from Intelligent Business by Christine Johnson,p.41.

Unit 5. Image.

Vocabulary.

advertising - реклама

brand - имя, которое компания придает продукту

image – образ, изображение, общее мнение

logo - логотип

loss leader - товар, продаваемый по сниженной цене для привлечения покупателей

luxury- роскошный

promote - продвигать

publicity - рейтинг

target market - целевой рынок

value - сумма

Creating a buzz

Image is the general opinion most people have of a company or product. Brand image is the opinion people have of a brand. A brand usually has a name, a logo (a symbol) and a design which everyone can easily recognize and which helps to identify it. Marketing experts work hard to create brands and promote the brand image through advertising campaigns. This process of branding is an important part of marketing. Most customers feel happier buying a famous brand than a product they don't know. The image of the brand has to appeal to the target market.

Dee Delaney

Companies don't just sell product. They sell a lifestyle. Nearly everything you buy says something about you: your clothes, your car, your mobile, all show what kind of life you have. Customers choose brands that represent their lifestyle, or the lifestyle they want to have.

Through advertising, companies try to promote an image of the kind of people their customers want to be. For example, Ray-Ban – the sunglasses producer – ran an

advertising campaign with photos of strong, dynamic men. The idea was that men who are leaders and heroes wear Ray-Bans.

Another example is Gap. They have a range of clothing for men called StressFree. You can drop something on your trousers and it cleans off immediately. So you have no worries. You can be relaxed and stylish at the same time. The company advertised the clothing with the song.

Customer 1

I think it's a good desk. You can use it for a PC or laptop. I'm a student and I need a desk to study. I could put it in my bedroom. The desk is quite small, so it's ideal for a small room. But it's got lots of space for books and papers. It's great, yeah!

Customer 2

I'm an office designer and it's part of my job to choose desk and chairs for new offices. In my opinion, this desk isn't designed for use in an office. It's too small. Most office workers need more space. When you have to sit at a desk all day, you need a bigger desk than this!

Customer 3

I have an office job but I also work at home. I think this desk could be suitable for me. It looks stylish. It's made of good quality wood. And I like the fact that it's got wheels – so you can move it easily. I think it's very practical.

Answer the questions according to the text.

1. What three examples does Dee Delaney give of things that people buy that “say something about who you are?”
2. What do companies sell?
3. What kind of man did Ray –Ban show in the photos in their advertising campaign?
4. What kind of people do their customers want to be?
5. Is Gap's Stress Free clothing for men or for women?

Exercises:

1) Match the words and phrases 1-6 with the meanings a-f.

- 1) capital
- 2) start-up cost
- 3) a tight budget
- 4) potential
- 5) return on investment
- 6) payback period

a) careful control of costs necessary when you have very little money

b) the profit you make from an activity in relation to how much money you put in

c) money you lend to someone so that they can start a business venture

d) the time needed to get back the cost of an investment

e) the expense of setting up a new business or new project

f) possibility of future success

2) Now complete the text below using the words and phrases from exercise 1.

Finance for space ventures.

It is very difficult for companies in the private space industry to find the necessary _____ for new space projects. Private investors don't like investing in space because the _____ is high, and because the _____ can be as much as 20 years or more. Investors want to be sure that they will get a good _____. However, some millionaire space enthusiasts will support projects even if there is not much _____ for making a profit. Even government projects are often short of money. Most space ventures have to run on _____.

3) Complete the dialogues with the phrases.

For your help

Meet you

Would you like to

You're welcome

Is it OK

I'm afraid

Would be very nice

Can I introduce

1) A: _____ my colleague, Patrice Cherbourg?

B: Pleased to _____.

2) A: _____ join us at the restaurant this evening?

B: That _____, thank you.

3) A: Thank you so much _____.

B: _____.

4) A: _____ to use this phone?

B: I'm sorry, it isn't allowed.

5) A: _____ I can't find the details on the computer.

B: Don't worry. I can check them later.

4) Complete the sentences with preposition:

- a) The Guarantee is valid three years.
- b) If it breaks down, we will replace free charge.
- c) We can provide a new unit no extra cost.
- d) We guarantee delivery three working days.
- e) We buy certain services when we're busy.

- f) We have decided not to take the extended warrantee.
- g) Is the unit still guarantee?
- h) We have built very good relationships with our suppliers.
- i) We don't deal that suppliers any more.

References:

Adapted from Intelligent Business by Christine Johnson,p.33.

Unit 6. Etiquette. Bad manners at work.

Vocabulary.

Contact-связи

Etiquette-этикет

Hierarchy-иерархия

Organization-организация

Punctual- пунктуальный

Relationship-отношение

Rule-правило

Status-статус

Subordinate-подчиненный

Working environment-производственная среда

Etiquette is the name we give to the rules for being polite in a social group. Business etiquette is important for people who often have to make new contacts and build

relationships in their work. Politeness can also help to improve the working environment for people in the same office. Some cultures and situations are formal, which means that we have to follow rules; other cultures and situations are more informal.

There are different opinions about what is polite or impolite. Different cultures express politeness in different ways. Even in the same country, there may be different views about what are good manners or bad manners. But the same rules apply everywhere. Politeness is about showing respect for others. It means thinking about other people's feelings.

In formal situations, we follow standard rules for politeness. In business, we are usually polite when we make new contacts, meet customers or people from other companies. Politeness is often linked to status. We are usually more polite to people above us in the organizational hierarchy. In today's working environment, most managers show respect for their workers. They might say, we really need to send the report as soon as possible. Could you please do it today? If you consider other people's feelings, they are usually more willing to work hard, to help and to cooperate.

Sydney

We in Sydney are very easy- going and relaxed about rules. But we work hard. We start work pretty early in the morning. Breakfast meetings are common, starting at 8 a.m. And we like to be late! We're generally very informal. Men often wear a jacket and tie during office hours. But we prefer informal clothes when the weathers hot. For lunch, we usually go out for a sandwich. What do we talk about? Well- it isn't difficult to talk to Australians- we're very friendly people. But it helps a lot if you can talk about sport.

London

Most people that I know don't like to start work early. We hate breakfast meetings! People are always in hurry- so being on time for meetings is important. People think the British are very formal. But things are changing. I think we're quite informal nowadays. Some men still wear formal business suits- but a lot of people come to work in casual clothes. Lunch is often a quick sandwich and a coffee. After work, we like to go to the pub with colleagues. At the pub you can talk about anything you like!

New York

Life in New York is fast and dynamic. Some people say that we're rude. I don't mean to be rude- I just don't have much time for being polite! Work starts early in the morning- breakfast meetings start at 7 a.m. - don't be late! Most people dress in suits for business- it's important to look smart. A lot of people eat at their desk at lunchtime. But if we go to a restaurant, we talk business right through lunch. We don't talk about the food. People are very competitive and work always comes first!

Answer the questions according to the text:

What does the word "etiquette" mean?

What do we do in formal situations?

In which city...

a)...do people like to be informal?

b)....are people very competitive?

c)....are things changing?

Exercises:

1) Complete the sentences with the correct form of the present simple or continuous.

1. Mark is a market research assistant: he (analyse) _____ market data.
2. Today is a holiday and Mark isn't in the office. He (play) _____ football.
3. Mark (play) _____ football twice a week.
4. Currently, Mark and his colleagues (work) _____ on a special project.
5. They (conduct) _____ market research for a new sports magazine called Goal!
6. Young men (read) _____ the magazine.
7. Goal! Has a problem at the moment: Not many people (buy) _____ the magazine.
8. Mark thinks that this is because men (not read) _____ magazine very often.

2) Which offer or request 1-6 matches both responses a-f?

1. Would you like a cup of tea?
2. Let me show you our new offices.

3. Can I post your letters for you?
 4. Could you give me Jon's number, please?
 5. Would you please give me some water?
 6. Could I use your office this afternoon?
-
- a. Just a glass of water, please.
 - b. Don't worry, I can do it myself.
 - c. Yes. Just a moment, it's on the database.
 - d. It's a bit difficult. Jackie's using it.
 - e. Yes, that's no problem.
 - f. Thank you. That would be very interesting.

3) Choose the correct variants.

- A. Good afternoon. Could you/ Do you want to give me some/ an information about flights to Lisbon, please? I like to/ I'd like to travel on Monday morning at 8 if possible.
- B. Monday. OK. Let me/ Can you check.
- A. There aren't any/ some flights at 8, but there's an/ some earlier flight at 6:30.
- B. How much does that cost/ is that cost?
- A. 750 Euros.
- B. That's much/ a lot! Do you have/ Are you having any cheaper flights/

- A. Sorry, not then. There's a flight at 15:30 on Sunday which costs/ is costing 280 Euros.
- B. Can I/Let me get a seat on that flight?
- A. Yes – but there's only one seat left! Do you want to/ Do you like to book it?
- B. Well, I wait/ I'm waiting to hear from my colleague.
- A. I would/ could hold it for you, if you like.

4) Complete the text with these words.

partners produce run set up founders

Jack Russell and Ray Fox are the _____ of a film company that makes cartoon films. The two _____ know each other from their student days. They decided to _____ the company after making a video together at university. Now they _____ a big organization with over five hundred employees. They _____ some of the best known cartoon films in the business.

References:

Adapted from Intelligent Business by Christine Johnson,p.23

Unit 7. Data. No Privacy

Vocabulary.

Browse-искать в интернете

Data-информация

Database-база данных

File-файл

Information Technology-информационные технологии

Record-записанная информация

Research-искать новые вещи, обновлять

Security-безопасность

Store-1)хранить вещи в специальном месте 2)сохранять информацию на диске

Website-интернет-сайт

Information technology (IT) makes it easy to store huge amounts of data, or information, on computer databases. Companies and organizations collect information about people all the time. Companies conduct research into people's buying

habits so that they can improve their marketing. Organizations collect data for surveillance purposes: to help stop criminal activity and increase security. Someone somewhere is recording nearly everything we do.

Lots of people have to manage large amounts of information. You may be a manager, a secretary, or a student. When you have information that you may want to use in the future, you have to store it where you can find it again.

The first step is to decide how to structure your filing system. Ask yourself: What are the main categories of information that I deal with? Then divide them into sub-categories.

The second step is to create files for each kind of material. Give each file a name. Ask yourself: Is this name helpful when I want that file again?

The third step is to arrange your files for easy access. Ask yourself: Which files do I use often? Which are important? Put these files at the front of the filing area. Or on a computer, create a short-cut to those files.

Finally, keep your filing system up-to-date. Delete or throw away old material. File new information immediately in the right place. And review your system often. Ask yourself: Does this system work for me? Can I organize it better?

Finding information takes time. A good filing system can save you a lot of time.

Answer the questions according to the text:

1. Why is it useful to collect information about customers' buying habits?
2. Why is important to manage information well?
3. What are three steps?
4. How do companies collect information about people?
5. What do most people think about having so much surveillance?

Exercises:

1) Complete the dialogue with the correct form of the verbs in brackets.

Leader: Good morning everyone. Are we all here?

Bertrand: Er, no – Daniella isn't here.

Leader: What (happen) _____ to her?

Bertrand: Her assistant (call) _____ a few minutes ago. Apparently she (have) _____ an accident. She (fall) _____ down. Some stairs earlier this morning and she (have to) _____ go to hospital. They think she (break) _____ her ankle.

Alicia: How terrible! I hope she'll be OK.

Leader: Well, we must make a star. When we (meet) _____ last week, we (decide)

_____ that we (need) _____ to review the procedure for Rewarding good

Performance. Since then, two of you – that's Philippa and Duncan - (do) _____ some research into several different models which we might consider. Philippa, can we start with you?

What you (find) _____ out?

2) Decide if the sentences below contain mistakes. Change the form of the verb where necessary.

1. I'm working in this company since two years.
2. I have been in the US a year ago.
3. I was there for five weeks in 1999.
4. The price has increased several times this month.
5. I was in this job for 30 years.
6. The computer crashed – probably a virus.

3) Write the questions for the answer below.

- 1 We're leaving on Friday at 4 pm.
- 2 I'm having dinner with our Japanese partners.
- 3 We employ 6,000 staff.
- 4 We've known each other for six years.
- 5 I didn't tell you because it was confidential.
- 6 I recommend the more expensive model.
- 7 It cost \$12,000.
- 8 We've decided not to do anything.

4) Make these questions more polite.

- 1 How much are they going to pay you?
- 2 Where's the accounts department?
- 3 Can I leave my coat here?
- 4 What did you pay for your car?
- 5 What's your name? I can't remember.

References:

Adapted from Intelligent Business by Christine Johnson,p.15.

English in Civil Construction.

Unit 1. Construction documents.

Vocabulary.

Working drawings – рабочие чертежи

Specification – технические требования, проектное задание

Bill of quantities – смета, ведомость объёмов работ

Architect - архитектор

Architectural technician – зд. проектировщик

Contractor - подрядчик

Symbols – символы, знаки

This very important topic describes the functions of the main documents, such as the working drawings, a specification and a bill of quantities.

The working drawings are the basic documents prepared by the architect or architectural technicians to show the detailed plans, sections and elevations. They are drawn to a suitable scale and show the location and shape of the building. They

also provide information about the dimensions, levels and general layout and services. They are used by the main contractor or subcontractors on site to construct the building. They are also used to obtain local authority's approval, to prepare the specification, a bill of quantities and others.

The working drawing consists of site, floor, roof, foundation plans, elevations and sections. The plans show the details like the roof and floor. The sections show the internal parts like foundations and the floor. The elevations are the views of doors and windows.

All the symbols must be common to all drawings.

The specification is a document describes the construction standards, required materials, the sizes and shapes of different parts. It describes how to do the building.

The bill of quantity allows the contractor to price the work, to determine the volumes of work and the number of workers.

All abovementioned documents should be made by specialists according to the code of practice and standards of appropriate countries and be approved by local authorities.

Answer the questions according to the text:

1. What documents do you need for approval for building construction?
2. What main construction documents do you know?
3. Why do we need specifications?
4. Why are all symbols common?

Exercises:

1) Match the English and Russian equivalents. Make up the sentences with these words and word combinations:

1. suitable scale	а. вышеупомянутый
2. working drawings	б. генеральный план
3. specification	с. органы местной власти
4. bill of quantities	д. в соответствии с
5. to describe	е. требуемый, необходимый
6. to provide	ф. соответствующий масштаб
7. dimension	г. общий, одинаковый
8. elevation	h. рабочие чертежи
9. local authorities	и. соответствующий
10. general layout	j. смета
11. common	к. размеры, габариты

12. required	1.вертикальная проекция, высота
13. according to	т.спецификация, технические
14. abovementioned	требования
15. appropriate	п.описывать, изображать
	о.обеспечивать, снабжать

2) Complete the sentences:

The working drawings are the basic documents prepared by.....

The working drawing consists of.....

The bill of quantity allows the contractor.....

All construction documents should be made by specialists according to.....

The specification is a document describes.....

3) Complete the sentences using Present Perfect Active:

f.e. I am very tired because (to work). - I have worked hard.

- a) She can speak English because..... (to learn).
- b) He can share his impressions about the film because..... (to see).
- c) I'm upset because..... (to fail an exam).
- d) I have no money because..... (to spend).
- e) She's looking for her gloves because (to lose).
- f) He is absent because.....(to fall ill).

4) Complete the sentences using Present Perfect Passive:

f.e. The students have already done this job. - The job has already been done by students.

We have just received this letter.-

They have offered her some interesting work.-

I have invited some friends to tea.-

The students have written the test-paper without mistakes.-

They have built excellent hotels for tourists in the mountains.-

I have already ironed this dress.-

We haven't discussed this question yet.-

Has anybody explained the rules of this game?-

References:

Adapted from Building Construction Principles and Practices by

D.Walton.,pp.13-17.

Unit 2. Health and safety.

Vocabulary.

Safety – безопасность, техника безопасности

Accident - несчастный случай, травма

Hygiene – гигиена

In advance - заранее

Hazardous - опасный

Scaffolding – установка строительных лесов

Voltage – величина электрического напряжения

First aid – оказание первой медицинской помощи

Disease - заболевание

A building site can be a dangerous place because machinery, hazardous materials, scaffolding create risks for people. To reduce accidents it is important to work out the safest methods rules in advance and follow them.

First of all, you should wear suitable proper working clothes such as overalls, strong or rubber boots and keep them in secure place. If you work in excavations you must wear a hard hat to protect your head. Moreover, put support against the sides of the excavation so that the soil cannot fall on you. Excavations should be expected daily before work and especially after heavy rain.

The dangerous materials, such as explosives, petrol and others must be listed, controlled and stored in a locked compound.

The wiring must be inspected regularly and the voltage should be reduced to avoid electric shocks on a site.

Working on scaffolding is very dangerous to prevent accidents experts must erect scaffolding to the biggest safety standards. Workers on scaffolding must always be careful and check the position of scaffolding.

Working with bricks, blocks, cement is unsafe but you need to be careful of yourself and wear protective gloves to safety your hands from skin diseases and also wear protective mask.

All dangerous places in construction must be surrounded by secure barriers. There must be a box of first aid with plasters,

bandages, ointment and disinfectant to deal with broken bones, burns and electricity shocks. The site should employ someone who is experienced at first aid.

In conclusion, a healthy building site will have adequate rest and sanitation facilities. Remember about health and hygiene of workers and organize WCs, dry areas to prepare food and wash hands.

The rules mentioned above must be kept and known by everyone on the site.

Answer the following questions:

1. Why is it important to work out the safest rules in advance?
2. What are the suitable clothes on a building site?
3. What and why should be kept in a box of first aid?
4. Explain what facilities make a healthy site.

Exercises:

1) Match the Russian and English equivalents. Make up the sentences with these words and word combinations:

1.scaffolding	а.временное освещение
2.trench	б. взрывать
3. overall	в. деревянная стойка
4.excavation	д. траншея, канава
5.shallow	е. неглубокий, мелкий
6.to blast out	ф. разбавитель, разжижитель
7.cellulose thinner	г. железобетон
8.caustic cleaner	h. тачка
9.compound	и. спецодежда, рабочий комбинезон
10 temporary lighting	j. строительные леса
11.timber props	к. выемка грунта, раскопка
12.wheelbarrow	l. каустическое очистительное ср-во
13.reinforced concrete	т. соединение, смесь
14.fibre cement	о. дезинфицирующее ср-во
15.ointment	р. волокнистый цемент
16.disinfectant	q. мазь, протираание

2) Is it True or False?

The site shouldn't employ someone who is experienced at first aid.

Working on scaffolding is very dangerous that's why experts must erect scaffolding to the different standards.

Healthy building sites should have adequate rest and sanitation facilities.

Working with bricks, blocks, cement is safe.

The dangerous materials must be listed, controlled and carefully stored.

**3) Translate the following verbs and make up the sentences with them in Present Continuous if it's possible: F.e. The builders are trenching on the building site now. - To trench-
рыть канавы, копать рвы, траншеи**

To scaffold

To light

To inhale

To remind

To reduce

To prevent

To carry out

To work out

To improve

4) Form the adjectives using the suffixes: -ous, -ful,-able,-ant,-less, -ive and find the suitable nouns. Translate the phrases.

Danger-		gloves/mask
Hazard-		materials
Important-		rules
Suit-		methods
Health-		standards
Care-		position
Use-		fact
Differ-		places
Protect-		clothes

References:

Adapted from Building Construction Principles and Practices by

D. Walton.,pp.1-4

Unit 3. Civil construction.

Vocabulary.

Industrial enterprises – промышленные предприятия

Railway – железная дорога

Highway - автомагистраль

Subway – разг. метрополитен

Sporting facilities – спортивные сооружения

Brick – кирпич

Site plan – план строительного участка

Above-ground part – наземная часть здания

Below-ground part- подземная часть здания

There are many branches of modern civil construction such as housing construction, construction of industrial enterprises, construction of railways, highways, subways, construction of bridges, dams, ports, canals, construction of different sporting facilities.

Since prehistoric times people have built different construction materials for example wood, bricks, concrete, steel and others. All modern houses must have modern services such as electricity, central heating, ventilation, waste dispose.

It's very important to have a site plan for every building.

Construction of any building usually starts with excavation. It is a well-known fact that there exist different kinds of soil so it is very important to know the type of soil in advance. For example, if the upper stratum is organic it must be removed from the construction area in order to guard the foundation of the building against water and wind erosion. In colder climates the foundations should be placed below the level to which the ground freezes in winter.

There are three major parts of a building; superstructure, substructure and foundation. The superstructure is the above-ground part, the substructure is the below-ground part. The foundations keep the walls and the floor is from direct contact with the soil because the function of a foundation is to transfer the loads of a building into the soil.

Foundation design may be rather complex or very simple, it depends on the size of the building.

A foundation may support different kinds of loads, among them there dead loads and live loads. The dead load includes the weights of electrical, mechanical equipment and the weight of the foundation itself. The live load includes the weights of living beings, the furnishings, equipment they use and also snow, ice, water of the roof.

There are two basic parts of foundations: shallow and deep. Shallow foundations transfer the load to the earth while deep foundations transfer the load far below the structure. As to the price, shallow foundations are usually less expensive than the deep ones.

Answer the questions according to the text:

1. What branches of modern civil construction do you know?
2. What kind of services do modern people need and use?
3. What are the major parts of a building?
4. What does any construction start?
5. What is a function of a foundation?
6. Why must we know the type of the soil in advance?

Exercises:

1) Match the Russian and English equivalents. Make up the sentences with these words and word combinations:

1.branch	а.центральное отопление
2.highway	б.заранее
3.subway	с.верхний слой почвы
4.enterprise	д.динамический вес
5.dam	е.статический вес
6.bridge	ф.удаление отходов
7.central heating	г.мебель
8.waste dispose	h.фундамент
9.concrete	и.вес
10.soil	j.мост
11.in advance	к.шоссе, автомагистраль
12.foundation	l.ветвь, отрасль
13.dead load	м.метро
14.live load	п.дамба
15.weight	о.удалять
16.upper stratum	р.промышленное предприятие
17.to remove	q.почва
18.furnishing	г.бетон

2) Combine and translate combinations:

For example: civil construction

Sporting	Pool
Industrial	Construction
Military	Materials
Dead	Facilities
Live	Enterprises
Swimming	Branches
Construction	Dispose
Turn key	Load
Modern	Services
Central	Heating
Waste	Fact
Well known	Erosion
Wind	Beings
Living	Part
Above-ground	Load

3) Complete the sentences:

The dead load includes...

The live load includes...

The foundations support...

Foundation design may be both...

Different sporting facilities are...

There exist two basic parts of foundations...

4) Study the examples and form the comparative and superlative degrees of adjectives, find them in the text.

Translate from Russian into English:

Big-bigger-the biggest

Beautiful-more beautiful- the most beautiful

Important- less important-the least important

Cheap, simple, expensive, complex, shallow, modern, deep, cold, hot.

Проект фундамента может быть сложнее или проще, это зависит от размера фундамента.

Более глубокий фундамент стоит дороже, в то время как строительство неглубокого фундамента стоит дешевле.
Чем глубже фундамент, тем дороже его строительство.
В столице России находятся самые современные здания.
Самое важное при строительстве фундамента- это информация о типе почвы и климата.

References:

Adapted from Building Construction Principles and Practices by
D.Walton.,pp.18-21.

Unit 4. The building team.

Vocabulary.

Code of practice - строительные нормы и правила

Overall layout - генеральный план

Beam - балка, траверса

To run business - вести дело, предприятие

Durable - прочный

To be involved in - быть вовлечённым

To confirm - подтверждать

Roof trusses - ферма, кровля из стропильных ферм

Suspended floors - перекрытие без промежуточных основ

Government – правительство

To design – проектировать, изображать, конструировать

Equipment – оборудование, оснащение

To calculate – вычислять, рассчитывать

The building team includes the client, the design team, the contractor's team, the building material suppliers, the regulators.

A client who has access to money and land is the most important person in a building project. The client may be a private individual, a commercial organization or the government.

The design team is responsible for the overall layout. The designers produce design drawings, working drawings and perspectives.

The structural engineer calculates the weight of the construction materials, the people and the equipment.

The quantity surveyor prepares a bill of quantities so that contractors can accurately price the work.

The construction team consists of the main contractor, the general foreman, surveyors, laborers, estimators, subcontractors, supervisors and others. There are also technicians who work for design or building teams and carry out work to high standards. Their work is to complete details on drawings, make changes on site when required, price the changes, inspect the building work, organize the right number and type of building workers, order equipment and building materials.

Constructing a building takes people, materials and equipment. The manufactures make all the materials, the builders' merchants buy these materials and sell them to the building contractors.

The building inspectors confirm that the design, layout and constructing methods are acceptable to building regulations and codes of practice.

The planners control building projects of different categories: domestic, commercial, industrial, public and agricultural. Houses, flats, hostels; offices, shops, markets; factories, warehouses; cinemas, theatres, hospitals, schools, churches; farms, small-holdings.

Answer the following questions:

1. What is the structural engineer responsible for?
2. What does the building team consist of?
3. What are they charge of?
4. What are the common categories of building types and give some examples of them?

Exercises:

1) Match the Russian and English equivalents. Make up the sentences with these words and word combinations:

1regulator	a. водопроводное дело
2supplier	b. кладка кирпича
3surveyor	с.эксперт по оценке, сметчик
4supervisor	d. главный мастер, прораб
5general foreman	e. разнорабочий
6estimator	f. поставщик
7labourers	g. руководитель проекта
8bricklaying	h. геодезист, топограф
9plumbing	i. инспектор
10carpentry	j.плотничное дело

2) Remember the following professions/occupations:

f.e. work-worker

music-musician

Электрик, плотник, оценщик, геодезист, инспектор, строитель, подрядчик, разнорабочий, сантехник, субподрядчик, поставщик, инженер, дизайнер, проектировщик, производитель, специалист.

3) Use -s in Present Simple if it's necessary. Make up questions to the sentences:

The designer produce... design drawings and working drawings. The building inspector confirm... the design, layout and constructing methods. The quantity surveyors prepare... a bill of quantities. The technicians work ...for design or building teams and carry... out very important work. The structural engineers calculate... the weight. The supplier provide...construction materials.

4) Form nouns using appropriate suffixes: -tion,-ity,- ment,-ance,-ate,-ant ,- ness and others. Make up the sentences with these words:

Important-

Confirm-

Calculate-

Hard-

Soft-

Active-

Equip-

Organize-

Govern-

Regulate-

Accept-

5) Complete the sentences according to the text:

Constructing a building takes...

The building team includes...

There are different categories of construction...

The design team carries out...

The constructing methods should satisfy...

References:

Adapted from Building Construction Principles and Practices by

D.Walton.,pp.5-8

Unit 5. Construction materials.

Vocabulary

Properties – свойства

Durability – долговечность, износостойкость

Decay-resistance –стойкость к гниению

Advantages and disadvantages – преимущества и недостатки

To evaporate – испаряться

Renewable natural resource – возобновляемые природные ресурсы

Facings – облицовка, отделка

Paving – мощение улиц

Width, breadth - ширина

Length – длина

Height – высота

Weight - вес

Dimensions – размеры

Local custom – местный обычай

Crosswise – крестообразно, в поперечном направлении

Lengthwise – в длину, в продольном направлении

Clay - глина

Materials used for construction purposes possess different properties. They differ in durability, strength, weight, fire-and decay-resistance and cost.

Wood, timber, brick, stone, concrete, metals, and plastics belong to the most popular building materials used nowadays. They all have their advantages and disadvantages that are taken into account when designing a structure.

Wood is naturally growing materials. It is known to be the oldest construction material and is still widely used for different purposes. Wood is popular since it has low weight and is easy to work. But its usage is limited because of its disadvantages: it easily burns and decays. Wood has been a highly used building material since prehistoric times. Being the oldest building material, wood is also known to be the only naturally growing organic material. Is wood strong? Hardly so, because wood always contains some water which decreases its strength. But after the wood is cut, the water content starts to evaporate and as the water content decreases the strength of cut wood and its hardness start to increase. It is a well-known fact that the drier is the cut wood the greater is its strength and hardness.

Trees are known to grow naturally, which makes wood a constantly renewable natural resource. Among other advantages

of wood there are its low cost, low weight, and high workability. But, as any other construction material, wood has its disadvantages. The main ones are the following—it is not fire-resistant, it easily burns.

Among other highly used construction materials there are concrete, steel, brick, stone, and plastics. They all differ in their properties and in the methods of usage.

As to stone, it also belongs to the oldest building materials. Among its advantages there are strength, high heat insulation and fire-resistance.

Concrete is known to be one of the most popular building materials. It is produced by mixing cement, gravel, water, and sand in the proper amounts.

Bricks are an ancient building material, having been made and used by the Romans for arches, facings, paving etc. Though they were, at that period, of larger and smaller sizes than those used generally in the present day, they were always made with half-bricks or double bricks—double their width in length—to allow of bond, as will hereinafter be explained. They thus varied in length from 7 to 22 inches.

In more modern times bricks have been used for walling, facing, arches, and paving; and generally their dimensions are

now about 9 inches long by 4 1/2 inches (or half their length) in breadth, so that two laid crosswise will cover two laid lengthwise. They are made from 2 to 31 inches in height, according to local custom or the requirements of construction. They are of numerous different qualities, kinds, and colours, each from its peculiar nature adapted to a particular purpose or use. It is to be noted that the quality of a brick depends on the clay from which it is made, and on the different manipulation which the clay will.

Answer the questions.

1. Into what groups can construction materials be divided?
2. What are the advantages (disadvantages) of wood, stone, metals?
3. What two groups are metals divided into?
4. How did the Romans use bricks? What do you know about modern times?
5. Which of the materials listed below are natural, artificial?

Exercises.

1) Which of the properties of construction materials may be classified as advantageous? Disadvantageous?

High cost fire-resistance non-fire-resistance

Low resistance low cost high strength

High weight durability corrosion resistance

Heavy weight hardness softness

2) Translate the following sentences. Mind the Complex Subject.

1) Water content is known to decrease in the cut wood.

2) Wood as a structural material is considered to be highly used because of its low weight, low cost, and high workability.

3) Use of concrete for building purposes is announced to be constantly increasing all over the world.

4) The strength and hardness of cut wood are known to increase as its water content evaporates.

3) Give the English equivalents of the Russian words.

- 1) Small (полосы) _____ of wood are (склеены) _____ together.
- 2) Wood in panel form is more (предпочтителен) _____ for some construction (цели) _____ than (доски) _____
- 3) (фанерные) _____ panels are made up of (тонкие) _____ (деревянные) _____ veneers.

4) Choose the correct answer.

Stud (s) of a common wooden partition

- a) are vertical wooden members
- b) is the upper horizontal wooden member
- c) is the lower horizontal wooden member
- d) are the intermediate horizontal wooden members.

Pick up the commonly adopted geophysical method in civil engineering from the following:

- a) the seismic method
- b) electrical resistivity method
- c) gravitational method
- d) magnetic method

e) both (a) and (b) of the above.

The portion of a brick cut across the width, is called

- 1) closer
- 2) half brick
- 3) bed
- 4) bat.

The 9 cm x 9 cm side of a brick as seen in the wall face, is generally known as

- 1) stretcher
- 2) face
- 3) front
- 4) header
- 5) side.

References: Ажищев Н.И. «Профессия-строитель», Москва, высшая школа, 2009г.

Безручко Е.Н. «Английский для строителей», Москва высшая школа, 2001г. Издательский центр «Март», 2010г.

Пономоренко В.И. «Сборник текстов на английском языке». М.: «Высшая школа», 2002г.

Unit 6. Building stones.

Vocabulary.

Clay – глина

Dwelling - жилье

Igneous – вулканический

Mica - слюда

Sedimentary – осадочный

Slate – сланец

In many places, as in hilly regions, stones are more freely available than clay bricks. They occur naturally and need not to be manufactured so that stone masonry becomes cheaper than brick work. From early days, even before bricks were invented by the humans, stones were used to build dwellings. Stones are more permanent than most of other natural building materials like wood. Most of the prehistoric monuments that remain even today are made of stones. Stones were preferred before the advent of concrete for heavy engineering constructions like bridge piers, harbour walls, seaside walls and they are still used

for facing work. Today, stones form an important source of aggregates (both coarse and fine) for concrete. Thus, stone is an important building material that all civil engineers are familiar with.

A study of rock-forming minerals belongs to Geology. As already stated, stones, depending on the type, can be used in building for masonry, flooring, roofing and paving roads, as well as aggregates for concrete.

Some of the common stones and their uses are as follows:

1. *Granite* (Igneous rock). It is used for heavy engineering works for bridge piers, columns, retaining walls, random rubble, foundation, dressed stonework and for coarse aggregates in concrete. They can also be cut into slabs and used as floor slabs and stone facing slabs.
2. *Basalt and trap* (Igneous rocks). They have the same use as granite.
3. *Gneiss* (Metamorphic rock). It is used in the same way as granite. It can be identified by its elongated platy minerals often mixed with mica.
4. *Quartzite* (Metamorphic rock). It is also used in the same way as granite but it is not used for ornamental work as it is brittle.

5. *Marble* (Metamorphic rock). It is used for ornamentation, flooring and stonefacing slabs.
6. *Slate* (Metamorphic rock). It is used for damp-proofing flooring and roofing.
7. *Limestone* (Sedimentary). It is used for walls as coarse aggregates for concrete but also as a base material for cement.
8. *Sandstones* (Sedimentary). They are used for ornamental work and paving.
9. *Laterite* (Decomposed from igneous rocks). It can occur in hard and soft varieties. The soft variety is used for wall after curing while the hard variety is used for paving the pathways.

Answer the questions:

1. What advantages does stone have as a building material?
2. What are stones used for nowadays?
3. When was stone a preferred building material?
4. What stones can be used for heavy engineering?
5. What stones can be used for paving?

Exercises:

1) Decide whether the statements are true or false:

1. Stones are cheaper than bricks.
2. Nowadays stones are only used as aggregates for concrete.
3. Stones were never used for heavy engineering.
4. Quartzite is not used for ornamental work because it is soft.
5. Laterite is used for walls and paving.

2) Match the words from the left with their Russian equivalents:

Marble	Известняк
Limestone	Заполнитель
Slab	Опора
Pier	Мрамор
Aggregate	Плита

3) Guess the word by its definition:

1. A structure that supports a building
2. Small blocks of clay used in building
3. A building or place of shelter to live in

4. A large, thick, flat piece of stone
5. A shiny silicate mineral found in granite and other rocks

4) Open the brackets and put the verbs in a correct form:

1. People (use) stones to build dwellings from early times.
2. Stones (use) for heavy engineering constructions before the invention of concrete.
3. Geology (study) rock-forming minerals.
4. Most prehistoric monuments (build) of stones.
5. Granite often (cut) into slabs.

References:

<http://books.google.ru/books?id=MBamtq45OykC&printsec=frontcover#v=onepage&q&f=false>

Unit 7. Concrete.

Vocabulary.

Aggregate – заполнитель

Diluted – разбавленный

Cure – затвердевать

Imperviousness – герметичность

Mouldability – способность к формованию

Concrete is a building material made by mixing cement (portland cement and water) with aggregate (sand and stone). The cement is the 'glue' that binds the particles in the aggregate together. The strength of the cement depends on the relative proportions of water and cement, with a more diluted paste being weaker. In addition, the relative proportions of cement and aggregate affect the strength, with a higher proportion of making stronger concrete. The concrete hardens through the chemical reaction between water and cement, without the need for air. Once the initial set has taken place, concrete cures well under water. Strength is gained gradually, depending on the speed of the chemical reaction. Admixtures

are sometimes included in the concrete mix to achieve certain properties. Reinforcement steel is used for added strength, particularly for tensile stresses. Concrete is normally mixed at the building site and poured into formwork of the desired shape, in the position that the unit will occupy in the finished structure. Units can also be precast, either at the building site or at a factory.

Concrete is associated with high strength, hardness, durability, imperviousness and mouldability. It is a poor thermal insulator, but has high thermal capacity. Concrete is not flammable and has good fire resistance, but there is a serious loss of strength at high temperatures. Concrete made with ordinary portland cement has low resistance to acids and sulphates but good resistance to alkalis.

Answer the questions:

1. What does the strength of the cement depend on?
2. What is required for curing of concrete?
3. What kind of admixtures can be used in the concrete mix?
4. What are the properties of concrete?
5. How does high temperature affect concrete?

Exercises:

1) Decide whether the following statements are true or false:

1. Concrete is a building material made of cement and aggregate.
2. Air is needed for the concrete to harden.
3. Reinforcement steel is added to better mouldability.
4. Precast concrete can be made at a factory only.
5. Concrete is not fire resistant.

2) Match the combinations from the left with their Russian equivalents:

Precast concrete	Напряжение при растяжении
Reinforced steel	Сборный бетон
Tensile stress	Огнеупорность
Thermal insulator	Арматурная сталь
Fire resistance	Теплоизоляция

3) Guess the word by its definition:

1. Pieces of broken or crushed stone or gravel
2. Any alien element or ingredient

Easily set on fire

A fine portion or fragment of something

The ability to withstand wear, pressure or damage

4) Open the brackets and put the verbs in a correct form:

The particles in the aggregate (bind) by the cement.

The strength of concrete (depend) on the proportions of cement and aggregate.

Certain properties (achieve) by including admixtures.

Concrete (characterize) by high strength.

High temperature (affect) the strength of concrete.

References: <http://www.fao.org/docrep/s1250e/s1250e08.htm>

Unit 8. Strip foundations.

Vocabulary.

Pier – опора

Artificial – искусственный

Rocks – камни, порода

Negligible – несущественный

Compaction – уплотнение

Bed - основание

The foundation of a building is that part of walls, piers and columns in direct contact with and transmitting loads to the ground. The building foundation is sometimes referred to as the artificial, and the ground on which it bears as the natural foundation. Ground is the general term for the earth's surface, which varies in composition within the two main groups, rocks and soils. Rocks include hard, strongly cemented deposits such as granite and soil; the loose, uncemented deposits such as clay. Rocks suffer negligible compression and soils measurable compression under the load of buildings.

The size and depth of a foundation is determined by the structure and size of the building it supports and the nature and bearing capacity of the ground supporting it.

Strip foundations consist of a continuous strip, usually of concrete, formed centrally under load bearing walls. This continuous strip serves as a level base on which the wall is built and is of such a width as is necessary to spread the load on the foundations to an area of subsoil capable of supporting the load without undue compaction. Concrete is the material principally used today for foundations as it can readily be placed, spread and leveled in foundation trenches, to provide a base for walls, and it develops adequate compressive strength as it hardens to support the load on foundations. Before Portland cement was manufactured, strip foundations of brick were common, the brick foundation being built directly off firm subsoil or built on a bed of natural stones.

The width of a concrete strip foundation depends on the bearing capacity of the subsoil and the load on the foundations. The greater the bearing capacity of the subsoil, the less the width of the foundation for the same load.

Answer the questions:

1. What is meant by “artificial foundation” and “natural foundation”?

2. What do the size and depth of a foundation depend on?
3. What function does a continuous strip of a foundation perform?
4. What building material is used for foundations and why?
5. What is the width of a foundation determined by?

Exercises:

1) Decide whether the following statements are true or false:

1. Soils suffer negligible compression under the loads of building.
2. The structure and size of the building determine the depth of the foundation.
3. A continuous strip is usually made of brick.
4. Strip foundations of brick used to be built on a bed of natural stones.
5. The width of the foundation depends on the size of a building.

2) Match the combinations from the left with their Russian equivalents:

Strip foundation	Несущая способность
Bearing capacity	Траншея под фундамент
Compressive strength	Сыпучий слой
Foundation trench	Ленточный фундамент
Uncemented deposit	Прочность при сжатии

3) Guess the word by its definition:

1. Small blocks of clay used in building
2. A weight or source of pressure borne by someone or something
3. An artificial building material made by mixing cement and various aggregates
4. A solid support designed to sustain vertical pressure
5. The stratum of earth or earthy material directly under the surface

4) Open the brackets and put the verbs in a correct form:

1. The foundation of a building (transmit) loads to the ground.
2. The ground sometimes (call) the natural foundation.
3. The bearing capacity of the ground (determine) the size and depth of a foundation.
4. Brick foundations (use) before the invention of concrete.
5. The brick foundation (build) directly off firm subsoil.

References: <http://civilconstructiontips.blogspot.ru/2011/06/foundation-construction-strip.html>

English in Computer-aided Design.

Unit 1. The digital age.

Vocabulary.

Perform operations – проводить операции

Pay bills – оплачивать счета

Do research- исследовать

Enroll courses – записываться на курсы, кружки

Complete tasks – выполнять задания

Fuel consumption – потребление топлива

Databases – базы данных

Nowadays it's almost impossible to imagine our life without the computers. Computers help people to perform operations, communicate with other people, pay bills, access the net.

Students can also do research, give presentations, enroll for courses, complete tasks online. Computers help students to perform mathematical operations, teach science, history or language courses. A school website allows teachers to publish

exercises for students or get marks and give homework on net school. You can also watch movies and TV, download your favourite music and films.

In banks computers store information about the money, customers, transactions. The bank staff can access large databases and to carry out financial transactions. They also control the cash points which dispense money.

Airline pilots use computers to help them control the plane. For example, monitors display data about fuel consumption and weather conditions. Travel agents use PCs to find out information about flights, prices, times and many other details.

Mobiles also let you make voice calls, send texts, email people and download logos, ring tones or games.

Computers have become a very important part of our everyday life and young people who have grown up with PCs and mobile phones are often called the digital generation. Computers have changed the way we live, work, play and communicate. Today it's almost impossible to imagine life without the magic of computers.

Answer the questions according to the text:

1. How are computers used in our life?
2. How do you think computers will be used in the future?
3. What does it mean "digital generation"?
4. How do you use the computer at home? at university?
5. What else do you usually do with your mobile phone?

Exercises:

1) Match the English and Russian equivalents. Make up the sentences with these words and word combinations:

1. to speed up	a. улучшить
2. to allow	b. общаться с
3. to enter	c. платить за
4. to grow up	d. позволить
5. to pay for	e. вырастать
6. to communicate with	f. проводить, осуществлять
7. to improve	g. банкоматы
8. cashpoint = ATM	h. вместо
9. transactions	i. банковские операции
10. to carry out	j. поступать, входить
11. instead of	k. ускорять, разгонять

2) Match the verbs with the nouns to make collocations:

to perform	research
to access	information
to give	online
to do	money
to keep	research
to complete	data
to store	bills
to pay	the Net
to transfer	operations
to display	goods
consumption	records

3) Use collocations and complete the sentences:

- a) In many universities studentswith Power Point to make their talks more attractive, to brighten them up.
- b) Online banking allow you..... andwhen it's comfortable for you.
- c) Now it's very easy tofrom cafes, hotels, subway and other public places thanks to Wi-Fi.

- d) In bank system computers let.....very quickly and
.....about every client.
- e) Teachers give students tasks to.....and
also they.....with the help of computers.

4) Find the examples of Present Perfect in the text. Open the brackets and put the verbs in the right tense:

- a) The prices on consumption goods (выросли) recently.
- b) My cousin (оплатил) the meal today.
- c) Yesterday the bank (осуществил) all transactions.
- d) My parents (перевели деньги) last month.
- e) Your English (улучшился) very quickly.
- f) His son (поступил) the university last year.

References: Adapted from Infotech "English for computer users" by
Santiago Remacha Esteras., p.2.

Unit 2. Computers for the disabled.

Vocabulary.

Disabled – человек с ограниченными возможностями, инвалид

Leading role - главная роль

To require – требовать, приказывать

Blind – слепой

Deaf - глухой

Motor-disabled – с ограниченными двигательными возможностями

Dull sight – слабое зрение

Blinking – мерцание, моргание

Muscle movements – движение мускул

Breath movements – дыхательные движения

Computers have taken a leading role in our society and most jobs require access to computers and the internet. There are

many people who are blind, deaf or motor-disabled and new technology allows them to use computers, do their jobs in the office, learn at school, communicate with other people.

Most blind users have computers adapted with technologies such as Braille, screen magnifiers, speech synthesis.

There are Braille keyboards which have Braille lettering allowing identify each key. For people with dull sight there is a screen magnifier which can enlarge text by up to 16 times. A speech synthesis system reads aloud the work on computers.

Deaf computer users can overcome many difficulties using visual alerts, electronic notetakers and textphones. Visual alerts are indicators with a blinking menu which appear when a user receives a new mail. Electronic notetakers use software to type a summary of a meeting.

Textphones allow the deaf to type and read phone conversations. Deaf people also can communicate via SMS and instant messaging.

Disabled people who can't type on a standard keyboard use expanded or ergonomic keyboards, on-screen keyboards, adaptive switches and voice recognition systems. For example,

in an eyegaze system the keys on the virtual keyboard are activated by the user's eyes when they pause on a key for two or three seconds.

Switches come in many shapes and sizes. They are operated by muscle movements or breath movements or breath control. There's also voice recognition which allows the computer to interpret human speech transforming the words into digitized text or instructions.

Answer the questions according to the text:

1. What kinds of disabled people can you remember?
2. Why do they need special possibilities of the computers?
3. What new technologies for disabled people do you know?
4. What can people do with the help of computers?
5. What can be found around us for disabled people?

Exercises:

1) Match the Russian and English equivalents. Make up the sentences with these words and word combinations:

1.disabled people	a.увеличивать
2.society	b.клавиатура с системой чтения для слепых
3.deaf	с.расширять
4.blind	d.общество
5. screen magnifiers	e.узнавание, распознавание
6. speech synthesis	f.глухой
7. Braille keyboards	g. текстофон
8. overcome difficulties	h.экранная лупа
9. notetakers	i.слепой
10. textphone	j.стенография
11. enlarge	k.оптический сигнал тревоги
12. recognition	l.люди с ограниченными возможностями
13. expand	m.конструктивный синтез речи
14. visual alerts	n.преодолевать трудности

2) Read the definitions and write the suitable word:

- a) software that enlarges text and images on the screen, making the content more readable for users with low vision.
- b) technology that allows computers to recognize text input into a system with a scanner.
- c) a system of writing devised for blind people, in which combinations of raised dots representing letters and numbers can be identified by touch.
- d) a phone with a small screen and a keyboard that transcribes spoken voice as a text, it's used by people with hearing or speech difficulties.
- e) a system activated by the user's eye movements.

3) Choose ing- form or infinitive after the verbs:

We started (to retell) the text a half of an hour ago. New technologies allow disabled people..... (to use) and work on computers. They finished..... (to discuss) the project an hour and a half ago. They decided..... (to enlarge) their business in Asia and Russia. Our government want..... (to

take care) of disabled people more and they are interested in(to give) them different jobs by companies.

4) Translate the following sentences using the appropriate pronouns:

Люди с ограниченными возможностями не могут выполнять некоторые функции, которые необходимы для жизни. Поэтому для них разработаны специальные компьютеры, где находятся устройства, позволяющие им использовать и работать на компьютере. Люди с ограниченными возможностями знают, когда и как применить экранную лупу, текстофон, систему распознавания речи для преодоления трудностей при работе на компьютере. Мы должны понимать, почему люди с ограниченными возможностями нуждаются в нашей помощи и поддержке государства.

References: Adapted from Infotech "English for computer users" by
Santiago Remacha Esteras., p.42.

Unit 3. What is a computer?

Vocabulary.

To accept – принимать, допускать

To process - обрабатывать

To consist of – состоять из

Software – программное обеспечение

Hardware – техническое обеспечение

The central processing unit (CPU) – центральный процессор
ЦП

Main memory – оперативное, основное запоминающее
устройство ЗУ

Peripherals - внешний, дополнительные устройства

Permanent storage – постоянное запоминающее устройство
ЗУ

Attached to – прикрепленный, прилагаемый

Port – порт, многозарядный вход или выход в устройстве

A computer is an electronic machine which can accept data in a certain form, process the data and give the results of the processing.

First, data directs into computer's memory, then the computer performs a set of instructions and processes the data when the computer's programs are run. Finally, we can see the results on the screen or in printed form.

A computer system consists of two parts: hardware and software. Software is a set of instructions or programs which tells the computer what to do. Hardware is an electronic or mechanical part you can see or touch. There are three basic hardware sections: the central processing unit (CPU), main memory and peripherals.

The main part of computer is the central processing unit. Its function is to execute program instructions and coordinate everything; it's the "brain" of the computer. The main memory, it's a collection of RAM chips, holds the instructions and data. Peripherals are the physical units attached to the computer which include storage devices and input/output devices.

Storage devices for example hard drivers, DVD drivers, flash drivers provide a permanent storage of data and programs. We

use disk drivers to read and write data on disks. Input devices enable data to go into computer's memory. The most common input devices are the mouse and the keyboard. Output devices extract the finished product from the system and show or print the results.

On the rear panel of the computer there are several ports for a modem, a digital camera, a scanner etc. They allow communication between the computer and the devices. On the front panel of modern desktop PCs there are USB ports and memory card readers.

Answer the questions according to the text:

1. What parts does a computer consist of?
2. What are three sections of hardware you know?
3. What and why is the brain of computer?
4. What peripherals can you call?
5. How does a computer operate?

Exercises:

1) Match the Russian and English equivalents. Make up the sentences with these words and word combinations:

1. software	а. извлекать
2. peripherals	б. подключать
3. main memory	с. позволять
4. hardware	д. клавиатура
5. central processing unit	е. общий
6. storage devices	ф. данные
7. keyboard	г. принимать
8. to execute	х. осуществлять
9. to enable	и. оперативная память
10. common	ж. техническое обеспечение,
11. permanent storage	оборудование
12. to extract	к. центральный процессор
13. to plug	л. задняя панель
14. to accept	м. портативный компьютер,
15. data	ноутбук
16. rear panel	п. персональный настольный
17. desktop computer	компьютер
18. laptop computer	о. запоминающие устройства
	р. временное хранение
	q. внешние устройства
	г. программное обеспечение

2) Read the definitions and write the suitable word:

- a) The physical units which make up a computer system.
- b) The set of program instructions that tell the computer what to do.
- c) The processor chip that performs the basic operations of a computer; its basic components are the control unit, the arithmetic logic unit and the registers.
- d) The units connected to the computer classified into three types.
- e) There are two types of this section which holds the instructions and data currently being processed.

3) Fill in the prepositions:

The computer performs a set... instructions. Storage devices provide a permanent storage ... data and programs. We use disk drivers to read and write data.... disks. Input devices enable data to go computer's memory. The most common input devices used all.....the world are the mouse and the keyboard. Output devices extract the finished product the

system and show informationthe screen or print the resultsthe printer. the rear panel ... the computer there are several ports a modem, a digital camera, a scanner etc. They allow communication the computer and the devices. the front panel ... modern desktop PCs there are USB ports and memory card readers. You can extract datacomputer very quicklyflashcard.

4) Are the sentences true or false? Correct the sentences:

The main part of computer is the peripherals.

The function of the central processing unit is to execute program instructions and coordinate them.

The disk drivers enable data to go into computer's memory.

On the rear panel of the computer there is only one port.

The main memory is a collection of RAM chips.

References: Adapted from Infotech "English for computer users" by
Santiago Remacha Esteras., p.8.

Unit 4. What is inside a PC system?

Vocabulary.

To measure- измерять

To expand – расширять

To contain -содержать

To handle - вручать, управлять, обрабатывать

The rest of - остальное

To register - зарегистрировать

To cause - стать причиной, вызывать

The nerve center of a PC is the processor, also called the CPU, or central processing unit which is built into a single chip. It executes program instructions and coordinates the activities. It is a small piece of silicon with a complex electrical circuit called an integrated circuit.

The processor consists of three main parts;

-the control unit

-the arithmetic logic unit performs mathematical calculations and logical operations

-the registers for storing and controlling data. One of the registers keeps track of the next instruction to be performed. The other holds the executed instruction.

The power and performance of a computer is partly determined by the speed of its processor. A system clock sends out signals at fixed intervals to measure and synchronize the flow of data. Clock speed is measured in gigahertz.

The programs and data must be loaded into the main memory therefore when we run the CPU looks for it on the hard disk and transfers the copy into the RAM chips. RAM, in other words random access memory, is volatile. It means that information is lost when we turn on the computer. However, ROM, or read only memory, is non-volatile. It contains instructions and routines for operations.

The BIOS means basic input/output system and uses ROM to control communication with peripherals. We can also expand RAM capacity and add extra chips.

The main circuit board inside your computer is called the motherboard and contains the processor, the memory chips, expansion slots, controllers for peripherals which are connected by buses. Buses are electrical channels which allow devices to communicate with each other. The size of the bus is called bus width and determines how much data can be transmitted- the larger the width, the more data can travel along the bus.

Expansion slots allow users to install expansion cards for example network, sound, memory and video cards.

Answer the questions according to the text:

1. What parts does computer consist of?
2. What does the ROM mean?
3. What does the RAM mean?
4. What do "buses" mean in the computer?
5. How can we wide the possibility of our computer?

Exercises:

- 1) Match the English and Russian equivalents. Make up the sentences with these words and word combinations:

1 BIOS	а. интегральная схема, ИС
2 integrated circuit	б. двухядерный
3 control unit	с. частота следования тактовых импульсов
4 arithmetic-logic unit	д. поток данных
5 clock speed	е. управляющий блок
6 volatile	центрального процессора
7 RAM	ф. арифметико-логическое устройство
8 ROM	г. оперативная память
9 dual-in line	h. постоянное запоминающее устройство
10 bus	и. изменчивая, не сохраняющая информ. при выключении
11 expansions slots	j. системный тактовый генератор
12 bus width	к. информационный канал, шина
13 system clock	л. резервные гнезда
14 flow of data	м. базовая система ввода-вывода
	п. мощность информационного канала

2) Read the definitions and write the suitable word:

- a) An electrical channel, or highway, which carries signals between units inside the computer.
- b) the size of a bus, which determines how much data can be transmitted.
- c) the component in the processor or other chip which holds the instructions from the memory while it is being executed.
- d) a component of the CPU which performs the actual arithmetic and logical operations asked for by a program.
- e) the connectors that allow the user to install expansion cards to improve the computer's performance.
- f) a clock that measures and synchronizes the flow of data.

3) Remember the meanings of modal verbs have to, must, should, need, may and fill in the gaps:

- a) The man....be a foreigner. He ...not understand Russian.
- b) How I get to the center of London?
- c) If you go through the forest you.....lose your way.
- d) Hebe at least 60 years old.
- e) Ileave now, I have a seminar.
- f).....I apologize to him?
- g) Yougo and play there, it's forbidden.
- h) Youtell

me the truth. i) The children.....stay outside by themselves. j) Studentsbe well prepared for every class. k) The pillsbe kept in a safe place. l) You get a foreign passport to go abroad. m)....I start reading? n) Heleave tonight because he.....prepare for the exams. n)....I use your camera? o) Do you.....get up early because of community train? p) Youshout, I'm not deaf. q) You....clear up the mess today you do it tomorrow morning. r) I'm late. I.....hurry. s) My friendto complete tasks on line immediately.

4) Translate from Russian into English using the modal verbs and infinitives:

Память компьютера может быть расширена с помощью карты. Вся полезная информация должна содержаться на жестком диске и флеш-карте. Всем нужно зарегистрироваться на данном сайте вовремя. Сбой работы компьютера возможно вызван вирусами. Вам придётся измерить всё самому. Эти данные следует обработать немедленно.

References: Adapted from Infotech "English for computer users" by
Santiago Remacha Esteras.,p.11

Unit 5. Computer languages.

Vocabulary.

Language- язык

Software- программное обеспечение

Assembler- программа сборки, компоновочная программа

Complex-сложный

Application – применение, приложение

To develop – развить, разработать

To provide- обеспечить

To follow – следовать

To link – соединять, связывать

To define – определять, обозначать

You know that computers can't understand spoken languages. The only language they can understand is machine code which consists of 1s and 0s that's binary code. We use symbolic languages for example, assembly languages which use

abbreviations program translated into machine code by a piece of software called an assembler.

Machine code and assembly languages are called low-level languages which are complex. To make it easier and overcome the problem of communication software developers designed high-level languages which are closer to English.

For example, FORTRAN was developed in 1954 and used for scientific and engineering applications.

COBOL means common business oriented language was developed in 1959 and used for business.

BASIC was developed in the 1960s and used in programming. Now VISUAL BASIC is used to build graphical elements.

PASCAL was created in 1971 and used for teaching of programming.

C was created in 1980s and used to write system software, graphics and commercial applications.

C++ is a version of C which helps the programmer to concentrate on particular things f.e. a piece of text, a graphic of table.

JAVA was designed in 1995 to run on the Web, to provide animation and interactive features on web pages.

Programs must be translated into machine code by a compiler or an interpreter.

It's important not to confuse programming languages with markup languages used to create web documents. They follow instructions known as markup tags to format and link text files.

For example, HTML allows us to describe information on web pages. XML allows to define our own tags. VOICE XML was created in 2000 to access web content via the telephone. In future people are going to invent new and new languages for different purposes.

Answer the questions according to the text:

1. What computer languages do you know?
2. What purposes were these languages made up for?
3. Can you explain the term "binary code" and give examples.
4. What's the difference between low-level and high-level languages?
5. What other languages do you know and work in?

Exercises:

1) Match the Russian and English equivalents. Make up the sentences with these words and word combinations:

1.binary code	a.преодолевать, решать проблемы
2.consist of	b.сосредоточиться,
3. assembly languages	сконцентрироваться над чем либо
4.low-level	с.высокоуровневый
5.high-level	d.язык разметки, маркировки
6. concentrate on	e.двоичный код
7. overcome the problem	f.компилятор, преобразование
8. interactive features	программ
9. markup languages	g.интерактивные средства
10. compiler	h.низкоуровневый
	i.состоять из
	j.входной язык ассемблера

2) Read the definitions and write the suitable word:

a)a notation system in which numbers are represented by the two digits: 0 and 1. Thus the binary number 10 represents 2 in the decimal system, while 100 represents 4.

b)a special program that converts a source program (written in high-level language) into object code.

c) a low-level language that uses abbreviations, such as ADD, SUB, MPY to represent instructions.

d) a computer language that uses instructions called markup tags to format and link web documents.

e) a special program that translates the source code line by line as the program is running.

3) Use “will + infinitive” or “to be going to + infinitive” to express future actions:

I (to join) your club with great pleasure. You (to take) part in competition next week. I (to try) to concentrate on this topic. They (to divorce) next month. I hope you (to write) me as many letters as possible. I think you (to cope) with this situation and (to find) the right decision. It (to rain), there are many clouds and the wind is blowing. I believe we (to overcome) all obstacles together.

4) Do you know the following abbreviations and acronyms? Decipher and translate them into Russian:

XML

FORTAIN

COBOL

HTML

BASIC

ATM

BIOS

CPU

IT

OS

PC

Ppm

RAM

ROM

SIM

VAT

VoiceXML

WWW

Wi-Fi

References: Adapted from Infotech “English for computer users” by
Santiago Remacha Esteras., p.120.

English in Highway Engineering.

Unit 1. Problematic Passion of having a car.

Vocabulary

adventure - приключение

advertising - реклама

available - доступный

average - средний

convenient - удобный

entertainment - развлечение

experience - опыт

fixing- ремонт

freeway - автострада

hobby - увлечение

passion - страсть

pleasure - удовольствие

produce - производить

races - гонки

reach - достигать

related — смежный

selling — продажа

speed - скорость

transportation - перевозка

valuable - ценный

washing- автомойка

Cars can be a convenient form of transportation or an exciting hobby. Some people even spent all their lives collecting valuable cars. Others drove them in races. Can a car be more than transportation? Are they a source of pleasure? May they be

a source of problems?

It was in 1903 when Henry Ford began selling Model T car. Its cost was \$825. His company produced cars in large numbers for the first time then. This made the car available to large numbers of people. Ford Motors helped people to travel long distances quickly and easily.

The car used to bring people closer to places of work, study, and entertainment.

Many people began working in car-related industries: fixing cars, washing cars, advertising cars, and selling car products such as stereos and cellular phones.

At that time most Americans bought only 1 car, now they buy a new car every five or six years. One American may own a dozen cars in a lifetime. In fact, there are more cars than people in the United States. In New York City, 2.5 million cars move in and out of the city each day. In this traffic, the average speed is sometimes 8.1 mph. But New Yorkers keep on driving. In California freeways are overcrowded too. Many people are unhappy with car traffic and pollution, as well as with the use of good land for building new roads.

But cars are important to nearly everyone, including engineers,

businesspeople, environmentalists, and even poets. Poet Curt Brown believes that cars are part of our passion for new places and new experiences. According to Brown, this “very, very comfortable flying chair” will continue to bring us travel and adventure. Although everything can be very different in the future.

Answer the questions to the text:

1. Is the car a convenient form of transportation?
2. Can cars also be a source of many problems?
3. What company was the first to produce cars in large numbers?
4. What are many people unhappy with?
5. Who are cars important to?

Exercises:

1) Find the equivalents:

удобный, собирать, ценный, источник, экологи, опыт, приключение, массово производить, доступный,

преодолевать большие расстояния, ремонт автомобиля, автомойка, реклама машин, средняя скорость

in race, fixing cars, selling car product, a cellular phone, a freeway, crowded, an environmentalist, to bring us adventure, no matter.

2) Complete the sentences choosing the proper variant.

For many people, cars are more than transportation: ...

- a) many people also work in car industries
- b) they are a source of passion and pleasure
- c) many people are unhappy with car traffic and pollution

3) Open the brackets:

Although Ford _____ (not invent) the automobile or the assembly line, he _____ (develop) and _____ (manufacture) the first automobile that many

middle class Americans could afford. In doing so, Ford _____ (convert) the automobile from an expensive curiosity into a practical conveyance that would profoundly impact the landscape of the twentieth century. His introduction of the Model T automobile _____ (revolutionize) transportation and American industry. As owner of the Ford Motor Company, he _____ (become) one of the richest and best-known people in the world. Ford _____ (have) a global vision, with consumerism as the key to peace. His intense commitment to systematically lowering costs _____ (result) in many technical and business innovations, including a franchise system that _____ (put) dealerships throughout most of North America and in major cities on six continents. Ford _____ (leave) most of his vast wealth to the Ford Foundation and _____ (arrange) for his family to control the company permanently.

References:

Контрольная работа 2. Вариант 7. Задание 10. Английский язык.

Контрольные задания. учеб.-А647 метод. пособие / Л.В.

Лукина, Л.Н. Крячко, О.Ф. Нестерова, Н.В. Сидоров

Unit 2. How Traffic Problems Can Be Solved

Vocabulary

advertisement - реклама

be stuck - застревать

car owner — владелец машины

cope (with) - справляться

employer - работодатель

every other day — через день

freedom - свобода

get caught (in) - попадать

head — направляться

(bus) network - сеть (автобусных) маршрутов

number plate — номерной знак

on foot — пешком

pedestrian-only street — пешеходная улица

resident - местный житель

solution - решение

traffic - движение

traffic jam - пробка

transport - перевозить

travel - путешествовать

wealth — богатство

You must have seen some advertisements for cars. Are you sure they can show the reality of driving?

Big cities and small towns all over the world have a huge problem: traffic jams. Of course cars can be symbols of freedom and wealth for some people. As they can represent a personal choice to go when and where you want to. At the same time when you are stuck in a traffic jam, a car may become just a little metal box one can sit in for hours.

There are millions of cars on the road today. How can cities

cope with this? Some of them have found solutions to their traffic problems.

The city Curitiba in Brazil has very few traffic jams. This must be the result of an efficient bus network service. Main roads there have special lanes for buses only, so that they do not get caught in traffic jams.

In Milan, cars need a permit to enter the city center. Only residents and some employers can obtain a permit, not everyone can drive in and out. People park on the edge of the restricted area and head for the center on foot. As a result, there must be many pedestrian-only streets in Milan.

Car owners can enter the city centre every other day in Athens. They must match the final number of their car number plate to the day's date – if the date is an even number, the final number of the number plate must be even too. If it is not they can't drive into the central area. The same goes for odd number plates and odd dates. So half of all cars must stay at home every day.

Answer the questions to the text:

1. What is a huge problem of cities and towns all over the world?
2. Have some cities found solutions to their traffic problems?
3. Why does the city Curitiba have very few traffic jams?
4. Milan now has many pedestrian-only shopping streets, hasn't it?
5. How many cars must stay at home each day in Athens?

Exercises:

1) Find the equivalents:

реклама машин, дорожная пробка, символ, благосостояния, представлять, застревать, справляться, находить решение, разрабатывать, сеть автобусных маршрутов, выделенная полоса движения, постоянные жители, получить разрешение, предприниматель, пешком, через день, в результате, (не)четное число

2) Translate:

show the reality, traffic jams, personal choice, stuck in, efficient network, to transport rapidly, to enter the city center, to head for, pedestrian, car owner, number plate, stay at home, inner-city area

3) Complete the sentences choosing the proper variant:

Only residents and some employers can obtain a permit, so ...

- a) car owners are only allowed to drive into the city centre every other day
- b) very little traffic now drives in or out
- c) they do not get caught in traffic jams

4) Translate using modal verbs:

- 1) I can ride a horse.
- 2) With a burst of adrenaline, people can pick up cars.
- 3) You must have a permit to enter the city center.
- 4) I can drive Susan's car when she is out of town.
- 5) You must

not park here. 6) With a sudden burst of adrenaline, he was able to lift the car off the child's leg. 7) May I borrow your car?

References: Контрольная работа 2. Вариант 3. Задание
10.Английский язык. Контрольные задания.учеб.-А647 метод.
пособие / Л.В. Лукина,Л.Н. Крячко, О.Ф. Нестерова,
Н.В.Сидорова;

Unit 3. Hurricane landfall site protection.

Vocabulary

band - связывать

beam - балка

building department - отдел технического контроля зданий

cancel - отменять

contact number — контактный номер

contractor - подрядчик

damage - разрушение

debris - мусор

delivery - поставка

electricity - электричество

emergency operation - чрезвычайная ситуация

expect - ожидать

field inspection - эксплуатационный контроль

hint - рекомендация

hurricane - ураган

hurricane landfall — обрушение урагана

include - включать

local - местный

locate - размещать

lumber - пиломатериалы

plywood - фанера

probability - возможность

protection - защита

provide — обеспечивать

related (to)— связанный с

remove - убирать

secure (from) — защищать от

site — строительная площадка

suggested time — рекомендуемое время

threat - угроза

turn off - выключать

window — перерыв в движении

Local emergency operations officials and the National Weather Service will provide hurricane landfall probabilities. Approximately 60 to 48 hours before the hurricane is expected to make landfall, consider canceling the delivery of building materials to all job sites except any materials needed to secure the building site from storm damage.

While contractors generally don't want to stop or delay construction activities, the 48 to 24 hour window before landfall is the suggested time to stop all construction activity. It's important to note that most local building departments generally stop field inspections, except for those related to pouring columns, tie beams, wet decks, floors and similar structural items, during this time as well.

Contractors are encouraged to activate their hurricane job site plan during this window of time. Notify subcontractors to help secure the building site. Helpful hints for site protection include:

- Secure all job sites, giving priority attention to those located in the most populated areas,
- Clean up all construction debris,

- Tie or band together all loose plywood and lumber. Secure other loose building supplies,
- Remove permit board and all job site signage,
- Locate and turn off electricity, water and gas.

After the site is secure, advise subcontractors to leave and not return until the hurricane threat has passed. Make sure to have contact numbers for all subcontractors stored in a secure and dry place, and that they know who will contact them after the hurricane passes.

Answer the questions to the text:

1. What should be done during hurricane landfall possibilities?
2. When should you cancel the delivery of building materials to all job sites?
3. What should be done to protect the site itself?
4. What should one advise subcontractors until the threat has passed?

Exercises:

1) Find the equivalents:

местное управление по чрезвычайным ситуациям, возможности обрушения урагана, обеспечить безопасность, эксплуатационный контроль, анкерная балка, полезный совет, расположен, фанера, пиломатериалы, идентификационный комплект, угроза миновала.

2) Translate:

to provide hurricane landfall probabilities, to be expected to do something, to cancel the delivery, job sites, to secure from storm damage, to delay construction activities, the suggested time, field inspections, to activate the hurricane job site plan, plywood, to be secure, to make sure.

3) Complete the sentences choosing the proper variant:

It's important to note that most local building departments generally stop field inspections, except for those

- a) located in the most populated areas
- b) encouraged to activate their hurricane job site plan

c) related to pouring columns, tie beams, wet decks, floors and similar structural items

4) Write sentences using Reported Speech:

He said: «Secure all job sites».

She said: «Clean up all construction debris».

He said: «Tie or band together all loose plywood and lumber».

She said: «Secure other loose building supplies».

He said: «Remove permit board».

He said: «Locate water and gas».

She said: «Turn off electricity».

He said: «Cancel the delivery of building materials».

She said: «Don't return until the hurricane threat has passed».

References:

English for Construction 2. p.66, Evan Frendo, 2012

Unit 4. Right-of-Way

Vocabulary

adjoin - примыкать

borrow pit - резервный карьер

carriageway — проезжая часть

construction - строительство

drainage - дренаж

edge - край

embankment - насыпь

inner slope - внутренний склон

junction - соединение

lay - класть дорогу

mark — отмечать, помечать

outer slope - внешний склон

pavement - мостовая

reinforce - укреплять

remain - оставаться

required level — требующийся уровень

right-of-way — полоса отвода

road shoulder - обочина

road zone — полоса дорожного строительства

roadbed - дорожное полотно

shallow — мелкий, неглубокий

side ditch - продольная канава

solid - твердый

spoil bank - насыпь по бокам дорожной выемки

support - опора

surface - поверхность

vehicle – автомобиль, транспортное средство

width - ширина

The zone which is marked to lay the road is called the road zone or right-of-way. The higher is the technical classification of the road, the wider is the right-of-way for its construction. The road zone includes such parts of a road as a carriageway, road shoulders, inner and outer slopes, and other parts.

The road surface strip within the limits of which motor vehicles run is called a carriageway. Usually it is reinforced by means of natural or artificial stone aggregates. These stone aggregates form the pavement.

The strips of the ground which adjoin the carriageway are called the road shoulders. The shoulders render lateral support to the pavement. In future the pavement will always be made of solid materials within the limits of the carriageway.

To lay the carriageway at the required level above the ground surface a formation or roadbed is constructed. It is constructed in the form of embankments or cuttings with side ditches for drainage and the diversion of water.

The formation includes borrow pits – shallow excavations from which the soil was used for filling the embankments. It also includes spoil banks. Spoil banks are heaps of excessive soil remaining after the excavation of cuttings.

The carriageway and shoulders are separated from the neighboring land by slopes. The cuttings and side ditches have inner and outer slopes. The junction of the surface of the shoulders and the embankment slope is called the edge of the roadbed. The distance between the edges is called the width of the roadbed.

Answer the questions to the text:

1. What is called the road zone or right-of-way?
2. What parts of a road does the road zone include?
3. What is called a carriageway?
4. Is the carriageway usually reinforced by means of natural or artificial stone aggregates?
5. What is a roadbed constructed for?

Exercises:

1) Find the equivalents:

класть дорогу, проезжая часть, внешний склон, асфальт, требуемый уровень, дорожное полотно, котлован

2) Translate:

right-of-way, a carriageway, road shoulders, inner and outer slopes, road surface, reinforce, embankment, side ditch, roadbed

3) Complete the sentences choosing the proper variant:

- a) To lay the carriageway at the required level above the ground surface
- b) stone aggregates form the pavement
- c) shoulders are separated from the neighboring land by slopes
- d) a formation or roadbed is constructed.

4) Rewrite the sentences from Active into Passive voice:

- 1)** They lay down road surface in order to sustain traffic.
- 2) In the past, they used gravel road surfaces and granite sets.
- 3) They replaced these surfaces by asphalt or concrete.
- 4) The leaking oils from the vehicles don't damage roads.
- 5) But heavy rain and other extreme weather conditions damage the asphalt road.
- 6) Melting asphalt produces lots of harmful green house gases.

References: Аудиторные тексты для чтения. Дорожное строительство. Английский язык. Контрольные задания. : учеб.-А647 метод. пособие / Л.В. Лукина, Л.Н. Крячко, О.Ф. Нестерова, Н.В. Сидорова; Воронеж. гос. арх.-строит. ун.-т. –Воронеж–с.128

Unit 5. Road surface

Vocabulary

abundantly - повсеместно

asphalt - асфальт

available - доступный

concrete - бетон

damage - разрушать

drain through - просачиваться

durable - долговечный

foot traffic — пешеходное движение

frequent - частый

granite - гранит

gravel - гравий

green house - парниковый

harmful - вредный

increase - увеличивать

infiltration - проникновение

layer - слой

leaking oil — утечка масла

limestone - известняк

melting - плавящийся

moreover — помимо того

paving method — метод мощения

permeable — проникающий

porous - пористый

recyclable - пригодный для переработки

reduce - уменьшать

repair - ремонт

replace - заменять

require - требовать

runoff - сток

sand - песок

service life — срок службы

site — строительная площадка

slab - блок

slide - скользить

slip - поскользнуться

surface - поверхность

sustain - выдерживать

traction — сцепление с дорогой

underlay (with) — залегать под

vehicular traffic — движение автотранспорта

walkway - тротуар

weather conditions — погодные условия

Road surface is the durable surface material laid down in order to sustain vehicular or foot traffic, such as a road or walkway.

In the past, gravel road surfaces and granite setts were used. These surfaces were replaced by asphalt or concrete.

Concrete roads have a long service life. Concrete road do not require frequent repair. Concrete roads are not damaged by the leaking oils from the vehicles or by the extreme weather conditions. It is produced from abundantly available limestone.

But vehicles tend to slip or slide on concrete road due to rain and snow. The paving cost of the concrete road is little higher than asphalt paving. In case the concrete road breaks, the whole concrete slab is replaced.

Asphalt roads provide better traction and help to keep roads free from ice and snow. Asphalt is a recyclable material. Moreover, it takes less time to build an asphalt road than a concrete road.

But heavy rain and other extreme weather conditions damage the asphalt road, and the roads need to be repaired frequently. Melting asphalt produces lots of harmful greenhouse gases. Also costly petroleum is required to produce asphalt.

Today, permeable paving methods are used for low-impact roadways and walkways. There are many options for permeable pavement materials.

Two alternatives to traditional asphalt pavement that are used on sites to reduce runoff and increase infiltration are porous pavement and modular block pavement.

Porous pavement is a 2-4 inch covering of permeable asphalt over layers of stone, gravel, and filter fabric that lets storm water drain through the surface and into the subsoil.

Modular block pavement consists of perforated concrete slab units underlain with gravel. The surface perforations are filled with coarse sand.

Answer the questions to the text:

1. What materials are used for road surface?
2. What are the advantages of concrete?
3. What are the advantages of asphalt?

4. What are the disadvantages of concrete?
5. What are the disadvantages of asphalt?
6. What does permeable paving method mean?

Exercises:

1) Find the equivalents:

поверхностный слой дорожного покрытия, укладывать, с целью, выдерживать, транспортный поток, заменять, асфальт, бетон, требовать ремонта, протечка масла, доступный, известняк, сцепление, пронизываемое мощение, сток.

2) Translate:

foot traffic, walkway, gravel, to be replaced by, to have a long service life, to require frequent repair, to be damaged by, leaking oil, weather conditions, to be produced from abundantly available, to tend to, to provide better traction, to keep roads free from, to produce greenhouse gases, the leaking oils from the vehicles.

3) Complete the sentences:

Road surface is a surface material laid down

- a) in order to contain different materials.
- b) intended to sustain vehicular or foot traffic.
- c) in order to slip or slide on the road.

4) Rewrite the sentences from Active into Passive voice:

- 1) They lay down road surface in order to sustain traffic. 2) In the past, they used gravel road surfaces and granite setts.
- 3) They replaced these surfaces by asphalt or concrete. 4) The leaking oils from the vehicles don't damage roads. 5) But heavy rain and other extreme weather conditions damage the asphalt road. 6) Melting asphalt produces lots of harmful greenhouse gases.

References:

http://en.wikipedia.org/wiki/Road_surface

English in Land Cadaster.

Unit 1. Land use planning.

Vocabulary.

land relation -земельные отношения

land resources capacity – потенциал земельных ресурсов

land use – землепользование

land use planner – землеустроитель

land use planning – землеустройство

land tenure – землевладение

ownership – собственность

community - сообщество

poverty - бедность

survive – выживать

prosperous – процветающий

inhabitant – обитатель

What is land use planning about? It is not a difficult problem to give a simple answer to this question.

Land use planning or land surveying is a process of managing the use and development of land resources. It is a study of the methods in which land use planners apply their knowledge skills to the nature in order to satisfy their needs.

Effective land use planning is impossible without land information. Such information includes land resource capacity, land tenure, land ownership, and land use.

Even in the prosperous countries there is an aspect of survival. Land helps people to survive. That's why lands are very important resources for men.

Many people can live without outside assistance, but some of them still live in very small communities and in great poverty. However these people have a degree of economic independence.

The inhabitants of cities have another situation - a high level of living together with an extreme economic dependence.

Such people depend upon the efforts of many thousands of specialists workers, among them land use planners. Land use planners can give the right answers to many questions.

Today land use planning is concerned with different sciences: land cadaster, land relations, land improvement, agriculture, soil science, low, geodesy, geography etc.

To solve these difficult problem land use planners must be not only qualified but good educated specialists.

Answer the questions according to the text.

1. Is land use planning a process of managing the use of land or oceans?
2. Why do people apply their knowledge and skills?
3. What is effective land use planning impossible without?
4. What helps people to survive?
5. Who can give the right answers to the difficult questions?

Exercises:

1) Find a word with opposite meaning.

easy	a) unskilled
large	b) unqualified
dependence	c) difficult
possible	d) low
qualified	e) small
skilled	f) impossible
high	g) independence
poor	h) rich

2) Read the text again and decide if the sentences (1-5) below are true or false.

Land use planning is process of managing people.

Land use planning is impossible without land information.

Even in the poor countries there is an aspect of survival.

Land helps people to survive.

Land use planners cannot give the right answers to many questions.

3) Complete the sentences using the verbs in the brackets.

1. The inhabitants of the cities ... another situation (to have).
2. Such information...land resource capacity (to include).
3. That's why lands...very important resources for men (to be).
4. Today land use planning... concerned with different sciences (to be).
5. What...land use planning about? (to be).

4) Choose the right prepositions.

1. It is not a difficult problem... give a right answer to the question.

a) at

b) to

c) by

2. Land use planning is impossible... land information.

a)to

b)in

c)without

3. Such people depend...the efforts of many specialists.

a)upon

b)of

c) for

4. It is a study ... the methods of land use planning.

a)under

b)before

c)of

References: Adapted from "Английский язык по направлениям
«Землеустройство и кадастр»" Веселовская Н.Г., Москва
Издательский центр "Академия» 200г., стр.26

Unit 2. The types of land use planning.

Vocabulary.

misuse-злоупотребление

sustainable-жизнеспособный

exploitation-использование

grazing-пастбище

deforestation-обезлесивание

erosion hazard-опасность эрозии

consider-рассматривать

manufacture-производство

legal-юридический

define-определять

legislation-законодательство

arrangement-устройство, организация

property-собственность

interfarm-межхозяйственный

illegal-нелегальный

It is very important to define the best use of land for successful land use planning because land is limited resource and the misuse of land can lead to such problems as non-sustainable land use: processes of overexploitation (overgrazing, deforestation, erosion hazard).

Land use planning is based on understanding of land as the object of social and economic communications and as part of natural complex. It can be considered in two ways: as a science and as a system of special activities.

Land use planning as a science studies laws of functioning and management of land use as an object of using nature, as a general means and industrial basis of manufacture, as an object relation between land-legal and nature protective problems.

Land use planning as a system of activities can be defined as a complex of state and individual actions for realization of the land legislation.

The purpose of land use planning is arrangement and exploitation of land resources of the regions, separated landed properties and land uses.

Two basic kinds of land use planning are known: local and interfarm, each of which solves the tasks by their own specific ways(expect for topographical and other researches and tests).

Land use planning is carried out according to decisions of government bodies, local self-management, administrative area and cities.

In land use planning may participate citizens and organizations. According to the Russian Federation legislation the state guarantees to all participants of land use planning activity irrespective of ownership forms on land and citizenship maintenance of equal rights and interests protected by the law, and the right of the appeal in juridical order of any illegal actions.

Answer the questions:

1. Is it important to define the best use of land?
2. How many kinds of land use planning do you know?
3. What are they?
4. What is the purpose of land use planning?
5. Who can participate in land use planning work?

Exercises:

1) Look at the words from the text and say what parts of speech they are.

Science, use, realization, land, separated, two, specific, area, appeal, basic.

2) Find in the text English equivalents to these Russian phrases.

- 1) Землеустройство
- 2) Объект использования природы

- 3) Проблемы защиты природы
- 4) решать задачи своим способом
- 5) Проводить в соответствии с решением
- 6) Государство гарантирует

3) Put the words in the correct order to make up sentences.

1. as, a, studies, laws, land, use, planning
2. land, very, define, important, to, best, of, use, the, is, it.
3. are, two, known, basic, planning, kinds, of use, land.
4. ways, it, be, two, considered, in, can.
5. regions, the, purpose, land, of, planning, use, is, land, use, and, arrangement, resources, of, the, exploitation.

References: Adapted from “Английский язык по направлениям
«Землеустройство и кадастр»” Веселовская Н.Г., Москва
Издательский центр “Академия» 200г., стр.26

Unit 3. What is land cadastre.

Vocabulary.

record-запись

responsibility-обязанность

link-связывать

valuation-оценка

conveyancing-составление нотариальных актов о передаче имущества

enable-давать возможность

encompass-охватывать

duration-продолжительность

leasehold-аренда

easement-удобства

mortgage-ипотека

survey-съёмка

utilize-коммунальные услуги

equitable-равный

A Cadastre is normally a parcel based and up-to-date land information system. It contains a record of interests in land (rights, restrictions and responsibilities). It usually includes a description of land parcels linked to other records describing the nature of the interests, and ownership or control of those interests. The Cadastre often describes the value of the parcel and its improvements. It may be established for fiscal purposes, (e.g. valuation and equitable taxation) legal purposes (conveyancing), to assist in the management of land and land use for planning and other administrative purposes. The Cadastre enables sustainable development and environment protection. Cadastral reform is concerned with the improvement of cadastral systems.

The Land Cadastre encompasses such information as land resource capacity, land tenure, land ownership and different land uses. The Cadastre provides:

- information identifying those people who have interests in parcels of land;

- information about those interests , e.g. land duration of rights, restrictions and responsibilities;

- information about the parcel, e.g. location, size, improvement, value.

Land tenure is concerned with the rights, restrictions and responsibilities that people have with respect to the land. The Cadastre may record different forms of land tenure such as ownership, leasehold, easements, mortgages and different types of common, communal or customary land tenure.

The Surveyor undertakes different roles in different countries in relation to the establishment and maintenance of the Cadastre. The Surveyor may be responsible for:

- cadastral surveying and mapping;
- cadastral information recording;
- land valuation;
- land use planning;
- management of both the graphic and textual cadastral data bases;
- resolving land disputes;
- custody and supply of cadastral information.

Modern technology, such as up-to-date survey instruments, satellite position fixing (Global Positioning System – GPS), aerial photography and photogrammetric can offer new possibilities to increase the speed and lower the costs for cadastral reform. Computer technology can usually provide better access to information, better manipulation of cadastral data, better quality, and better legal and physical security. To fully utilize modern technology it is important to have trained personnel and facilities to maintain the equipment. Unfortunately this infrastructure is not founded in many countries, thereby limiting the use of modern technology.

Exercises:

1) Find in the text the synonyms of the following words.

costs, deal, dispute, immediate, exact, transaction, sporadically, modern, land, accurate, up-to-date, discussion, expense, deal.

2) Give Russian equivalents to English phrases.

land market, a document of a customary tenure system, careful investigation, deeds registration, evidence of title, the basic unit in a Cadastre, traditional tenure system.

3) Finish next sentences using the words.

environmental protection, manipulation of cadastral, data, land tenure, record, value

1. It contains a..... of interests in land.
2. The Cadastre often describes the.....of the parcel and its improvements.
3. The Cadastre enables sustainable development and
4. The Land Cadastre encompasses such information as land resource capacity.....,
5. land ownership.
6. Computer technology can usually provide better access to information, better....., better quality, and better legal and physical security.

4) Put the sentences from the text in the right order.

- 1 Unfortunately this infrastructure is not found in many countries.
- 2 A Cadastre is normally a parcel based and up-to-date land Information system.
- 3 Land tenure is concerned with the rights, restrictions and responsibilities that people have with respect to the land.
- 4 Cadastral reform is concerned with the improvement of cadastral systems.

References:

Adapted from "Английский язык по направлениям
«Землеустройство и кадастр»" Веселовская Н.Г., Москва
Издательский центр "Академия» 200г., стр.4-15

Unit 4. Role of the Government in Land Cadastre.

Vocabulary.

arrangement-приводить в порядок

supervise-наблюдать

implement-инструмент

investigate-исследовать

venture-смелое предприятие

private-частный

budget-бюджет

seek-sought-искать

recovery-восстановление

generate-производить

revenue-доход

spatial-пространственный

unify-объединять

duplication-удваивать

support-поддерживать

The Cadastre is a public land information system and should therefore be managed or supervised by the Government. In some countries, new organizational arrangements for the implementation of systems are being investigated, such as joint ventures or partnership between government and the private sector, or contracting out specific activities to the private sector. In other countries, the cadastral organization has become more independent in terms of management and financing from government budgets. In both cases, a more direct financing of cadastral operations is sought through cost recovery or even to generate government revenue. However this can replace basic government investments in spatial infrastructure such as a national coordinate system.

The Cadastre is a land information system, usually managed by one or more government agencies. Since information about land parcels is often needed by many different users, a unified Cadastre helps to avoid duplication and assists in the efficient exchange of information.

A Cadastre must be demand driven; that means fulfill the demands of its clients and that it needs to be coordinated with other land information system.

The cadaster supports the public administration of land. The information in the Cadastre can be used for the formulation, implementation and monitoring of land policies, such as those concerning land redistribution, land consolidation, land acquisition and allocation, and land markets.

Cadastral data should be accessible to the general public. However the cadastral system must include measures to protect individual and private interests from misuse of the information provided. A successful cadastre should provide security of tenure, be simple and clear, be easily accessible, and provide current and reliable information at low cost.

Answer the questions:

1. Who should be manage the Cadastral system?
2. Has the cadastral organization become more independent in terms of management and financing from government budgets in other countries?

3. The Cadastre managed by one or more government agencies, didn't it?
4. Which interests must the Cadastral system protect?
5. Should a successful Cadastre provide reliable information at low cost?

Exercises:

1) Translate some international words.

cadaster, information, system, organization, sector, client, coordinate, administration, monitoring, infrastructure.

2) Find out the statements that are true. If the statement false, correct it.

1. The Cadastre supports the public administration of space.
2. Cadastral data should be accessible to the general public.
3. Since information about land parcels is often needed by many common users.

4. The information in the Cadastre can be used for the formulation, implementation and monitoring of land policies.

5. The Cadastral system must include measures to protect individual and private interests from misuse of the information provided.

3) Make up the comparative and superlative forms of the following adjectives.

simple, clear, easy, reliable, low, public, different, efficient, private, specific.

4) Fill in the gaps with suitable model verbs should, can or must.

1. A successful Cadastre...provide security of tenure.

2. A Cadastre...be demand driven, that means fulfill the demands of its clients and that it needs to be coordinated with other land information system.

3. However this ...replace basic governmental investments in spatial infrastructure such as a national coordinate system.
4. Cadastral data ...be accessible to the general public.
5. The information in the Cadastre... be used for the formulation, implementation and monitoring of land policies.

References:

Adapted from “Английский язык по направлениям
«Землеустройство и кадастр»” Веселовская Н.Г., Москва
Издательский центр “Академия» 200г., стр.17

Unit 5. Problem of Automating Land Records.

Vocabulary.

Increasingly- все более и более.

Database- основные данные.

Scale- масштаб

Flexible -гибкий.

Digitization- откапывать.

Render-отдавать, воздавать.

Excavation- выкапывать.

Obvious- очевидный, ясный.

Foremost- передовой.

Integration- интеграция.

Question- вопрос.

Definitive-определение.

Introduces- вносить.

Determined- решительный.

Spatial -пространственный.

Practically all European Countries are today working on the problem of automating relevant land records – first and foremost cadastres and land register. The main reason is not to achieve integration, but rather to make very important by-product. No country has achieved the complete automation of its cadastral/land registration systems. But this is merely a question of time. Sweden is probably the country which has come further in constructing an automated, on-line, integrated system of cadastral, land registry, land taxation and population records. Most European countries are definitely on their way in the same direction.

Another clear trend is the conversion of land-related information into spatial systems. The information must be precisely located in order to be of greatest use. One method is made by geocoding. If the land unit is assigned coordinates in the natural grid, all land-related information can be spatially defined. The system used by Sweden, for example, introduces the coordinate of the central point of the land unit as well as the

coordinate of the principle building – graphically determined-into the cadastral records. If in future all boundary points were determined graphically or numerically by coordinated, and the coordinates were inserted into the cadastral database, this would, of course, make possible a similar spatial determination of information.

This is what is now happening in the most European countries. Starting with the most highly urbanized areas, the cadastral maps are increasingly being digitized. This is motivated mainly by the great opportunities it creates for using the same database for producing maps in different scales in a flexible way. At the same time the manual production methods can be automated. This is a natural step in the age of automatic data processing.

Digitization also renders a solution to the need, common to all European countries, of integrating cadastral data with data on utilities. Utilities such as water, sewerage, electricity and telecommunication are becoming increasingly complex; demands for efficient maintenance and management are increasing; and there is always danger that utilities will be damaged during different kinds of excavation. For these reasons, there is an obvious need for a total approach to the

surveying and recording of utilities. Utilities will be a natural element in the system of digitized, automated land information.

Answer the questions.

1. What problem is all countries working?
2. Did Sweden use cadastral/land registration system?
3. The cadastral maps have in cadastral registration system, don't they?
4. Can be the manual production methods automated?
5. Why will be utilities a natural element in the system of digitized, automated land information?

Exercises.

1) Match a line in A with the line in B to complete a sentence

A

B

1.The main reason is not to achieve integration	a.of land-related information into spatial systems.
2.Another clear trend is the conversion	b.but rather to make very important by-product
3.No country has yet achieved the complete	c.in order to be of greatest use.
4.The information must be precisely located cadastral/land	d.automation of its legistration systems

2) Decide if the sentences are true (T) or false (F).

1. Practically one European country is today working on the problem of automating relevant land records.
2. All countries has already achieved the complete automation of its cadastral/land registration systems.

3. England is probably the country which has come further in constructing an automated, on-line, integrated system of cadastral, land registry, land taxation and population records.

4. One method is made by geocoding.

5. This is a natural step in the age of automatic data processing.

3) Fill in each gap with a suitable word: render, integration, spatial, flexible, utility.

1. Digitization also ... a solution to the need, common to all European countries, of integrating cadastral data with data on utilities.

2. This is motivated mainly by the great opportunities it creates for using the same database for producing maps in different scales in a ...way.

3. Utilities will be a natural element in the system of digitized, automated land information.

4. The main reason is not to achieve..., but rather to make very important by-product.

5. Another clear trend is the conversion of land-related information into...systems.

4) In the following sentences choose the right variant.

1. Most European countries are(define, definitely) on their way in the same direction.

2. The information must be precisely (locate, located) in order to be of greatest use.

3. If the land unit is assigned coordinates in the (nature, natural)grid, all land-related information can be spatially defined.

4. The system used by Sweden, for example ,(introduce, introduces) the coordinate of the central point of the land unit as well as the coordinate of the principle building-graphically determined- into the cadastral(record, records).

References:

Adapted from "Английский язык по направлениям
«Землеустройство и кадастр»" Веселовская Н.Г., Москва
Издательский центр "Академия» 200г., стр.28-30.

English in Quality Management.

Unit 1. Occupation or Profession?

Vocabulary

Import – импорт

Export – экспорт

Transport service – транспортное обслуживание

Provide – предоставлять

Private – частный

Social – общественный

Authorities - администрация

In many respects – во многих отношениях

Primarily – изначально

Achieve – достигать

There is a group of occupations which the general public usually refers to as the professions. In the nineteenth century doctors, lawyers and the clergy were generally agreed to be in this category. During the last hundred years there has been an increase in the numbers of those claiming to be members of a profession. In the main this has been a result of the rising

proportion of occupations that have required a high standard of education. Many members of these newer occupations, for example engineers and accountants, have aspired to professional status.

...The practice of the professions that were recognized as such in the last century is based on the close personal relationship between the practitioner and his client. The layman who is sick consults his doctor because he is ignorant of the nature of his illness, whilst the doctor is assumed to know how to cure it. In the same way the lawyer can help his clients because of his knowledge of the complexities of the law. Therefore, the professional situation is characterized by the expert practitioner in consultation with the ignorant client who has absolute trust in the advice tendered to him. The practitioner does not use his knowledge except to benefit his clients. According to this analysis the social fact of the professions" rests upon the implications of the social situation involved. Following from the essential nature of this relationship there are, it is said, a number of characteristics that are common to all "true" professions. These characteristics concern the type of knowledge required to practice, the way in which entry to the profession is controlled, the formulation of an ethical code governing professional behavior and finally, the freedom of the

professional to practice without lay interference. Though not strictly a consequence of the nature of the interrelationship between practitioner and layman one extension of these implications is usually made, namely that professions tend to found organizations to watch over the codification of the four characteristics identified above.

Answer the questions according to the text:

1. What group of occupations does the general public usually refer to as the professions?
2. Is it possible to refer your future activity to the professions? Why?
3. What is your future professional status characterized by?
4. What type of knowledge is required to practice your profession?
5. What is common to all "true" professions?

Exercises:

1) Work with a partner. Make up a dialogue about the main idea of the text.

Starting a business can be a confusing operation. What could you start with according to the text?

2) Translate and discuss.

Managing business is a difficult thing, the text gives some positive information for your future success, use it in the situation when a new assistant will help you in your day-to-day work. Write a list of responsibilities you are going to delegate him.

Starting a business can be a confusing operation: so many decisions to take, so many actions to carry out. It can be important to keep to the right path. If you fail to take one step when it is necessary, this can delay your start. For example, failing to appreciate the right moment to give up work or to claim the Enterprise Allowance can mean less money and, as a result, you may find the early days more of a financial struggle than they need to be.

3) Change the singular forms of the nouns into plural form. Is it possible to do in every sentence? Name the uncountable nouns.

1. There wasn't enough evidence to prove him right.
2. You should take legal advice before start job choosing.
3. This is a matter I know little about.
4. If I don't pay this debt I shall lose my job.
5. A solicitor deals with petty crimes.

4) Write a list of activities leading to a quality management in your future job. Mind the material of the text.

References:

European transport. Institution of Civil Engineering Conference. /
London: Thomas Telford, - 199, pp. 1-3

Unit 2. Getting the right staff.

Vocabulary

Employee - служащий

Delicate – нежный, чувствительный, щекотливый

Manpower – рабочая сила

Straightaway – немедленно

Thumb – большой палец (руки)

Cost – стоимость, цена

Sale – продажа

Advantage - преимущество

Recruit – новобранец

Settle – решать, принимать решение

Deciding when to take on an employee is a delicate balancing act. On the one hand, if you increase your manpower, you might not be able to cover increased costs straightaway. On the other hand, extra manpower could free you to spend more time on other activities, such as marketing or planning, which should, in the end, mean increased profits.

A useful rule of thumb for choosing the best time to increase your manpower is to ask yourself if you can generate enough extra sales to cover the cost of taking on that extra employee. If you will not be able to increase your sales straightaway, you could still employ someone; but, in this case, you will need to

be able to keep your business going until you have been able to build your sales up to the new level you need. It all sounds straightforward, but in practice it is very tricky. It is like being on a seesaw. One step in the wrong direction can tip the balance against you.

If you are clever enough, or lucky enough, to get your timing right, you will not want to throw away your advantage by employing the wrong person. The whole process can take several months; so finding you have made a mistake and having to recruit again can throw your business off its planning course. Nor should you underestimate the emotional problems of getting rid of an unsuitable employee, which can unnerve the toughest of businessmen or businesswomen and which can unsettle other employees.

Answer the questions according to the text:

1. Do you think that deciding to take on an employee may turn to be a delicate balancing act?
2. What must be taken into consideration when using extra manpower?
3. Is there any balance between increase of sales and cost of extra employee?

4. What can finding of mistakes in recruiting employee lead to?
5. Can I make sure that if I offer the job it will be accepted?

Exercises:

1) Subdivide the text into parts. What part of the text answers the question: When are you lucky enough not to throw away your advantage by employing the wrong person?

2) Underline the job mentioned in the text. Remember some other professions.

personal assistant, shop assistant, sales manager, personal manager.

3) Tick the correct utterance:

- One step in the wrong direction can tip the balance against you.

- Extra manpower couldn't free you to spend more time on the other activities.

- The whole process can take several months.

4) Fill in the gaps with prepositions:

1. My friend's name is Borisov. He is an economist. He works ...
an office ... the fifth floor ... our Ministry. His office does
business ... a lot ... firms. They sell very many goods ...
foreign countries. They also buy goods ... them.
2. Mr. Lunin knows English well. He often meets foreign
businessmen and speaks English ... them. Every day he
receives a lot ... mails ... foreign firms and sends answers ...
them.
3. Mr. Petrov comes ... his office, goes the letters and
cables ... foreign firms and answers them.
4. Take all the letters and cables that box and put them ...
my desk. I'd like to go ... all ... them now.
5. Shall I speak ... our work ... the meeting? – Yes, of course.

References: Williams Sara, Small Business Guide, London, UK, -
2007, p. 205

Unit 3. Forecasting

Vocabulary

Forecast – предсказание, прогноз

Negotiate – вести переговоры, совершить сделки

In advance – заранее

Insufficient – недостаточный

Lender – заимодавец

Bankruptcy – банкротство

Estimate – оценка, смета

Cash flow – оборот наличных денег

Balance sheet – балансовый отчет

Profit and loss – прибыль и убыток

Forecasts are the kernel of your business. They are the basis on which you raise money, negotiate premises and other raw materials. These are only a few of the decisions which need to be made in advance with only your forecasts as guidance on how much is needed. Making a wildly inaccurate forecast can, for example, lead to raising insufficient funds. When the business fails to meet expectations and begins to run short of money, it may prove impossible to raise further funds. Lenders are very wary of handing out more when forecasting has proved to be

mistaken. The result could be liquidation or bankruptcy if you are a partner or sole trader, and the end of your dreams.

However, making no forecasts at all is even sillier. You would have no guidance on when to take certain basic business decisions.

Given the importance of attaining a reasonable estimate of future sales, costs and cash balances, it follows that making the forecasts is a process which should not be hurried or treated casually. You must constantly strive to seek information on which forecasts can be based; you must constantly curb your over-optimism which can lead to estimates sales figures that are too high and estimated cost figures that are too low. Question your first forecasts for the realism of their assumptions, before accenting any figure as a part of the final forecasts.

Nevertheless, it is realistic to accept that some of the figures will be nothing more than a best guess given the current state of information available to you. However, our figures should have some grounding in fact, so when you present your case to your bank manager or other source of finance you can support the figure when challenged.

It is important to make the forecasts in our plan realistic so that if your business idea does not hold water, you can discover this at the planning stage. You do not want to discover two, years

down, the track that your business will not work, after you have committed money, time and effort. Do not underestimate the mental anguish and financial problems which can be caused by a struggling business.

There are three forecasts you *need* to make:

- Cash flow;
- Profit and loss;
- Balance sheet.

Answer the questions according to the text:

1. Why are forecasts the kernel of one's business?
2. Why is making no forecasts silly?
3. What kind of information must be constantly strive to seek
4. Why figures you present to your bank manager should have grounding in fact?
5. What three forecasts have you to make starting business?

Exercises:

- 1) Define the main idea of the text. (1, 2, 3).

- Question your first forecasts for the realism of their assumptions
- Forecasts are the kernel of your business.
- Forecasting is one of the main stages in managing processes.

2) Are the sentences true or false?

- There are three main forecasts you need to make starting business.
-

- Your figures in forecasting should have some grounding in fact.
-

- You have to underestimate the mental anguish and financial problems which can be caused by a struggling business.
-

3) Tick the correct sentence.

- ☐ Forecasts are the kernel of your business.

☐ Forecasts is the kernel of your business.

- ☐ Making a widely inaccurate forecasts can to lead to raising insufficient funds.

☐ Making a wildly inaccurate forecasts can lead to raising in-sufficient funds.

- _____ Making no forecasts at all is even sillier.
- _____ Making no forecasts at all even sillier.
- _____ You must constantly strive to seek information on which forecasts can be based.
- _____ You must constantly strive seek, information on which forecasts can be based.

4) Find the sentences with Complex Object and translate them:

- A.1. He wanted us to do forecasting.
2. I expect you to tell me everything about decisions to be made.
3. I suppose her to be a manager.
4. The staff does not consider him to be a bankrupt.
5. The engineer expected the work to be done in time.
- B. 1. She felt somebody close the ledger.
2. We heard him come at our office.
3. Have you ever seen the balance – sheet?
4. I heard him mention my report on forecasting.

References: Williams Sara, Small Business Guide, London, UK –
2007 – pp. 256, 257

Unit 4. Optical Instruments

Vocabulary

Diesel – дизельный, тепловозный

Electric traction – электрическая тяга

Lateral wear – боковой износ

Wheel flange – колесная реборда

Crankshaft – коленчатый вал

Breakage - повреждение

Cylinder - цилиндр

Become more pronounced – стать более заметным

Light beam reflection error – отражение луча света с допуском

Indispensable – необходимый, обязательный

With the conversion of railways to diesel and electric traction, the lateral wear of rails and wheel flanges has become more pronounced; there are also cases of crankshaft breakage and scoring of diesel cylinder liners.

Investigations carried out have established the fact that one of the reasons causing heavier wear of some of the diesel locomotive elements is insufficient accuracy in the manufacture of fitting units and parts, both when manufacturing and repairing locomotives.

Investigation disclosed that increase in accuracy was difficult to attain with conventional measuring instruments normally employed, such as straight edges, triangles, shaft gauges, etc., which have less accuracy than tolerance specified by the design, for the permitted deflection of the axis of the diesel crankshaft saddles when assembling is 0.05 mm, whereas the deflection of the shaft gauge or straight edge used for these measurements equals 0.06 to 0.08 mm; the non-perpendicularity of the wheel-pair axis to the bogie frame axis permitted is 1.0 to 1.5 mm.

To reduce breakages and extensive wear, repair shops and locomotive depots of the railways are now using special optical instruments, which are capable of measuring misalignment, out-of-squareness and paralleled misalignment with an error of 0.01 per 1,000 mm length (for diesel engines) and an error of 0.05 per 1,000 mm length (in the instruments for bogie frames).

The use of optical instruments does not require special conditions, and may be carried out under normal workshop conditions.

Answer the questions according to the text:

1. What was recently done to rise quality of locomotive repairing?
2. What is considered under the quality management in locomotive design?
3. What accuracy level of measurement is normal for locomotive axes?
4. What drawbacks did investigation disclose in the process of measurement?
5. Does the use of optical instruments require special conditions? Why?

Exercises:

1) Match the words on the left with their meanings on the right.

- | | |
|-----------------------|--------------------------|
| - object | - существенный |
| - mentally | - определенность |
| - divide (into parts) | - ценный |
| - homogeneous | - другой |
| - (an) other | - отличаться |
| - distinguish (from) | - предмет (объект, цель) |
| - essential | - мысленно |
| - gather | - разделить (на) |

- | | |
|----------------|--------------|
| - together | - однородные |
| - given | - собрать |
| - distinctness | - воедино |

2) Translate the sentences paying attention at the function of “it”:

1. It was very difficult to push the optical instrument into a crack.
2. You can look up the time – table of working with these instruments in the office. It is open the whole day.
3. It is already dark, turn on the light in the locomotive shop.
4. It has been calculated that wear and tear accounts for 70 per cent of the physical depreciation of equipment.
5. It is important to keep equipment moving over the track in good physical condition.

3) What utterance is true: 1, 2, 3?

- Investigation disclosed that increase in accuracy was difficult to attain with conventional measuring instruments.
- To reduce breakages repair shops are not using optical instruments.
- With the conversion of railways to diesel and electric traction, the lateral wear of rails has become less pronounced.

4) What sentence is correct:

- Investigations carried out have established the fact.

- Investigations has carried out establish the fact.

- Optical instruments for repair and assembly of locomotives are well known.

- Optical instruments for repair and assembly of locomotives is known.

- Permitted deflection of the axis is 0.05 mm.

- Permitted deflection of the axis are 0.05 mm.

References:

Safonova, C. – «Optical Instruments», M: Higher school, - 2002, pp.

33, 34

Unit 5. Reinforced -Concrete Production

Vocabulary

Steam curing – пропаривание

Fill – насыпь

Truck - вагонетка

Establish – устанавливать

Lay-out – планировка

Storage bin – бункер для хранения

Casting bed – форма для отливки

Slope – уклон

Runway(s) - транспортные (промышленные) пути

Mould – формовать

In the rapid growth; in the employment of precast-concrete products, and particularly of wall panels, slabs, beams, etc., to serve a multitude of building needs, this industry has inevitably incurred an obligation to maintain and improve the quality of the products. A vast amount of excellent work has already been done to raise the standards of this still comparatively young industry to their present level. Machinery and equipment designers have made important contributions by creating machines and tools for the industry.

A great number of plants producing precast reinforced-concrete elements is now in operation in our country and abroad. Before the decision is made to establish a precast concrete products plant in a given area, a number of purely economic considerations deserve particular attention. A careful appraisal of the potential requirements provides valuable information for determining the size of the plant which should be built. A well-designed plant must have sufficient capacity for the normal output plus a reasonable margin for a possible increase. The design should specifically and carefully anticipate the future installation of additional equipment for increased production without disrupting the original lay-out.

The following general aspects should be kept in mind when designing a plant. The plant floor level should be not less than 6 inches above the general grade of the yard to assure adequate drainage. In addition, concrete yard runways should be slightly above the level of the surrounding yard so that they will remain free of pebbles and other obstructions that might interfere with the operation of trucks or other equipment. The yard should slope away from the main building in all directions if possible, even at the expense of hauling in fill to accomplish it, for much future trouble and expense can be averted by establishing the proper grade at the time the plant is built.

Adequate space should be allowed at sides and in front of machines and casting beds. Regardless of the general lay-out of the plant, aggregates and cement should be stored as close to the mixers as possible.

Answer the questions according to the text:

1. What is meant by the term "quality management" in civil engineering?
2. What has inevitably incurred an obligation to maintain and improve the quality of the products in precast concrete industry?
3. Why do economic considerations deserve particular attention before making decision to establish a precast concrete products plant?
4. What general aspects should be kept in mind when designing a plant?
5. Why adequate space is important at sides?

Exercises:

- 1) Give equivalents to:

concrete

area

amount

level

space

truck

equipment

output

2) Complete the sentence according to the text.

- The following general aspects should be kept in mind

- Adequate space should be allowed at sides and

- A well-designed plant must have sufficient capacity for the normal output plus _____

3) Define grammatical tense:

- a vast amount of excellent work has already been done

- a great number of plants is now in operation

- a careful appraisal of the requirements provides

- the following aspects should be kept in mind

- machinery designers have made important contributions

4) Define the part of speech and make all possible word combinations with «reinforced concrete»:

Height, high, deepen, depth, deeply, hard, hardly, harden, hardness, strength, strengthen, strong, long, length.

References: Plekhanova, R. and others – English for Civil Engineering Institutes/M: Higher School, - 1998, pp. 55, 56

English in Railway Construction.

Unit 1. Eurostar tops 10 million passengers

Vocabulary

high speed - высокоскоростной

ridership - пассажиропоток

to handle - перевозить

a milestone - контрольный ориентир, этап, рубеж

a joint venture - совместное предприятие

low-cost - недорогой, дешевый

economic downturn – экономический спад, рецессия

a stand-alone company – автономная/независимая компания

a trial - эксперимент, пробный тест

EUROPE: Cross-Channel high speed train operator Eurostar International carried more than 10 million passengers during 2013, setting a new ridership record. The annual total was slightly up on the 9.9 million handled in the previous year.

Announcing the milestone on December 30, Eurostar reported that it had now carried more than 140 million passengers since

the start of services between London, Paris and Brussels in November 1994.

At that time Eurostar was a joint venture between the three national railways of Britain, France and Belgium, and was predicting that ridership would reach 10 million passengers/year by 1998. In the event, traffic growth was slowed by competition from low-cost airlines and later by the economic downturn. Eurostar was subsequently restructured as a stand-alone company although still owned by three state-owned bodies.

Eurostar attributed the increased ridership in 2013 to 'recent signs of a recovery in the UK economy, along with a busy summer for leisure travel'. The year also saw the operation of additional services, including the trial Route du Soleil direct service between London and Aix-en-Provence in the south of France which ran on selected summer weekends. The trial is to be repeated this year, and Eurostar says the route will be introduced 'on a permanent basis from 2015'.

Commercial Director Nick Mercer said '2013 has been a record-breaking year for Eurostar. With a leap in passenger numbers as well as the introduction of new routes and new destinations, we are seeing growing demand from customers

across Europe and indeed around the world. As we enter our 20th year of operation, we have a year of activity planned on the run up to our 20th birthday in November.'

Read the text again and answer the questions:

1. What sort of company is Eurostar International?
2. How many people have been carried by Eurostar since the start of services?
3. Why did the ridership decrease in the 1990s?
4. What were the reasons for increasing the number of passengers in 2013?
5. How many years has Eurostar been operating in the market?

Exercises:

1) Find the English equivalents in the text:

- 1) высокоскоростной поезд
- 2) увеличение пассажиропотока
- 3) перевозить по железной дороге
- 4) этап в развитии

- 5) новое совместное предприятие
- 6) недорогой авиаперевозчик
- 7) ежегодный спад
- 8) автономный источник энергии
- 9) экспериментальное направление

2) Word formation. Translate the words into Russian and fill in the gaps with the proper word:

- a) cross-examination, cross-action, cross-country, cross-Reference;
- b) low-fat, low-key, low-tech, low-poly;
- c) easy-going, long-standing, time-consuming, foul-tasting

1) Mag has gained 7 pounds so she is on a _____ diet now.

2) Making pottery is very _____ work.

3) Every year we take part in _____ skiing.

4) During the economic crisis this company faced the demand for the _____ cars.

5) It would be a mistake to suppose that the

_____ pleasure-seeking student carries an empty head.

6) The attorney's _____ was particularly aggressive.

3) Use *the* or *no article* with the geographical names:

"From Sea to Sea"

Occupying 1) _____ northern-half of 2) _____ North American continent, Canada has a land mass of 9,970,610 km, making it the second-largest country in the world after 3) _____ Russia. Canada's motto, "From Sea to Sea," is geographically inaccurate. In addition to its coastlines on 4) _____ Atlantic and Pacific, Canada has a third sea coast on 5) _____ Arctic Ocean, giving it 6) _____ longest coastline of any country in the world.

If you fly over 7) _____ Manitoba or 8) _____ Ontario in summer, you will see more water than land: lakes, big and small, so many that they could not possibly be counted. In addition to 9) _____ Great Lakes, which it shares with 10) _____ United States, Canada has many large rivers and lakes.

Canada's highest peaks are not in 11) _____ Rocky Mountains, but in 12) _____ St. Elias Mountains. The highest point in

Canada, 13) _____ mount Logan (6050 m), rises amid a huge icefield in 14) _____ southwest corner of Yukon, the largest icecap south of 15) _____ Arctic Circle.

4) Discussion Corner.

- 1) The first high-speed railway in the world
- 2) The history of high-speed rail lines in Russia
- 3) Socio and economic benefits from creating high-speed railways
- 4) The most popular tourist destinations in Russia
- 5) The journey of your dream

References:

www.railwaygazette.com

www.wikipedia.com

The newspaper "Gudok" 16 July 2012

Unit 2. Houston opens second light rail line

Vocabulary

revenue services - налоговая служба

light rail - легкорельсовый транспорт (ЛРТ)

a ride - поездка, проезд на к-л транспорте

an official inauguration - официальное открытие

a downtown - центр города

an end-on - конечный радиус ветки метрополитена

an interchange - пересадочный узел

a schedule – расписание, график

to diverge - расходиться, отклоняться

an underpass - подземный переход

Metro Chairman - руководитель метрополитена

to purchase - закупать

a cancellation - расторжение

low-floor cars - низкопольные вагоны

USA: Revenue services have started running on Houston Metro's 8.5 km North Line light rail route following an official inauguration on December 21 and a day of free rides.

Running north from UH Downtown in the city centre through Moody Park and Lindale to the Northline Transit Center, the line forms an end-on extension to the existing 12 km Main Street Red Line, which opened in 2004 and is currently carrying around 40 000 passengers per day. The extension adds eight new stops, including two bus-rail interchanges at Burnett and Northline.

Opened several months ahead of schedule, the North Line is one of three routes being built under a \$900m Full Funding Grant Agreement signed with the Department of Transportation in November 2011, which will almost treble the size of the network to 33.8 km. The East End Line will link Theater District with Magnolia Park Transit Center, serving nine stops including an interchange with the Red Line at Main Street Square. The Southeast Line will diverge from the East End Line at EADO/Stadium and run to University Oaks and Palm Center, adding a further six stations.

These two lines are both expected to open during 2014, although the construction of an underpass below the Houston Belt & Terminal Railroad at Harrison & 66th Streets means the final 2 km of the East End Line may not be ready until the end of 2015.

During the North Line opening ceremony, Metro Chairman Gilbert Garcia, suggested that the city was now at a 'wonderful turning point. Now that there are transit choices and people get accustomed to using light rail, I think they are going to see how easy it is, how efficient and reliable it is', he explained.

To operate the extended Red Line, Metro has purchased a further 19 Siemens Avanto S70 LRVs, similar to the 18 supplied for the initial route. Following the cancellation of an earlier contract under Buy America rules, the city has also ordered 39 CAF low-floor cars to operate the East End and Southeast lines, which will be designated as the Green and Purple lines respectively.

Exercises:

1) Find the English equivalents in the text:

- 1) государственная налоговая служба
- 2) северная ветка легкорельсового транспорта
- 3) бесплатный проезд
- 4) официальное открытие
- 5) удлинение конечного радиуса ветки метрополитена
- 6) 8 новых станций

- 7) с опережением графика
- 8) строительство подземного перехода
- 9) эффективный и надежный
- 10) расторжение ранее заключенного контракта

2) Read the text again and say if these statements true (T) or false (F):

- 1) Passengers don't have to pay on Houston Metro's North Line on an official inauguration day.
- 2) The North Line runs south from the suburbs to the city center.
- 3) The North Line links Theater District with Magnolia Park Transit Center, serving nine stops including an interchange with the Red Line.
- 4) The East End Line and the Southeast Line are both expected to open during 2014.
- 5) People will find it complicated and dangerous to use light rail.

3) Fill in the gaps with the proper preposition using the text:

- 1) An official inauguration of the North Line light rail route

will be held _____ December 21.

2) The Line runs _____ Moody Park and Lindale to the Northline Transit Center.

3) It is currently carrying _____ 40 000 passengers per day.

4) Full Funding Grant Agreement was signed with the Department of Transportation _____ November 2011.

5) The construction of three routes will almost treble the size of the network _____ 33.8 km.

6) The East End Line may not be ready _____ the end of 2015.

7) Metro has purchased a further 19 Siemens Avanto S70 LRVs, similar _____ the 18 supplied for the initial route.

4) Fill in: *will or be going to*

1) I hope you _____ enjoy your visit.

2) Watch out! You _____ crash into the fence!

3) What are his summer plans? - He _____ sail around the Greek islands.

4) Don't touch the cooker. You _____ burn yourself.

5) She _____ be upset if he forgets her birthday.

6) Now that the Smiths have time, they _____ take up

mountaineering.

7) Scientists predict that global temperatures _____ increase.

8) Mark and Helen _____ get married in September.

9) Have you decided what to get George for his anniversary? -
Yes. I _____ buy him a motorbike.

10) I'm thirsty. I _____ make myself fresh orange juice.

5) Discussion Corner.

1) The Moscow Underground or Metro, the London Underground or the Tube, New York City Subway and others

2) Metro and Art

3) The Underground: pros and cons

4) Innovations on the Underground

5) Light rail transport

Reference:

www.railwaygazette.com

www.wikipedia.com

The newspaper "Gudok" 16 July 2012

Unit 3. Railway stations

Vocabulary

a railway station/a rail terminal - вокзал

freight - груз, грузоперевозки

elevated - надземный, эстакадный

the terminus - терминал, конечная станция

rapid transit systems - скоростные системы перевозок

a pet project - детище

to resemble - напоминать

a time zone - часовой пояс

a transport knot - транспортный узел

ticket sales offices - билетные кассы

left-luggage - камера хранения

lost-and-found - бюро находок

luggage carts - тележки для багажа

rolling stock - подвижной состав

repair jobs - ремонтные работы

A railway station is a railway facility where trains regularly

stop to load or unload passengers and freight. It generally consists of a platform next to the track and a station building providing related services. Stations may be at ground level, underground, or elevated. Connections may be available to intersecting rail lines or other transport modes such as buses, trams or other rapid transit systems. The world's oldest station built for steam locomotives which is still in use is Broad Green railway station in Liverpool, England, built in 1830.

The longest railway routes across Russia start at Komsomolskaya Square in Moscow, at the three railway stations — Leningradsky, Yaroslavsky and Kazansky.

Leningradsky Rail Terminal is the oldest of Moscow's principal railway stations. The station was constructed between 1844 and 1851, designed by Konstantin Thon as the terminus of the Moscow–Saint Petersburg Railway, a pet project of Emperor Nicholas I. Regular connection was opened in 1851. From here trains go to Saint-Petersburg, Murmansk, Helsinki (Finland), Borovichi, Novgorod, Pskov, Tallinn, and Tver. Traveling by train from Leningradsky station is really the most convenient way to get to St. Petersburg. It takes about 5,5 to 9,5 hours to get there depending on the train class.

From Kazanskiy Rail Terminal which is considered to be the

largest in Europe, trains depart to many southern and eastern directions: Kazan, Adler, Samara, Ufa, Tyumen, Chelyabinsk, and many other cities of Russian Povolzhye, Ural, Siberia, and the Middle East. Construction of the modern building according to the design of an architect, Alexey Shchusev started in 1913 and ended in 1940. The building resembles the Söyembikä Tower in Kazan.

Yaroslavsky Rail Terminal, built nearby Leningradsky station in 1862, is a terminus of the Trans-Siberian Railway – the longest railway in the world. Connecting Moscow and Vladivostok, it is around 9,300 kilometers (5,800 miles) long and spans 8 time zones. This terminal is a transport knot, connecting Moscow with North regions, Ural, Siberia, the Far East, China, Mongolia and North Korea. Because of diversity of routes Yaroslavsky station is even more crowded and chaotic than other railway stations and considered to be one of the busiest in Russia.

As a rule, stations usually have staffed ticket sales offices, automated ticket machines, or both, although on some lines tickets are sold on board the trains. Many stations include shops, fast food or restaurant facilities. Other station facilities may include: left-luggage, lost-and-found, departures and

arrival boards, luggage carts, waiting rooms, taxi ranks and bus bays. The larger stations are, the greater range of facilities they have.

As well as providing services for passengers and loading facilities for goods, stations can sometimes have locomotive and rolling stock depots (usually with facilities for storing and refuelling rolling stock and carrying out minor repair jobs).

Read the text again and answer the questions:

1. What sort of a railway facility is a railway station?
2. Where is the oldest station in the world located?
3. Where do the longest railway routes across Russia start?
4. When was Yaroslavsky Rail Terminal built?
5. Stations provide only services for passengers, don't they?

Exercises:

1) Find the English equivalents in the text:

- 1) сооружение, помещение
- 2) пересекающийся

- 3) виды транспорта
- 4) считать, рассматривать
- 5) отправляться, уезжать
- 6) охватывать 8 часовых поясов
- 7) разнообразие
- 8) табло прибытия и отправления поездов
- 9) стоянка такси
- 10) автобусный парк, стоянка автобусов

2) Choose the best variant *-ing or infinitive*:

- 1) My friends really enjoy *listening/to listen* to the MP3s that I have given them.
- 2) How did she learn *speaking/to speak* Chinese so well?
- 3) David finally managed *finding/ to find* his passport before the train departure.
- 4) They are looking forward to *visiting/ visit* New Zealand.
- 5) There's no answer at the office. Let's try *calling/to call* Lucy's mobile.
- 6) Sam has just taken up *cycling/to cycle* to work.
- 7) Stop pretending *being/to be* asleep! Get up or you will be late!

3) Tag questions. Form the proper tag for each question:

- 1) I am completely crazy about skateboarding, _____?
- 2) Tony's dad used to be quite fit, _____?
- 3) That sounds like a joke, _____?
- 4) There aren't any sports centers nearby, _____?
- 5) They haven't given the baby the name yet, _____?
- 6) This year more than a million tourists will visit our region,
_____?
- 7) It's going to rain, _____?
- 8) People shouldn't drop the litter in the street, _____?

4) Discussion Corner.

- 1) Rome wasn't built in a day.
- 2) East or West, home is best.
- 3) A tree is known by its fruit.
- 4) Jack of all trades is master of none.
- 5) Haste makes waste.

References:

www.railwaygazette.com

www.wikipedia.com

The newspaper "Gudok" 16 July 2012\

Unit 4. Railway track construction

Vocabulary

a track - железнодорожный путь, железнодорожное
полотно

a permanent way - верхнее строение пути

a sleeper (a tie (Am)) - шпала

a subgrade - земляное полотно

pre-stressed concrete - преднапряженный железобетон

to weld - сваривать, приваривать

a baseplate - плита

a pad - подкладка, прослойка, подушка

resilient fastenings - упругие крепления

a cut spike - рельсовый костыль

scarce - недостаточный

maintenance - техническое обслуживание, путевые работы

axle load - осевая нагрузка

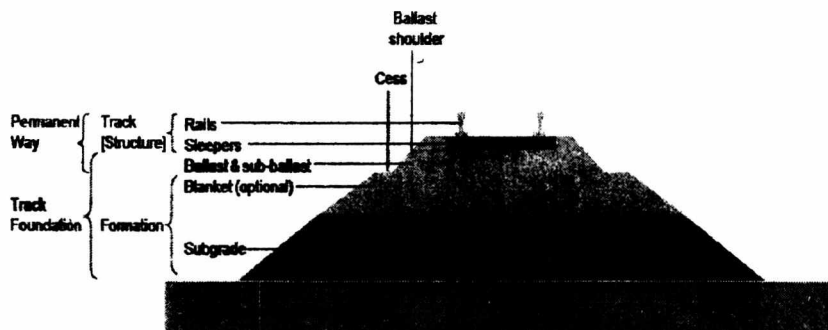
fishplates - стыковые накладки

friction - трение

The track on a railway (BE) or railroad (AE), also known as the permanent way, is the structure consisting of the rails, fasteners, railroad ties or sleepers (British English) and ballast (or slab

track), plus the underlying subgrade.

Section through railway track and formation



The dominant track form worldwide includes flat-bottom steel rails supported on timber or pre-stressed concrete sleepers, which are rested on crushed stone ballast. Most railroads with heavy traffic use continuously welded rails supported by sleepers (ties) attached via baseplates which spread the load. A plastic or rubber pad is usually placed between the rail and the tieplate where concrete sleepers (ties) are used. The rail is usually held down to the sleeper (tie) with resilient fastenings, although cut spikes are widely used in North American practice. For much of the 20th century, rail track used softwood timber ties and jointed rails. Pre-stressed concrete sleepers (ties) are often used where timber is scarce and where tonnage

or speeds are high. Steel is used in some applications. The track ballast comprises crushed stone, in order to support the ties and allow some adjustment of their position, while allowing free drainage.

A disadvantage of traditional track structures is the heavy demand for maintenance, particularly surfacing (tamping) and lining to restore the desired track geometry and smoothness of vehicle running. This can be overcome by using ballastless track. In its simplest form this consists of a continuous slab of concrete (like a highway structure) with the rails supported directly on its upper surface (using a resilient pad).

Rail is graded by weight over a standard length. Heavier rail can support greater axle loads and higher train speeds without sustaining damage than lighter rail, but at a greater cost. The traditional method of joining the rails is to bolt them together using metal fishplates, producing jointed track. For more modern usage, particularly where higher speeds are required, the lengths of rail may be welded together to form continuous welded rail (CWR). Because there are few joints, this form of track is very strong, gives a smooth ride, and needs less maintenance; trains can travel on it at higher speeds and with less friction. Welded rails are more expensive to lay than jointed tracks, but have much lower maintenance costs. The

first welded track was used in Germany in 1924 and the US in 1930 and has become common on main lines since the 1950s.

Read the text again and answer the questions:

1. What does the permanent way consist of?
2. What components does the dominant track have?
3. Where are pre-stressed sleepers used?
4. Traditional track structures have some drawbacks, don't they?
5. When were the first welded tracks applied?

Exercises:

1) Find the English equivalents in the text:

- 1) скрепления
- 2) рельс
- 3) древесина
- 4) бесстыковой путь, путь из сварных рельсовых путей
- 5) щебень
- 6) распределять нагрузку
- 7) стыковые рельс

8) СВОБОДНЫЙ ВОДООТВОД

9) СПЛОШНАЯ ПЛИТА

10) ЗАТРАТЫ, СТОИМОСТЬ

2) Word formation. Form the adjectives from the given words using these suffixes: -ic, -al, -ous, -less, -ive:

1) In the morning they had a _____ continental breakfast.
(tradition)

2) The latest _____ research shows that our galaxy is expanding. (science)

3) She was _____ to find out what the parcel contained.
(curiosity)

4) The children go to one of these _____ schools where new educational standards has been introduced.
(progress)

5) It was a _____ night when everyone can see millions of stars in the dark sky. (cloud)

6) The room is _____ enough to place a big Christmas tree. (space)

7) This company is offering a very _____ salary.
(attract)

3) Relative clauses. Fill in the gaps in the sentences with *which, who, where, when, whose*:

- 1) Cut spikes are large nails with an offset head _____ are used to secure rails and base plates to railroad ties in the track.
- 2) George Stephenson was an English engineer _____ built a successful steam locomotive "Rocket".
- 3) In the 19th century most people were afraid of railways _____ they first appeared.
- 4) Richard Trevithick, _____ working model of a steam locomotive was demonstrated in 1808, first attempted to use the steam engine to draw passengers and freight trains.
- 5) The first steam locomotive in Russia was built by the Cherepanovs _____ were talented and skilled workman of their time.
- 6) The place _____ the ends of the rails meet in the track is known as the rail joint.
- 7) The railroads have a switch _____ makes the trains pass from one track to another.
- 8) Russia is the country _____ the uniform gauge of 1,520 mm is adopted.

4) Discussion Corner.

- 1) The evolution of railways
- 2) Track gauge
- 3) Switches and crossings
- 4) Famous civil engineers of the world
- 5) Railroad ecology

References:

www.railwaygazette.com

www.wikipedia.com

The newspaper "Gudok" 16 July 2012

Unit 5. Double-deck train concept

Vocabulary

bilevel/ double-deck - двухъярусный/двухэтажный

passenger capacity - вместимость пассажиров

derived from - производное от

a gauge - колея

he centre of gravity - центр тяжести

entry - выпуск, производство

access - вход, доступ

a ramp - пандус

a carriage building factory - вагоностроительный завод

seat-back entertainment systems - мультимедийная система в спинке кресла

wheelchair facilities - устройства для инвалидов кресел

a snackbar - бар-буфет

bulky luggage - крупногабаритный багаж

CCTV - система видеонаблюдения

The bilevel car (AE) or double-decker coach (BE) is a type of rail car that has two levels of passenger accommodation, as opposed to one, increasing passenger capacity. In some countries such vehicles are commonly referred to as *dostos*, derived from the German *Doppelstockwagen*. Bilevel trains are

claimed to be more energy efficient, and may have a lower operating cost per passenger.

The height of the cars can limit their use, especially in countries with low loading gauge. In some countries such as the UK new lines are built to a larger than standard gauge to allow the use of double-deck trains in future. The high passenger capacity can create flow and problems at train stations when much larger numbers of passengers try to board or get off at the same time.

The double-deck design usually includes lowering the bottom floor to below the top level of the wheels, closer to the rails, and then adding an upper floor above. Such a design will fit under more bridges, tunnels and power wires (structure gauge). For cost and safety, this design also minimizes car height and lowers the centre of gravity.

Depending on train station platform heights, three designs can be used for entry - high platforms require use of a "split level" car design, where the doors are located on a middle level, with access into the upper or lower level branching off - with stairs or ramps going both up and down. For low train station platforms, a "two floor" design with level entry onto the lower floor is used. Occasionally a third, very tall "two floors over-wheel" design is used. This is a traditional single floor car "with a second story" design with, when using low platform, requires

steps up to a traditional floor height and then internal stairs up to the upper floor.

In 2012, a prototype double-decker rail carriage was made at the TVZ Tver Carriage Building Factory for the RZD Russian Railways company. This prototype carriage is a sleeping car with four-berth compartments and a total capacity of 64 passengers. Russian Railways ordered double-decker sleeper carriages from Transmashholding for the Adler-Moscow train service.

Transmashholding is expected to begin the production of 160 km/h double-deck trainsets for inter-regional services in 2014, with the first trains used on routes from Moscow to Tver, Yaroslavl, Vladimir, Ryazan, Tula and Kaluga.

Each train will comprise between six and 12 double-deck coaches from TMH's Tver works. According to TMH, the height of double-deck stock means there would be no roof or under-floor space for the electrical equipment needed for an electric multiple-unit. The air-conditioned coaches will have three classes, business class featuring seat-back entertainment systems, standard class having a 2+2 seating arrangement and economy class 3+2. There will also be wheelchair facilities, a snack bar, space for bulky luggage and CCTV.

Exercises:

1) Find the English equivalents in the text:

- 1) двухъярусный/двухэтажный вагон
- 2) размещение
- 3) линия электропередач
- 4) нижний этаж
- 5) (построенный) на разных уровнях
- 6) двухуровневый вагон
- 7) спальный вагон
- 8) 4-х местное купе
- 9) межрегиональный
- 10) вагоны с кондиционерами

2) Read the text again and say if these statements true (T) or false (F):

- 1) The bilevel trains are designed to increase the speed.
- 2) The journey on double-deck trains are cheaper than on one-deck ones.
- 3) The great amount of people carried with the double-deck

trains may cause some difficulties at train stations.

4) The car design depends on the platform length.

5) The Russian double-decker sleeper carriages can carry 64 passengers.

3) Match different means of transport with their definition.

Means of transport	Definition
1. a cart	a) a strong bag filled with hot air or gas that can carry people in a container fixed to it
2. a shuttle	b) an aircraft that travels regularly between two places in space
3. a balloon	c) a two-wheeled means of transport which is powered by an engine
4. a yacht	d) a very large aircraft which can carry a lot of people
5. a truck	e) a vehicle with two or four wheels pulled by an animal or a person which is used for carrying goods

6. a motorbike	f) a boat with sails used for either racing or travelling for pleasure
7. a helicopter	g) a railway engine connected to carriages for carrying people or wheeled containers for carrying goods
8. a train	h) a ship that can travel under water
9. a jumbo jet	i) a big road vehicle which is used for transporting large amount of goods
10. a submarine	j) an aircraft without wings that has one or two sets of blades. It can land and take off vertically.

4) Modal verbs. Use *can/can't, must/mustn't, have/don't have to, should/shouldn't, may or needn't* only once in the proper situation:

- 1) _____ I help you with your report?
- 2) Visitors _____ touch the works of art in the museum.
- 3) I _____ work Monday to Friday.
- 4) Sorry but Mr Turner _____ come to the phone right now. He is busy.

- 5) You _____ always obey the university rules.
- 6) You _____ buy any milk. I bought some yesterday.
- 7) He has a toothache. He _____ see the dentist.
- 8) Linda has broken her sister's iPod. She _____ have been so careless.
- 9) You _____ to take a taxi. Sam will give you a lift.
- 10) _____ I stay a little longer?

5) Discussion Corner.

1. The evolution of vehicles
2. Means of transport: advantages and disadvantages
3. The discoveries that have changed the world
4. Types of railway wagons
5. Taboos in your life

References:

www.railwaygazette.com

www.wikipedia.com

The newspaper "Gudok" 16 July 2012

ENGLISH IN RAILWAY MAINTENANCE.

Unit 1. Earth track solutions – rails sleeper replacement, track maintenance and construction.

Vocabulary.

a 30t excavator- тридцатитонный экскаватор

a rotating tilt hitch - поворотно-наклонное навесное устройство

a vital component of all Earthtrack Solutions' machines -
существенная составная часть всей техники фирмы
«Earthtrack Solutions»

above and beyond expectation - вне всяких ожиданий

accompany - сопровождать; (MUS) аккомпанировать

accuracy - точность; правильность

application - применение

attachment –приспособление, крепление

better cater to the demand it has experienced - исходя из
накопленного опыта, лучше удовлетворить спрос

boast - гордиться

capability –возможность

cater - поставлять

cater (for) организовывать (питание)
complement - (enhance) дополнять
component - составная часть
demand - требовать, требование; спрос
diverse – разнообразный
earthtrack – земляное полотно (дороги)
efficiency – эффективность
enable (make possible) способствовать; давать возможность
enabling – давать возможность
ensure - гарантировать
excavator – экскаватор
fit - входить без зазора; плотно прилегать
fit with smth – приводить в соответствие с (чем-л.)
fleet – парк транспортных средств (любых)
from laying sleepers to turnout placement – от прокладки шпал до монтажа стрелочного перевода
functional - действующий; (practical) функциональный.
functionality - функциональность
have constantly proven their value - доказали свою ценность
hitch - навесное устройство; прицепное устройство;
hitch - подталкивать
improve - улучшать
increase - увеличивать

innovative - передовой; инновационный, технически совершенный

innovative rail specific attachments - инновационные приспособления для проведения железнодорожных работ
laying – укладка

machine – машина, техника

overall - общий (in general) в целом

precision - точность

productivity - производительность,

promote - способствовать; содействовать; поддерживать

prove – доказывать

rail sleeper replacement -замена железнодорожных шпал

rail track –железнодорожный путь

replacement –замена

rotating tilt hitch - поворотно-наклоняемое навесное устройство

rotating –повторяющий

rotating-tilting table - поворотно-наклоняемый стол

specific- определённый;

specific to - характерно для

subsequently - впоследствии

tilt –наклон

track excavator - гусеничный экскаватор

track maintenance and construction - техническое
обслуживание и строительство железнодорожного полотна
track –гусеничный
turnout placement - стрелочный перевод
undertake - (task, duty) брать на себя;
undertake to do обязываться
undertaking any form of work on the railway - проводя любые
работы на железной дороге
versatility –универсальность
vital - существенный

Earthtrack Solutions boasts the largest fleet of track excavators in Australia fitted with rotating tilt hitches. These hitches have constantly proven their value in the field, subsequently they are now a vital component of all Earthtrack Solutions' machines working on the railway; improving productivity, efficiency and overall capabilities of the machine.

Track excavators fitted with rotating tilt hitches.

Its fleet of innovative rail specific attachments are complemented perfectly by rotating tilt hitches enabling greater functionality for any application. The combination of these two

components promotes precision and accuracy when undertaking any form of work on the railway, from laying sleepers to turnout placement.

The versatility of the full 360° rotation accompanied by a 40° tilt in either direction ensures that any machine in any application will perform above and beyond expectation.

Rail track construction equipment.

In recent years Earthtrack Solutions has invested heavily in its range of track construction equipment to better cater to the demand it has experienced.

The range of machines and attachments is now even more diverse and it is better equipped to supply clients with even greater versatility and increased productivity for their projects.

Answer the questions:

1. What is the main pride of the firm "Earthtrack Solutions"?
2. What is a vital component of all Earthtrack Solutions' machines?
3. How is the firm's fleet complemented perfectly by?
4. What is the range of machines and attachments of the firm now?
5. What the Rail track construction equipment do you know?

Exercises:

1) Find English equivalents to the Russian phrases in the text above:

1. Эти навесные устройства доказали свою ценность в этой области...
2. поворотно-наклонное навесное устройство
3. Инновационные приспособления для проведения железнодорожных работ

4. техническое обслуживание и строительство железнодорожного полотна
5. проводя любые работы на железной дороге

2) Match the words to their meanings:

	<i>words</i>	*****		<i>meanings</i>
1	prove		A	определённый
2	tilt		B	доказывать
3	specific		C	навесное устройство
4	precision		D	точность
5	hitch		E	возможность
6	improve		F	наклон
7	capability		G	улучшать

3) Put the words in the correct order to complete the sentence:

- .. In the fleet largest firm boasts the track Australia excavators of.
- .. all are component now a vital of Earthtrack Solutions' machines they.
- .. these two combination precision the components promotes of.

- . and attachments diverse the of is now even more machines range.
- . to clients it equipped supply better is.

4) Complete the endings of the sentences from the text above:

1. Its fleet of innovative rail specific attachments ...
2. The range of machines and attachments ...
3. The versatility of the full ...
4. In recent years Earthtrack Solutions has ...
5. Earthtrack Solutions boasts the largest fleet ...

References: <http://www.railway-technology.com/contractors/track/earthtracksolutions/>

Unit 2. Network Rail company.

Vocabulary.

maintenance - техническое обслуживание

management – управление

disruption - (*interruption*) нарушение

scale - масштаб

engineering - осуществление инженерно-технических работ

to improve - улучшать

improve the safety and reliability- повышение безопасности и надежности

backlog - недоработки

to replace - заменить

to upgrade - усовершенствовать

infrastructure - инфраструктура

reliability - надёжность

measures - мероприятия

to require - требовать

employees and contractors - сотрудники и подрядчики

to behave – поступать, вести себя

considerately – заботливо

to Position – размещать

lighting and generators - освещение и генераторы

silenced - заглушенный

equipment - оборудование

to aim- нацеливать

to aim to do ставить своей целью

to send out - разослать

notices - уведомления

to notify - уведомлять

to notify sb (of sth) уведомлять кого-н (о чём-н).

appropriate - подходящий, уместный

up-keep - обслуживание; ремонт

cost of up-keep-расходы по содержанию

to put in order - приводить в порядок.

Maintenance and engineering work.

Maintenance and engineering work can be noisy – but we try hard to keep noise and disruption to a minimum.

- Maintenance is the general day-to-day upkeep of the railway which keeps the trains running, such as looking after tracks, signals and power supply. Engineering is the larger scale infrastructure work, such as track replacement.

When Network Rail* began to run the railway in October 2002, we faced a huge backlog of engineering work. Over the last three years, we have replaced and upgraded much of the

infrastructure and significantly improved the safety and reliability of the railway.

We try to minimise noise and disruption from work

We use a range of measures to minimise noise and disruption including:

- Requiring our employees and contractors to behave considerately towards people who live and work near the railway
- Positioning lighting and generators away from homes
- Using silenced equipment where possible.

For large engineering projects, we also:

- Aim to send out notices to local people 10 days before work begins
- Notify local authorities, as appropriate
- Distribute information about the project to local people, where appropriate.

We give advance notice of engineering works – where possible

When we are planning engineering works near residential areas, we aim to send letters to local people 10 days before the work begins. The letters explain what we plan to do and when we expect to start and finish the work. When a large engineering project is planned, we also tell local authorities and other

community representatives such as members of parliament, local councilors.

For maintenance work (such as emergency repairs or general up-keep), it is not possible for us to tell the people who live nearby. This is because maintenance work takes place every day and night of the year which makes it impractical to give advance notice to all the people affected by every job.

Answer the questions:

1. What is the text about?
2. What is Engineering?
3. How does Network Rail company try to do to minimise noise and disruption from work?
4. What else does Network Rail company try to do for large engineering projects?
5. What makes it impractical to give advance notice to all the people affected by every job?

Exercises:

1) Find English equivalents to the Russian phrases in the text above:

1. Обеспечивает движение поездов
2. Проведение инженерно-технических работ включает в себя не только замену рельс и шпал.
3. Повысили безопасность и надежность железно - дорожного транспорта.
4. Мы принимаем ряд мер для снижения шума и нарушений
5. ставим своей целью рассылать уведомления местным жителям за 10 дней до начала инженерно-технических работ.

2) Match the words to their meanings:

	<i>words</i>	*****		<i>meanings</i>
1	Management		A	надёжность
2	reliability		B	мероприятия
3	notices		C	заботливо
4	measures		D	управление
5	considerately		E	заглушенный
6	Equipment		F	оборудование
7	silenced		G	уведомления

3) Put the words in the correct order to complete the sentence.

1. plan what the explain we do letters to.
2. night place work every day and of the year takes maintenance.
3. people the project information distribute about to local we.
4. be engineering Maintenance and can work noisy.
5. general railway maintenance upkeep is the day-to-day of the.

4) Complete the endings of the sentences from the text above:

1. When we are planning engineering works near residential areas...
2. When a large engineering project is planned...
3. For maintenance work (such as emergency repairs or general up-keep)...
4. When Network Rail* began to run the railway in October 2002...
5. We have replaced and upgraded much of the infrastructure and significantly...

References: <http://www.networkrail.co.uk/aspx/1015.aspx>

Unit 3. Network Rail company.

VOCABULARY.

maintenance - техническое обслуживание

engineering - осуществление инженерно-технических работ

to require - (person) нуждаться в; (thing, situation) требовать

required by law - требуется по закону

to undertake (task, duty) брать на себя; to ~ to do
обязываться

level crossings - железнодорожные переезды

to run (pt ran, pp run) - устраивать, прокладывать

traffic - (of people, vehicles) движение

schedule - (timetable) расписание, график

to schedule - (timetable) расписывать; on ~ по расписанию
or графику

complicated - сложный

operation - работа (controlling) управление;

to involve - (person, thing; include, use) вовлекать

infrastructure - инфраструктура

ahead - впереди; (direction) вперёд

complex - сложный, комплексный

to affect - (influence) действовать на, влиять

enormous - громадный

demand - (request, claim) требование; (econ): ~ (for) спрос (на)

staff (workforce) - работники pl, штат

gang - банда; (of friends) компания; (of workmen) команда.

different - (other) другой, иной; (various) различный, разный

properly - (eat, study) как следует; должным образом

suddenly - (unexpectedly) внезапно, вдруг.

shift - (at work) смена

find out – узнавать, выяснять

alteration - изменение; ~s переделки

to enquire - inquire.

to inquire - спрашивать: to ~ (about) справляться (о)

enquiries – запросы

national – национальный

rail – железнодорожный

employees and contractors - сотрудники и подрядчики

behavior – поведение

to behave – поступать, вести себя

noise - шум.

Most work has to be done at nights or week-ends

We have to do most of our maintenance and engineering work on the tracks at nights and week-ends so that we can keep the

trains running. In fact, we are required by law to undertake engineering work when the railway line is closed to rail traffic.

Planning and scheduling work is very complicated

The railway is a 24-hour a day, 365 days a year operation and involves a very large network with over 20,000 miles of track, 40,000 bridges and tunnels and 9,000 level crossings. We have to work on the infrastructure throughout the year so that we can run a safe and reliable rail network for passengers. Also, we have to plan and agree engineering projects with the train and freight operating companies many months ahead. And these works are usually part of a bigger and more complex programme of work. If we change one part of the project, then it would affect all the other parts. Finally, there are enormous demands on our maintenance and engineering staff. The same gang work on different projects and their work needs to be planned properly. For example, it is not easy for a gang to suddenly change from doing night shifts to day shifts.

More information

You can find out about trains affected by engineering work and service alterations on the National Rail Enquiries website.

You can find more information about employee and contractor behaviour, noise and major projects on this website.

What to do if you have a problem caused by the railway or have more questions

If you have a problem caused by maintenance and engineering work or any other part of the railway or if you simply want more information, please get in touch with us.

Answer the questions:

1. What is the text about?
2. When does most of the maintenance and engineering work have to be done?
3. How does the company work on the infrastructure?
4. What for does the company work on the infrastructure?
5. Where can you find more information about the company?

Exercises:

- 1) Find English equivalents to the Russian phrases in the text above:

1. Обеспечивать движение поездов
2. Проведение инженерно-технических работ нашей службой требуется по закону.
3. Планирование и составление расписания проведения работ – очень трудоемкий процесс.
4. В наши обязанности входит работа над инфраструктурой, обеспечивающая ее нормальную деятельность...
5. Это нелегко для компании производить замену ночных смен на дневные смены.

2) Match the words to their meanings:

	<i>words</i>	*****		<i>meanings</i>
1	inquire		A	требовать
2	require		B	поведение
3	run		C	шум
4	complicated		D	спрашивать
5	behavior		E	смена
6	noise		F	прокладывать
7	shift		G	сложный

3) Put the words in the correct order to complete the sentence.

1. our to maintenance we do most of and engineering work have.
2. have projects we to plan and engineering agree.
3. needs the planned gang work to be properly same.
4. trains can you about find out.
5. the railway line is closed to rail traffic.

4) Complete the endings of the sentences from the text above:

1. You can find more information about employee and contractor behaviour...
2. We have to work on the infrastructure throughout the year so that ...
3. If we change one part of the project, then ...
4. What to do if you have a problem caused ...
5. Planning and scheduling work ...

References: <http://www.networkrail.co.uk/aspx/1015.aspx>

Unit 4. Sperry Rail - rail flaw detection systems.

Vocabulary

flaw - недостаток, изъян; (in cloth, glass) дефект.

detection - (*discovery*) обнаружение;

dedicate - посвятить; предназначить

providing = provided (that). = при условии, что.

provide - обеспечивать

testing - (situation, period) испытательный.

report - сообщать о; (event, meeting) докладывать

solution - (answer) решение

innovation - новшество.

innovate - внедрять техническое новшество

offer предложение, предлагать

accuracy - точность

ultimately - в конце концов.

proactive - действенный.

cost-effective - выгодный; рентабельный.

cost-efficient - выгодный; рентабельный.

management - ведение эксплуатации, служба.

efficiency - (see) эффективность; деловитость.

coverage - (press) освещение; (distance) покрытие.

exclusive - (use) исключительный; (interview) уникальный, эксклюзивный.

detect - (sense) чувствовать; (discover) обнаруживать.

induction - (med: of birth) стимуляция.

detection - (discovery) обнаружение;

potentially - потенциально

catastrophic - катастрофический.

vision - (sight) зрение; (foresight) предвидение

efficiency - (see) эффективность; деловитость.

decision making- принятие решений

ultrasonic - (sound) сверхзвуковой, ультразвуковой.

flaw detection - установление дефектов, выявление дефектов, дефектоскопия;

testing and training services - услуги по тестированию и тренингу

employee - работник

customer - (of shop) покупатель; (of small business) клиент; (of large company) заказчик;

unprecedented - беспрецедентный

access - доступ

depth- глубина

recognize- признавать; (person, place) узнавать ; (attitude, illness) распознавать

expert - эксперт, специалист

recognized experts - признанные эксперты, признанные специалисты.

state-of-the-art – внедренный, достигнутый

facility - (feature) приспособление; (service) услуга.

sample - (of water) проба; (of work, merchandise) образец.

ample - (large) большой; (abundant) обильный; (enough) достаточный.

simulation

притворство, симуляция; моделирование; воспроизведение.

complete - полный; (finished) завершённый

inspection - (see vb) осмотр; проверка.

vehicle - автотранспортное средство

test track - испытательная рельсовая трасса

graduate - выпускник

fail - (exam, candidate) проваливать

customized - изготовленный на заказ.

suit - (be convenient, appropriate) подходить

Sperry is a service company dedicated to providing the very best rail testing technology, reporting, and training solutions around the world. We are constantly innovating and improving, offering our clients faster testing and improved accuracy. Our workforce consists

of the highest-trained professionals in the industry. Ultimately, we help our clients achieve proactive, cost-efficient rail management.

Rail flaw detection systems.

Sperry offers several technologies that together add up to one powerful, full-coverage solution:

Standard ultrasonics provide complete head, web, and central base coverage

Exclusive X-Fire technology detects up to 30% more defects than standard ultrasonics alone

Sperry induction increases the detection of potentially catastrophic rail flaws by up to 10%

Vision system improves operator efficiency and decision making.

Testing and training services for rail flaw detection. We founded the Sperry School of Rail Testing to give our employees and customers unprecedented access to our depth of knowledge. Students learn from recognized experts in the field. Our state-of-the-art facility includes a rail sample library, simulation room, complete inspection vehicle, and test track. Graduates of the program are able to pass and fail rail. Programs can be customized to suit customer needs.

Answer the questions:

1. What is Sperry?
2. What does Sperry do?

3. What does Sperry offer to its clients?
4. What for was the Sperry School of Rail Testing founded?
5. Are graduates of the program able to fail rail?

Exercises:

1) Find English equivalents to the Russian phrases in the text above:

1. В конце концов, мы помогаем нашим клиентам достичь действенное и рентабельное ведение эксплуатации железной дороги.
2. Программы могут быть разработаны в соответствии с требованиями заказчиков.
3. Система слежения улучшает работу оператора и повышает эффективность принятия решений.
4. Студентов обучают признанные специалисты в этой области.
5. Спери – это сервисная компания, деятельность которой заключается в распространении самых передовых технологий тестирования в области ж-д.

2) Match the words to their meanings:

	<i>words</i>	*****		<i>meanings</i>
1	managment		A	недостаток
2	flaw		B	осмотр; проверка
3	facility		C	признавать
4	inspection		D	выпускник
5	graduate		E	управление
6	recognize		F	приспособление
7	provide		G	обеспечивать

3) Put the words in the correct order to complete the sentence:

1. the consists professionals workforce of our highest-trained.
2. offers technologies Sperry several.
3. innovating are improving constantly and we.
4. decision system improves vision efficiency making operator and.
5. includes facility library sample state-of-the-art a rail our.

4) Complete the endings of the sentences from the text above:

1. Standard ultrasonics provide ...
2. Sperry induction increases the detection ...
3. We founded the Sperry School of Rail Testing to give our...
4. We are constantly innovating ...
5. Graduates of the program are able...

Unit 5. Sperry Rail - rail flaw detection systems.

Vocabulary

flaw - недостаток, изъян; (in cloth, glass) дефект.

flaw detection установление дефектов, выявление дефектов,
дефектоскопия

detect (sense) чувствовать; (discover) обнаруживать.

detection (discovery) обнаружение;

customized - изготовленный на заказ.

custom-built - изготовленный на заказ.

custom-made- изготовленный на заказ.

customary -обычный, традиционный

customs - таможня

fault (defect: in person) недостаток (in machine) дефект;

secure - надёжный; безопасный; прочный;

secure- (прочно) закреплять; (get job, contract etc)
обеспечивать.

enable - (make possible) способствовать;

enable sb to do (permit, allow) давать возможность кому-н.

flexible - гибкий.

intuitive - интуитивный

data management system система управления данными.

dashboard - приборная панель

drag – тащить, тянуться (time, a concert etc).

drag - (task) бремя; (naut, aviat) лобовое сопротивление;

drop - (reduction) падение; (fall: distance) расстояние сверху вниз.

drag-and-drop - способ оперирования элементами интерфейса.

interface -(comput) интерфейс; (area of contact) соприкосновение.

interface between technology and design -соприкосновение технологии с дизайном.

report creation - создание отчетов

extensive data warehousing -обширная база данных

warehouse - склад, хранить на складе.

customer-configurable - настраиваемый под заказчика.

configuration - (also comput.) конфигурация.

reporting - отчетность.

vehicle - автотранспортное средство.

portable - портативный.

diverse - разнообразный.

array - (math, comput) массив;

array of - масса, множество

inspection - (see vb) осмотр; проверка.

requirement - (need, want) потребность; (condition) требование;

to meet sb's requirements удовлетворять требованиям.

modular - (filing, unit) модульный.

upgrade - (improve: house) модернизировать; (job) усложнять.

feature - черта, особенность : to ~ in фигурировать в.

latest advances - последние достижения.

convenience – удобство.

safety - безопасность, сохранность, надежность.

destructive - (capacity, force) разрушительный; (criticism) деструктивный.

non-destructive - неразрушающий (об испытании).

detect - (sense) чувствовать; (discover) обнаруживать

non-destructive method of detecting flaws - неразрушающий метод обнаружения дефектов.

inspection techniques - методы контроля.

subsurface flaws- подповерхностные дефекты.

fleet - (of ships) флот; (of lorries, cars) парк.

specialized test vehicles - специализированные испытательные машины.

proprietary - (medicine) патентованный; (brand) фирменный;

internally - внутренне, для внутренних целей.

not to be taken internally - „внутри не принимать”.

through - через, в течение, посредством, из-за.

continuous - (process, growth etc) непрерывный;

maximize - максимально увеличивать.

eliminate - ликвидировать, исключать; (candidate)
отсеивать.

they were eliminated in the first round - они были отсеяны на первом туре.

derailment - сход с рельсов.

the cause of the derailment is unknown - причина, по которой поезд сошёл с рельсов, неизвестна.

heavy haul networks - перегон грузовых поездов.

haul - (transport) перевозить перегон.

metropolitan train - поезд метро.

metropolitan systems - центральные системы сети ж-д перевозок.

metropolitan - столичный, центральный; находящийся в эпицентре чего-л.

Customized rail fault reporting.

Sperry is the first to offer secure web-enabled access to your test results anytime. Our flexible, intuitive Data Management System features a familiar dashboard interface, drag-and-drop report creation, extensive data warehousing, and customer-configurable reporting.

Hi-rail vehicles and portable equipment.

Sperry offers a diverse array of equipment to suit every inspection need. Vehicle configuration can be customized to suit customer requirements. Modular design allows for easy upgrades. Every Sperry solution features the latest advances in operator convenience, comfort, and safety.

About Sperry.

Founded in 1928, Sperry developed the first non-destructive method of detecting flaws in rail, and set the standard for industry inspection techniques. Sperry inspects railroad track for subsurface flaws with a fleet of specialized test vehicles using proprietary technology and internally developed data management systems. Through continuous innovation and training, Sperry's focus is to maximize flaw detection, productivity and safety, and help clients eliminate the risk of derailments.

As the largest provider of rail flaw detection services in the world, Sperry maintains active relationships with many railways, from heavy haul networks to metropolitan systems, in North America, Europe, and Asia.

Answer the questions:

- 1) When was Sperry founded?
- 2) What does data management system feature?
- 3) What does modular design allow?
- 4) What is Sperry's focus to?
- 5) What relationships does Sperry maintain?

Exercises:

1) Find English equivalents to the Russian phrases in the text above:

1. система управления данными.
2. центральные системы сети ж-д перевозок.
3. обширная база данных.
4. специализированные испытательные машины
5. неразрушающий метод обнаружения дефектов

2) Match the words to their meanings:

	<i>words</i>	*****		<i>meanings</i>
1	detection		A	внутреннее
2	internally		B	обнаружение
3	eliminate		C	отчетность
4	detect		D	надёжный; безопасный
5	reporting		E	обнаруживать
6	secure		F	гибкий
7	flexible		G	ликвидировать

3) Put the words in the correct order to complete the sentence:

6. first access Sperry is to secure the web-enabled offer.
7. customized can Vehicle be configuration.
8. method Sperry the non-destructive developed first.
9. track flaws for Sperry inspects subsurface railroad.
relationships railways active with many maintains Sperry.

4) Complete the endings of the sentences from the text above:

1. Our flexible, intuitive Data Management System ...
2. Sperry offers a diverse array of equipment ...
3. Every Sperry solution features the latest advances ...
4. Through continuous innovation and training ...
5. As the largest provider of rail flaw detection ...

References: <http://www.railway-technology.com/contractors/track/sperryrail/>

English in Tunnel Engineering.

Unit 1. Tunnels.

Vocabulary.

excavated - выкопанный

length - длина

width - ширина

height- высота

to remove - удалить

rock-скальный грунт

soil- почва

sufficient - достаточный

drainage- дренаж

shaft- шахта

exhaust-вытяжка

terrain - местность

inland - внутри страны

involve - включать

mountain range - горный хребет

gorge - ущелье

topographical conditions - топографические условия

harsh - суровый

mine tunnel - горная выработка; штрек
deposit – залежь; месторождение
permanent - постоянный
consumption - потребление
sewage - канализация
pedestrian - пешеход
cyclist - велосипедист
motor vehicles - моторные транспортные средства
wildlife crossings - переходы диких животных
badger - барсук
endangered species - исчезающие виды
escape - побег
fortification-укрепление

1. A tunnel is a long, narrow, essentially linear excavated underground opening, the length of which greatly exceeds its width or height. It's an underground or underwater passage usually made without removing the overlying rock or soil. Although tunnels are approximately horizontal, they must be built with sufficient gradient for proper drainage. Tunnels may be ventilated by shafts leading to the surface or by exhaust fans at the ends.

2. It is a well-known fact that the bridges and tunnels are the "keys" to start the railways operation. There are a large number of rail tunnels in Russia. Russian Railway network is operated by 162 tunnels with a total length of 119 km. The high number of tunnels is due to difficult terrain in our country. Travelling inland involves crossing mountain ranges and gorges. The development of railways was a major reason for building bridges and tunnels. It was harder for trains to climb hills than it was for horses or automobiles, so railways needed tunnels.

3. Russian first significant tunnel was the rail tunnel between Vilnius and Kaunas with the length of 1,285 meters (0,803 miles), built in the 1862. It's the only railway tunnel operating in the Baltic states. Moreover, tunnel is included into the Registry of Immovable Cultural Heritage Sites of the Republic of Lithuania.

4. Because cars are better at climbing hills than trains are, Russia has less road tunnels. Some are very short, and some are significant, despite being short. Complex topographical conditions, for example hilly topography or road construction in the mountain taiga areas with harsh cold climate has made road tunnels especially important.

5. There are three different kinds of tunnels. Mine tunnels go deep down into the earth to enable miners to get to mineral or

metal deposits (and back to the surface). These tunnels are cheaper to build than tunnels for transportation. They are also not as safe. This is because from the start they are not designed as permanent tunnels. Other tunnels may be aqueducts, built specifically for carrying water — for consumption, for hydroelectric purposes or as sewers — while others carry other services such as telecommunications cables. These are called tunnels for public works. They are built to transport water, sewage or gas materials over long distances.

6. The third kind of tunnel is for transportation, like for pedestrians or cyclists, for general road traffic, for motor vehicles only, for rail traffic, or for a canal. Transportation tunnels have to go through mountains, underground or under bodies of water.

7. There are even tunnels designed as wildlife crossings for European badgers and other endangered species. Some secret tunnels have also been made as a method of entrance or escape from an area, such as the Cu Chi Tunnels or the tunnels connecting the Gaza Strip to Egypt. Some tunnels are not for transport at all but are fortifications, for example Mittelwerk and Cheyenne Mountain.

Answer the questions to the text.

1. What is a tunnel?
2. What are main technical requirements to building tunnels?
3. When and where was the first tunnel built in Russia?
4. Why road tunnels are especially important for Russia?
5. What are tunnels used for?
6. What are main kinds of tunnels?
7. What are tunnels built for?

Exercises:

- 1) Read the text again. Match headings a-g with paragraphs 1-7 of the text.**

	What is a tunnel?	
a	Severe weather conditions	
b	Transportation tunnels	
c	Specific tunnels	
d	The progress of railroads was a main reason for building tunnels	
e	Common types of tunnels	
f	Tunnel . Background.	
g	Fist tunnel in Russia.	

2) Match the given words with their definitions:

Width, remove, surface, shaft, total length, soil, consumption, excavation, terrain, height.

	A vertical or inclined opening of uniform and limited cross section made for finding or mining ore, raising water, or ventilating underground workings (as in a cave)
	the act of eating or drinking something or the use of something (such as fuel)
	extent from side to side; wideness
	extent or distance upward
	the upper layer of an area of land or water
	the maximum length of something
	a hole or cavity made by excavating
	to move from a place or position; take away or off
	the ground or earth
	a geographic area : a piece of land

3) Give the Russian equivalents to the following English words and combinations.

Underground or underwater passage, to start the railways operation, removing the overlying rock or soil, sufficient gradient for proper drainage, exhaust fans at the ends, complex

topographical conditions, harsh cold climate, go deep down into the earth, mineral deposits, linear excavated underground opening.

4) Give the English equivalents to the following Russian words and combinations.

Подземный проход (проезд); движение кораблей; рыть тоннель; мягкий песок; горизонтально; твердая скальная порода; проектирование и строительство; длиной 50 км; почва (грунт); строительство моста-тоннеля.

References: <http://science.howstuffworks.com/engineering/structural/tunnel.htm>

Unit 2. History of Tunneling.

Vocabulary.

Mirror - отображать

advance - достижение

timber support - деревянные опоры

closed-face - с закрытым забоем

shield-driven - щитовая проходка

utilize - использовать

additive - добавка

sophisticated - сложный

ancient - древний

mankind - человечество

dug - выкопанный

cave - пещера

shelter - кров

to protect - защищать

enemy - враг

to store - хранить

tool - инструмент

tomb - могила

"cut-and-cover" - с проходкой открытым способом

diverted - отводить в сторону

trench - траншея
river bed - русло реки
bone - кость
antler - олений рог
flint - кремень
raw materials - сырье
to haul - тащить
freight - груз
tremendous - огромный
expansion - расширение
notable - заметный
compressed-air drill - пневматическая дрель
beneath - ниже
rapid transit system - система скоростного транспорта
network - сеть
non-level crossing -
deep - глубокий
provide - обеспечивать
bore - бурить
bustling – шумный

The evolution of tunneling technology closely mirrors the various worldwide advances in tunneling technology and

methods. Tunnels have progressed from hand-excavated tunnels with timber supports to innovative high- technology, closed-face shield-driven tunnels utilizing chemical additives for soil stabilization, sophisticated computer systems to monitor machine operation characteristics and so on.

In the ancient age, mankind dug tunnel and caves for shelter for protecting dangerous enemies and/or to store foods that had been gathered with hunting and/or fishing. Later, mankind had developed metal tools for excavation of the underground. Early excavations have been discovered in Caucasia, near Black Sea, which date back to about 3,500 B.C.

The origin of tunnel building is disputed. The Egyptians built tunnels as entrances to tombs. The Babylonians built a tunnel under the Euphrates using what is now called the "cut-and-cover" method; the river was diverted, a wide trench was dug across its bed, and a brick tube was constructed in it and covered up. The ancient Greeks and Romans built tunnels for carrying water and for mining purposes; some of the Roman tunnels are still in use. Almost every Great civilization, such as Aztec, Inca, Babylonian, Egyptian, and Persian, had constructed tunnels on the history. The tools used in tunneling were the tools of age: Bone, antler, flint and wood to early human, bronze, iron and steel as civilization advance.

The art of tunnelling was first developed by miners. By the 17th century, tunnels were being constructed for canals. Without roads or railways to transport raw materials from the country to the city, watery highways became the best way to haul freight over great distances. Overseas, railway tunnels had been built soon after trains were introduced. With trains and cars came a tremendous expansion in tunnels construction. During the 19th and 20th centuries, the development of railroad and motor vehicle transportation led to bigger, better, and longer tunnels.

One of the first notable tunnels in Great Britain was part of the Grand Trunk Canal. It was nearly 2 mi (3.2 km) long and was completed in 1777. The Mont Cénis Tunnel, a railroad tunnel in the French Alps that opened in 1871 and is now 8.5 mi (13.7 km) long, was probably the first tunnel built using compressed-air drills. The first rail tunnel in the United States was built in 1833, and in the United Kingdom a tunnel on the Sheffield–Manchester line opened in 1845.

The longest canal tunnel is the Standedge Tunnel in the United Kingdom, over three miles (5 km) long. In the United Kingdom a pedestrian tunnel or other underpass beneath a road is called a subway. This term was used in the United States, but now refers to underground rapid transit systems. The central part of

a rapid transit network is usually built in tunnels. To allow non-level crossings, some lines run in deeper tunnels than others. Rail Stations with much traffic usually provide pedestrian tunnels from one platform to another, though others use bridges.

The Channel Tunnel between France and England is one of the longest tunnels in the world. It is 50 kilometers long. The longest tunnel in the world, the Gotthard Base Tunnel, is being dug in Switzerland.

In general, today, not even mountains and oceans stand in the way. With the latest tunnel construction technology, engineers can bore through mountains, under rivers, and beneath bustling cities.

Answer the questions to the text.

1. How have tunneling technology and methods progressed?
2. What was the way of digging tunnels in the ancient age?
3. Who created the most extensive network of tunnels in the ancient world?
4. What did the Roman engineers build to carry fresh water into the city and waste water out?
5. What did a tremendous expansion in tunnel construction come with?

What became the best way to haul freight over great distances?

6. What led to bigger, better and longer tunnels?

7. Which is the longest tunnel in the world?

Exercises:

1) Match the given words with their definitions:

support, expansion, raw material, protecting, shelter, trench, advance, underpass .

	material before being processed or manufactured into a final form
	a long, narrow hole that is dug in the ground
	a crossing of a highway and another way (as a road or railroad) at different levels
	a structure that covers or protects people or things
	to hold up or serve as a foundation or prop for something
	to move or bring forward
	the act of becoming bigger or of making something bigger : the act of expanding
	to defend or guard from attack, invasion, loss; cover from injury or danger.

2) Give the Russian equivalents to the following English words and combinations.

Utilizing chemical additives for soil stabilization, sophisticated computer system, to monitor machine operation characteristics, "cut-and-cover" method, the best way to haul freight over great distances, watery highways , compressed-air drills , bustling cities, underground rapid transit systems.

3) Match the English equivalents to the following Russian words and combinations.

кремнёвый камень, огниво	non-level crossings
хранение продуктов	mankind dug tunnels and caves
собраться после охоты и рыбалки	the origin of tunnel building
эволюция развития туннельных технологий	to divert a river
инструменты древности	bone
последовательное отображение	antler
пересечение дорог не на одном уровне	flint
кость	tools of age
отвести реку	evolution of tunneling technology
олений рог	closely mirror
вход в гробницу	closed-face shield-driven tunnels
человечество рыло туннели и пещеры	to store foods
зарождение строительства тоннелей	to gather with hunting and fishing
проходческий щит с закрытым забоем	entrance to tomb

4) Translate the sentences below from Russian into English in writing.

Tunnel boring machines (TBM) excavate tunnels with a circular cross section through a variety of rock strata. They can be used to bore through hard rock or sand and almost anything in between. Tunnel diameters can range from a metre (done with micro-TBMs) to 15 metres. Tunnels of less than a metre or so in diameter are more typically done by horizontal directional drilling rather than by TBMs.

A TBM has the advantages of not disturbing surrounding soil and producing a smooth tunnel wall. This significantly reduces the cost of lining the tunnel, and makes them suitable to use in built-up areas. The key disadvantage is cost. TBMs are expensive to construct, difficult to transport and require significant infrastructure.

References:

<http://science.howstuffworks.com/engineering/structural/tunnel2.htm>

<http://science.howstuffworks.com/engineering/structural/tunnel3.htm>

Unit 3. The Channel Tunnel.

Vocabulary.

The Channel Tunnel – тоннель Ла-Манш

the Strait of Dover - пролив Дувр

special shuttle service - специальный трансфер

oversized - негабаритный

accommodate - вмещать

vehicle – автотранспортное средство

load – нагрузка

freight train – товарный поезд

broke out - вспыхнул

access - доступ

maintenance – обслуживание

emergency escape route – маршрут для аварийной эвакуации людей

supply – поставка

accident – авария

proposal – предложение

to face – столкнуться

to deal with - иметь дело с

geological irregularity –нравномерность пласта

sheer amount - полный объем
sturdy - крепкий
to withstand - выдерживать
to allay - уладить
concern – вопрос
chalky rock – меловая порода
explode – взорваться, внезапно и быстро увеличиваться
priority - приоритет
occur – происходить
trap – запираеть, ловушка
smooth – гладкий
available - доступный
authorized agent – уполномоченный агент
amazing - потрясающий
engineering feat – достижение технического мастерства

The Channel Tunnel, also known as the *Chunnel*, is a large tunnel which runs between Britain and France, under the Strait of Dover in the English Channel. It is also affectionately referred to as the Chunnel or Eurotunnel, is a 50 km long undersea rail tunnel that connects south-eastern England with northern France. At its lowest point it lies 75 meters under the

ocean floor. The tunnel is operated by the Eurotunnel Group, a British – French company.

The tunnel carries passengers and freight in high speed trains, and it also offers a special shuttle service (a method of transporting people back and forth from one point to another) on oversized trains which can accommodate vehicles. To use the shuttle service, people drive directly onto the train and secure their vehicles for the trip under the Channel.

In short, three types of trains travel through the tunnel:

- Shuttle trains travel from Folkestone to Calais in about half an hour. Cars, trucks and buses can be loaded onto them.
- The Eurostar high-speed passenger trains bring people from Paris to London in 2 hours and 15 minutes and passengers from Brussels to London in 1 hour and 50 minutes.
- freight trains.

Since its opening there have been some problems. Fires broke out and illegal immigrants have used the tunnel to get to Great Britain.

In fact, there are three tunnels in the Channel Tunnel; two tunnels for trains, and a central access tunnel used for maintenance access and as an emergency escape route. It also supplies the two train tunnels with fresh

air. Emergency vehicles can get to the scene of an accident quickly.

Although the proposals to build an access tunnel between Britain and the Continent date back to the 1800s, but construction on the Channel Tunnel didn't begin until 1988. Workers on the tunnel faced a number of engineering problems as they had to deal with geological irregularities and the sheer amount of work involved in constructing a 31.4 mile (around 50 kilometer) long tunnel underground. The tunnel had to be sturdy enough to withstand years of use as well as being well ventilated, and the engineers also wanted to allay concerns about the risk of fires in the tunnel with state of the art safety mechanisms, including the central escape tunnel.

Building the tunnel was a difficult engineering task. During the construction period teams from both sides used special machines to bore through the mostly chalky rock. Some were as long as football fields and could cut through 80 metres of rock a day. At times, almost 15,000 workers were employed by Eurotunnel.

As construction progressed Eurotunnel realized that overall costs would explode. The project, which was financed with

private money, cost almost 15 billion Euros, more than twice as much as projected.

Since its official opening in 1994, about 15 million people have travelled through the tunnel every year. Even though it is a real alternative to air travel, Channel Tunnel trains have not carried as many passengers as its operator, Eurotunnel, expected. The company lost millions of Euros over the years.

Although safety is a top priority for Eurotunnel there have been three big fires that forced the tunnel to close down. The last one occurred in 2008 and lasted for 16 hours. Nobody was killed but many people had to be taken to hospitals. In December 2009 over 2000 passengers were trapped in the tunnel because electricity failed in the cold weather.

Meanwhile, the American Society of Civil Engineers has called the Channel Tunnel one of the seven wonders of the modern world, and as of 2008, it is the second longest tunnel in the world. It certainly streamlined and revolutionized travel between Britain and France, smoothing the way for visitors from both nations to travel rapidly and easily. Tickets are readily available for passengers who want to travel on the Eurostar passenger trains which service the Channel through Eurostar and various authorized agents.

It took six years for the Channel Tunnel to be completed, and the safety systems were tested only two years later, when a fire broke out in 1996. Now the tunnel has set an example worth following and it is considered one of the most amazing engineering feats of the 20th century.

Ask and answer the questions to the text (work in pairs).

1. How long is the Channel Tunnel, one of the world's most famous tunnels?
2. What does this link consists of?
3. What sort of service does the Channel Tunnel allow?
4. Why was the tunnel construction delayed almost for 200 years?
5. What types of trains travel through the tunnel?
6. What made the tunnel engineers slow down their progress?

Exercises:

1) Match the given words with their definitions:

Maintaining, shuttle train, overall cost, freight train, safety system, access, high speed train, oversized

	designed to operate at a rapid moving
	travels back and forth at regular intervals over a particular route
	a railroad train consisting of goods, cargo, or lading
	a size larger than the proper or usual size
	includes everything
	free from the risk of self-damage or injury to people and property
	to keep in an appropriate condition, operation
	the ability, right, or permission to approach, enter or use

2) Give the Russian equivalents to the following English words and combinations.

Emergency escape route, emergency vehicles, central escape tunnel, offer a special shuttle service, although safety is a top priority, to allay concerns, scene of an accident, the most amazing engineering feats, set an example worth following,

3) Match the English equivalents to the following Russian words and combinations.

Меловая глина, мергель	readily available
неравномерность пласта	accommodate vehicles
прочная конструкция	construction progress
легко доступны	smoothing the way
беспроблемный путь	authorized agent
вмещать транспортные средства	geological irregularity
развитие строительства	chalk marl
уполномоченный агент	sturdy construction

4) Put the given verbs into the correct tense forms. Pay attention on time words.

..... (*To link*) is the process of collecting and combining various pieces of code and data into a single file. Lately we (*to face*) the act of terrorism. What the business managers needed — (*to run*) their departments, divisions, and corporations effectively. Tunnel corps and other businesses (*employ*) large numbers of specialists for future projects. War (*to break out*) in 1941. The building work (*to be carried out*) by a local contractor. The element (*to fail*) due to critical corrosive wear-after. System error 5..... (*to occur*), access is denied. The described design..... (*to withstand*) emergency temperature up to 250° C. that completely meets modern requirements to the equipment. A tunnel boring machine can..... (*to bore*) through anything from hard rock to sand. Phil..... (*access*) to the Japanese networks there, he knew everything about it.

5) Translate the sentences below from Russian into English in writing.

Тоннель под Ла-Маншем, или Евротоннель — самый длинный международный туннель в мире, соединяет

Соединенное Королевство и Францию 50 500 метровым проходом. Туннель соединяет города Фолкстон в Великобритании и Кале во Франции. Тоннель также может похвастаться самым большим в мире поездом для перевозки автомобилей под названием Eurotunnel Shuttle.

Если бы собрать всю выкопанную из туннеля землю и камни и высыпать из них гору, она достигала бы высоты Эйфелевой башни. Передняя проходная часть ТПМ, которой копали Евротоннель, имеет свыше 100 режущих кромок и 200 острых зубов.

Строительство Тоннеля под Ла-Маншем было заморожено в течение почти двухсот лет с 1802, из-за постоянных колебаний со стороны британцев и политической нестабильности. В конечном счете, в 1988, году строительство началось и закончилось довольно быстро, в 1994. Тоннель под Ла-Маншем также был одним из кандидатов на попадание в список Семи Новых Чудес Света. Несомненно, это великое сооружение сыграло ключевую роль в объединении Британии с материком, хотя с материальной точки зрения оно до сих пор остается убыточным.

References:<http://science.howstuffworks.com/engineering/structural/tunnel4.htm>

Unit 4. Tunnel Jobs.

Vocabulary.

Maintaining - эксплуатация

surveyor - геодезист

ironworker - монтажник металлоконструкций; слесарь-арматурщик; слесарь-монтажник

cement mason - бетоноукладчик

construction crew - строительная бригада

take measurement - снимать мерку

figure the appropriate length, width, and height - выяснить соответствующую длину, ширину и высоту

attempt to predict - пробовать предсказать

potential hazards - потенциальные опасности

mudslide - оползень

rock fall - обвал породы

is deemed safe - считается безопасным

draw blueprints - привлечь чертежи

laborer - рабочий

estimate - оценка

authorization - разрешение

begin scheduling - начать планирование

site - строительная площадка

to supervise - контролировать
skilled laborer - квалифицированные рабочие
highly-trained - высококвалифицированный
explosive worker- взрывник
blaster - запальник
final measurements - заключительные измерения
exact quantity - точное количество
to displace rocks and soil - вытеснять камни и почву
metal fabricator - изготовитель металлоконструкций
to assemble - собрать
to install - установить
cut, shape, and bend - вырезать, придать форму, согнуть
specialized shops - специализированная мастерская
lift, weld, and bolt - взводить, сварить, и скрепить болтами
rebar worker- арматурщик
pour - лить
reinforced metal bars - усиленные металлические прутья
smooth finished panels - гладкие готовые панели
maintenance of roads or railways - содержание авто и
железных дорог
smooth the ground - выровнять землю
pave road- вымостить дорогу
electrician- электрик

to run power lines - запустить линии электропередач

install lights - установить фонари

a reliable structure - надежная структура

extensive communication and cooperation - обширная связи и сотрудничество

Dozens of different professionals are involved in designing, building, and maintaining tunnel systems. Geologists, surveyors, civil engineers, ironworkers, cement masons, and construction crews generally put in hundreds of labor hours to ensure that a tunnel is safe, reliable, and well-maintained. Most tunnel jobs, especially those involving the construction and maintenance of structures, are city government positions, though private companies are frequently contracted to perform highly specialized work in the development of a new tunnel.

Urban geologists and surveyors take measurements and record information about the area where a tunnel is to be built. They figure the appropriate length, width, and height for a new tunnel, and attempt to predict the risk of potential hazards, such as mudslides, rock falls, earthquakes, and collapsed support systems. Geologists also make sure that the construction of a

new tunnel will not disrupt ecosystems or inconvenience humans who reside in the area.

Once an area of land is deemed safe and initial measurements have been made, civil engineers get to work designing the structure. Professionals determine the exact size and shape of the new tunnel, draw blueprints, calculate the expected costs of materials and laborers, and estimate the time needed to complete construction. They present their designs to city government officials for authorization and begin scheduling the different phases of the building process. Many civil engineers spend significant amounts of time at the build site to supervise the construction of new tunnels.

Many different types of skilled laborers work in tunnel jobs that involve the actual building of new structures. Highly-trained explosive workers and blasters take final measurements and calculate the exact quantity of explosives needed to displace rocks and soil. They carefully place and detonate explosives to clear the way for construction crews. Ironworkers and metal fabricators assemble and install large beams, trusses, and columns to provide the basic framework for the tunnel. Some professionals cut, shape, and bend materials in specialized

shops according to blueprints, and others lift, weld, and bolt them into place at the job site.

Professional cement masons and rebar workers hold very important tunnel jobs. They first create forms out of metal or wood to provide the framework for concrete panels and columns. Workers pour cement around reinforced metal bars in the forms and allow it to dry. Cement masons then clear any excess concrete and smooth finished panels.

Other tunnel jobs involve the construction and maintenance of roads or railways that travel through structures. Construction crews smooth the ground, pave roads, and paint lines, and electricians are contracted to run power lines and install lights. Building a reliable structure involves extensive communication and cooperation between professionals in all tunnel jobs. Private companies are not contracted to perform their professionalism.

Ask and answer the questions to the text (work in pairs).

1. What specialists are involved in constructing and maintaining tunnel systems?
2. Are most tunnel jobs positions government or commercial?
3. What are the geologists and surveyors responsible for?
4. What obligations are imposed on civil engineers?
5. Who authorizes the design of a new tunnel?
6. What important tunnel jobs do explosive workers and blasters hold?
7. What do ironworkers do?
8. What kind of work do cement masons and rebar workers perform
9. What do specialists do for maintenance of roads or railways?
10. What does the Building reliable structure involve?
11. What hazards may cause accidents on construction site?

Exercises:

1) Work on lexis. Choose the word combinations from A. and B.

Some variants are possible.

a watch, the machine during its operation, rocks and soil, reinforcement, the rail, a cable in ground, from solid granite, platform, a beam to the bridge, site, into a ball.

A.	B.
to cut	
to shape	
to bend	
to lift	
to weld	
to bolt up	
to displace	
to assemble	
to install	
to build	
to supervise	

2) Read the text again. How many specialists are engaged in the tunnel construction process? What are their responsibilities at work?

Match the jobs with the duties in the box.

A.	Geologist and surveyor
B.	Civil engineer
C.	Ironworker and metal fabricator
D.	Cement mason and rebar worker
E.	Construction crew
F.	Explosive worker and blaster
G.	Electrician

A.	1) takes measurements, records information about the area, makes sure that the construction won't disrupt ecosystems, rates the appropriate length, width, and height for a new tunnel
	2) pours cement around reinforced metal bars in the forms and allow it to dry, clean any excess of concrete and smooth finished panels

	3) constructs and maintains the roads or railways that travel through structures, smoothes the ground, paves roads, and paints lines
	4) runs power lines, installs lights
	5) designs the structure, determines the size and shape, draws blueprints, calculates the expected costs of materials and laborers, estimates the time to tunnel completion, schedules the different phases of the building process
	6) takes final measurements, calculates the quantity of explosives, places and detonates explosives
	7) assembles and installs large beams, trusses, and columns to provide the basic framework for the tunnel, creates forms out of metal to provide the framework for concrete panels and columns

b. Work in pairs. Ask and answer.

A: What is Geologist responsible for?

B: He is responsible for.....

3) Which of the adjectives below can describe the job of a geologist, surveyor, civil engineer and others?

- interesting • exciting • dangerous • stressful • boring
- relaxing • difficult • demanding • tiring • rewarding

I think a geologist's job is interesting and uncommon because they study the composition and structure of rocks.

4) Which qualities are necessary for each job?

- Intelligent • brave • physically fit • calm • reliable • friendly • creative • skillful • responsible • quick • resourceful • attentive • highly-trained

An electrician needs to be brave, attentive and skillful.

5) Use the phrases below to tell your partner three facts about one of the tunnel jobs. Your partner has to guess the job.

- GET GOOD SALARIES • WORK PART-TIME •
- USE A COMPUTER • WORK LONG HOURS •

- WORK SHIFTS
- WORK OUTDOORS
- WORK INDOORS
- WEAR A UNIFORM
- WORK WITH THEIR HANDS
- WORK 9 to 5
- START EARLY IN THE MORNING

A: They usually work 9 to 5. They use a computer. They don't work outdoors.

B: Are they designers?

References: <http://www.wisegeek.com/what-is-a-boring-machine.htm>

Unit 5. Tunnel Construction Techniques.

Vocabulary.

review - обзор

include - включать

sequential - последовательный

mining construction - горное строительство

well-proven - хорошо зарекомендовавшей себя

accommodate - вмещать

change - изменение

adopt – внедрять, принимать

overlapping - совмещение

carry out - осуществлять

similar - аналогичный

bulk excavation - объёмное копание, объёмное рытье

undertake - предпринимать

road deck - пролётное строение моста

disruption - нарушение

environmental impact - воздействия на окружающую среду

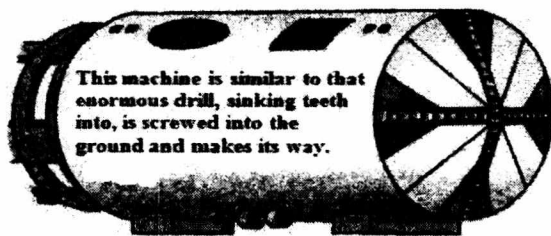
dust - пыль

emissions - выбросы

impact - воздействие

explosive - взрывной

drilling rig - буровая установка
designated - назначенный
depth - глубина
detonator - детонатор
waste - отходы
hence - следовательно
measure - измерять
duration - продолжительность
appropriate - соответствующий
equipment - оборудование
competent rock - крепкая порода; твёрдая порода
TBM - туннелепроходческая машина
rock cutter - резец породный
roadheader - проходческий комбайн
backhoes - экскаваторы
grouting - закрепление грунтов
freezing - замораживание
relocate - передислоцировать



Methods of tunneling vary with the nature of the material to be cut through. All the tunnelling techniques reviewed for possible use include cut and cover, drill and blast, bored tunnelling and sequential mining construction.

1. Cut and Cover Tunnelling. Cut and cover tunnelling is a common and well-proven technique for constructing shallow tunnels. The method can accommodate changes in tunnel width and non-uniform shapes and is often adopted in construction of stations. Several overlapping works are required to be carried out in using this tunnelling method. Trench excavation, tunnel construction and soil covering of excavated tunnels are three major integral parts of the tunnelling method. Most of these works are similar to other road construction except that the excavation levels involved are deeper. Bulk excavation is often undertaken under a road deck to minimise traffic disruption as well as environmental impacts in terms of dust and noise emissions and visual impact.

2. **Drill and Blast.** This tunnelling method involves the use of explosives. Drilling rigs are used to bore blast holes on the proposed tunnel surface to a designated depth for blasting. Explosives and timed detonators are then placed in the blast holes. Once blasting is carried out, waste rocks and soils are transported out of the tunnel before further blasting. Most tunnelling construction in rock involves ground that is somewhere between two extreme conditions of hard rock and soft ground. Hence adequate structural support measures are required when adopting this method for tunnelling. Compared with bored tunnelling by Tunnel Boring Machine (see below), blasting generally results in higher but lesser duration of vibration levels. A temporary magazine site is often needed for overnight storage of explosives.

3. **Bored Tunnelling.** Bored tunnelling by using a Tunnel Boring Machine (TBM) is often used for excavating long tunnels. An effective TBM method requires the selection of appropriate equipment for different rock mass and geological conditions. The TBM may be suitable for excavating tunnels which contain competent rocks that can provide adequate geological stability for boring a long section tunnel without structural support. However, extremely hard rock can cause significant wear of the TBM rock cutter and may slow down

the progress of the tunnelling works to the point where TBM becomes inefficient and uneconomical and may take longer time than the drill-and-blast tunnelling method.

4. Sequential Excavation Method. This method is also known as the New Austrian Tunnelling Method (NATM). The excavation location of a proposed tunnel is divided into segments first. The segments are then mined sequentially with supports. Some mining equipments such as roadheaders and backhoes are commonly used for the tunnel excavation. The ground for excavation must be fully dry for applying the NATM and ground dewatering is also an essential process before the excavation. Another process relates to the ground modifications such as grouting, and ground freezing is also common with this method in order to stabilize the soil for tunnelling. This method is relatively slow but is found useful in areas where existing structures such as sewer or subway could not be relocated.

Answer the questions to the text.

1. What are the main construction technologies?
2. Why do they vary?
3. Speak on Cut and cover tunneling technology.

4. When is Drill and Blast Method used? What's the advantage of it?
5. What is the key element of the tunnel construction Bored technology?
6. What does the New Austrian Tunneling Method technology allow?

Exercises:

1. Put the phrases according to the suitable heading related to the Method of tunneling:

- 1) waste rocks and soils are transported out of the tunnel
- 2) the ground for excavation must be fully dry
- 3) excavation is divided into segments, which mined sequentially with supports
- 4) selection of appropriate equipment for different rock mass
- 5) for constructing shallow tunnels
- 6) becomes inefficient and uneconomical than the other method
- 7) generally results in higher but lesser duration of vibration levels
- 8) soil covering of excavated tunnels

- 9) adequate structural support measures are required
- 10) suitable for boring a long section tunnel without structural support
- 11) involves the use of explosives
- 12) Tunnel Boring Machine (TBM)
- 13) bulk excavation
- 14) is found useful where sewer or subway could not be relocated
- 15) method is relatively slow
- 16) trench excavation

N	A. Cut and Cover Tunnelling	B. Drill and Blast	C. Bored Tunnelling	D. Sequential Excavation Method
1				
2				
3				
4				

2) Give the Russian equivalents to the following English words and combinations.

Sequential mining construction, well-proven technique, a temporary magazine site, can cause significant wear of the TBM rock cutter, is often undertaken under a road deck, designated depth for blasting, ground freezing, waste rocks and soils, traffic disruption.

3) Match the English equivalents to the following Russian words and combinations.

самоходный траншеекопатель	ковшовый	dust and noise emissions
буровая скважина для взрыва		environmental impacts
дренирование		roadheader
выбросы пыли и шума		competent rock
проходческий комбайн		ground dewatering
устойчивая порода		backhoe
укрепление породы, грунтов		drilling rigs
совмещать операции во времени		a proposed tunnel
воздействие на окружающую среду		blast hole
буровые установки		grouting
намеченный тоннель		overlapping works

4) Read the text and put the verbs in the correct forms.

Translate in writing.

Underground chambers, often (*assosiate*) with a complex of (*connect*) tunnels and shafts, are increasingly (*use*) for such things as underground hydroelectric-power plants, ore-processing plants, pumping stations, vehicle parking, storage of oil and water, water-treatment plants, warehouses, shopping complexes, and light manufacturing; underground chambers also (*use*) as command centres and other special military needs. A hillside tunnel entrance is (*call*) a portal; tunnels may also (*start*) from the bottom of a vertical shaft or from the end of a horizontal tunnel (*drive*) principally for construction access and called an adit.

References: <http://www.wisegeek.com/what-is-the-channel-tunnel.htm>

Unit 6. Design and Construction methods.

Vocabulary.

wonder - интересоваться

inward pressure - внутреннее давление

outward pressure - наружное давление

evenly/equally - равномерно / одинаково

distribute - распространяться

rectangle - прямоугольник

weak point - слабое место

flat - плоская поверхность

volume - объем

investigate - исследовать

sample - образец

drill - сверлить

hole - отверстие

soft-ground - сыпучая порода, рыхлый грунт

shallow - мелкий

water supply system - система водоснабжения

sewer - коллектор

tunnel shield - туннельный щит

to prevent - предотвратить

collapse - обрушаться
to force - вынудить
to blast - взорвать
rely on - полагаться
enormous - огромный
contraption - устройство
tunnel boring machine - штрекобурильная машина
chamber - камера
gushing - фонтанирование
prefabricated - сборный
attache - прикреплять
stable - стабильный
reliable - надежный
structurally sound - герметичный
hard rock- твёрдый грунт
quarry - карьер
firm - твердый
afterwards - впоследствии
to fit - соответствовать
complicated - сложный

Why are Tunnels Round? People tunneling or digging a shaft is not very particular about the shape of their tunnels or shafts.

Tunnels or shafts should be Round. Ever wondered why Pipes is round, so does submarines, Road tunnels or tunnels for trains or even planes. Inward Pressures or Outward Pressures has got a lot to do with it. More exactly, in Architectural Design and Building Tunnels and Shafts, the most efficient shape is a circle because it means the outside pressure is evenly/equally distributed while a rectangle shape has weak points. Horizontal tunnels are mostly designed in a "parabolic shape" with a flat base. One probable reason could be to minimize the volume of soil, stones, and other solid materials being extracted out during the digging operation of the tunnel.

Before carving a tunnel, engineers investigate ground conditions by analyzing soil and rock samples and drilling test holes. Based on the setting, tunnels can be divided into three major types:

1. Soft-ground tunnels are typically shallow and are often used as subways, water supply systems, and sewers. Because the ground is soft, a support structure, called a tunnel shield, must be used at the head of the tunnel to prevent it from collapsing.
2. Rock tunnels require little or no extra support during construction and are often used as railways or roadways through mountains. Years ago, engineers were forced to blast through mountains with dynamite. Today they rely on

enormous rock-chewing contraptions called tunnel boring machines.

3. Underwater tunnels are particularly tricky to construct, as water must be held back while the tunnel is being built. Early engineers used pressurized excavation chambers to prevent water from gushing into tunnels. Today, prefabricated tunnel segment scan be floated into position, sunk, and attached to other sections.

There are three steps to a tunnel's success. Today, engineers know that there are three basic steps to building a stable tunnel. The first step is excavation: engineers dig through the earth with a reliable tool or technique. The second step is support: engineers must support any unstable ground around them while they dig. The final step is lining: engineers add the final touches, like the roadway and lights, when the tunnel is structurally sound.

Building a tunnel through anything is a slow process that involves excavation by digging, blasting or boring into rock. Tunnels are dug in different kinds of grounds, from soft sand to hard rock. The way of digging is chosen by the type of ground. There are two additional ways of digging: quarry and "cut and cover". In quarry, the tunnel path is drilled in a horizontal way. This system requires a deep tunnel that is built in a firm rock.

In the “cut and cover” system, a tunnel is dug in the ground and afterwards a roof is built above the tunnel. This system fits tunnels that are close to the ground like road tunnels and infrastructure.

Planning a tunnel is complicated, and it uses science and mathematics. The way a tunnel is built depends on what material the tunnel has to go through. Building tunnels is a large civil engineering project that could cost very high sums of money. The planning and building of a long tunnel may take many years.

Answer the questions to the text.

1. Why are Tunnels Round shaped?
2. What do engineers do before carving a tunnel?
3. What are 3 major types of tunnels? Speak of them.
4. What are steps to a tunnel's success?
5. What kinds of grounds are the tunnels dug in?
6. Describe two additional ways of digging: quarry and “cut and cover”.
7. Why is tunneling considered to be a large civil engineering project?
8. How much did it take engineers to perfect the art of digging tunnels?

Exercises:

1) Give the Russian equivalents to the following English words and combinations.

Enormous rock-chewing contraptions, drilling test holes, the final step is lining, pressurized excavation chambers, evenly/equally distributed, weak points, at the head of the tunnel, solid materials being extracted out, particularly tricky to construct, prefabricated tunnel segments.

2) Match the given words with their definitions:

pressure, gushing, outward, boring, pressure, quarry, collapsing, "cut and cover", shallow, inward, sample, sewer.

	The exertion of force upon a surface by an object
	toward the inside, or center, as of a place, space, or body
	moving or directed away from something
	to break down; come to nothing; fail
	having little depth
	an artificial conduit, usually underground, for carrying off waste water and refuse, as in a town or city
	the act or process of making or enlarging a hole
	an open excavation usually for obtaining building stone, slate, or limestone

a method for digging a tunnel and covering with the excavated material.	by cutting a trench
to flow out very quickly and in large amounts	
a small amount of something that gives you information about the thing it was taken from	

3) Match the English equivalents to the following Russian words and combinations.

прямоугольная форма	rock tunnel
бурильная машина	hard rock
процесс врезания	soft ground
водоснабжение	round shaped
туннель в скальном грунте	a rectangle shape
пробивать тоннель	volume of soil
мягкая почва	digging operation
проходческий щит	boring machine
объем земли	carving a tunnel
округлая форма	water supply system
с плоской подошвой	tunnel shield
скальная порода	flat base

4) Insert appropriate verb:

add, involve, scan blast, sink, prevent, rely on, float, require, attach, force, investigate.

She's planning to ... some new flowers to the garden. Seatbelts in cars often serious injuries.

The work infinite patience. They us to work long hours without pay. The Titus Brothers Contractors company have won a government contract in Peru to a tunnel through a mountain and connect two isolated railroad lines.

You can on me and our cooperation. What does this role? We will of course if we receive complaints. But

we must not into pessimism for bureaucratic reasons. We must conditions to our aid and support.

A satellite the dark side of the moon. Fred and I down the tunnel into the lunar module...

5) Fill to in the blank with the suitable preposition:

to, for, by, on, to, on, by, to.

Motives to build a tunnel are:

-a subway is based a network of tunnels that are dug underground so the trains won't disturb and won't be disturbed the local transport;

-..... the path of a railroad track or a road a tunnel is dug when the lane encounters an obstacle such as a mountain to avoid bypassing the obstacle;

-a tunnel is built sometimes overcome a water obstacle as a replacement for building a bridge above it;

-a tunnel is built connect between military posts so the movement between them won't be visible the enemy;

-a tunnel is built for infrastructure like electricity cables, water, communication and sewerage avoid damage and disruption above ground;

-some tunnels are used prisoners to escape jail;

-sometimes tunnels are used by criminals to do a bank robbery.

References:

<http://www.wisegeek.com/what-are-the-different-tunnel-jobs.htm>

Св. план 2014 г., поз.3

Английский язык в профессии

Учебное пособие

05, 09
Подписано в печать Формат 60×84/16 Тираж 100 экз.
Усл.- печ.л.- Заказ № 155/14
