ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ОБРАЗОВАНИЮ

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«БРАТСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ»

АНГЛИЙСКИЙ ЯЗЫК

**Учебное пособие
для студентов и бакалавров
всех специальностей неязыковых вузов**

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Данное учебное пособие состоит из 25 частей, содержащих тексты, упражнения и тестовые задания для развития навыков чтения.

СОДЕРЖАНИЕ

Введение

Настоящее пособие предназначено для студентов и бакалавров технических университетов институтов, изучавших английский язык в средней школе и составлено в соответствии с требованиями программы по иностранным языкам для неязыковых вузов.

Цель пособия – подготовить студентов и бакалавров к чтению специальной научно-технической литературы для извлечения информации из различных источников.

При работе с учебным материалом идет повторение и обобщение основных грамматических тем и лексики, пройденных в средней школе, а также углубленное изучение более сложных языковых явлений и дополнительного лексического материала. Тематический уровень текстов соотносится с минимумом общетехнических знаний, который приобретается студентами первого курса вузов. Тексты подобраны из оригинальных источников и адаптированы с учетом возрастания трудности и постепенного усложнения лексико-грамматических явлений.

Пособие состоит из 25 глав, списка сокращений и ключей к тестам. Каждая глава содержит базовый текст по единой направленной тематике, а именно, по истории развития средств массовой коммуникации в течение веков от наскальной живописи до новейших систем спутниковой связи.

Каждая глава начинается со знакомства с новой лексикой и подготовительных упражнений, направленных на работу с текстом. Текст позволяет на уже известном историческом материале повторить уже знакомую каждому и освоить новую, а также расширить свои знания. Контроль понимания содержания текста осуществляется через тестовые задания, ключи к которым расположены в приложении 2. Все встречающиеся в пособии сокращения представлены в Приложении 1.

Unit 1

1. Прочитайте и запомните следующие слова:

sharp – острый
flint – галька, камень, кремень
dipped – погруженный
tool – инструмент (рабочий), резец
cave – пещера
rock – скала
implement – принадлежность, инвентарь, утварь
brush – кисть
stylus – резец (гравировальный)
bone – кость
to inscribe – писать, надписывать, царапать, вырезать
soot – сажа
ink – чернила
gum – зд.клей
tubular – трубчатый
reed – тростник
to split – расщеплять
parchment – пергамент
nib – кончик, острие пера
to squeeze – сжимать, сдавливать
fountain pen – авторучка
feather – перо (птицы)
ballpoint – шариковая ручка

2. Прочитайте следующие интернациональные слова и сравните их с русскими эквивалентами:

primitive, intelligent, complex, system, symbol, alphabet, efficient, instrument, metal, mixture, machine, moment, public.

3. Определите по суффиксу, к какой части речи относятся слова:

experience, picture, ancient, Romans, parchment, introduction, consequently, workable, developed.

4. Дополните отсутствующие фрагменты пар слов, обозначающих страны и города, и народы, живущие в них.
Например: Russia – Russian.

Greece – …
Rome – …
Egypt – …
England – …
America – …
Hungary – …
Argentina – …

5. Выпишите из текста названия всех видов пишущих инструментов.

6. Составьте предложения со следующими глаголами-сказуемыми:

became, was made, were used, were writing, invented, had been replaced.

7. Прочитайте и переведите текст.

The Pen Story

A sharp flint … a finger dipped in blood or plant juice … these were the tools used by primitive man to record his experiences on care walls and rocks. As he became more intelligent, man developed more complex writing systems-

pictures, symbols, alphabets … and more efficient writing instruments.

Two of the earliest implements were the brush, employed in China, and the stylus. The stylus, a sharp instrument made of bone or metal, was used by the ancient Greeks and Romans to inscribe signs and words on wax-covered tablets.

Meanwhile, the ancient Egyptians were writing on papyrus with pen and ink. The ink was basically a mixture of bamboo, soot, water and gum; the pens were made from the hollow tubular stems of reeds, split and sharpened.

Papyrus and parchment spread to other countries. So did the reed pen. The Romans made their version from bamboo but instead of splitting it, they cut one end to a nib-shape, filled the hollow stem with ink, then squeezed it to force the ink onto the nib. That was one of the very first fountain pens.

The stylus was in fashion for some three thousand years, the reed pen for only three hundred because, with the introduction of paper, a much finer instrument was needed. It came in the form of a quill feather taken from the wings of swans, crows or, more often, geese. The new implement inspired the word pen (taken from "penna", the Latin term for feather).

From the sixth to the eighteenth century, the quill was the writing instrument of the western world.

The next major step in the pen story was taken in 1809 by Joseph Bramah, an English engineer. He invented a machine for manufacturing quill nibs which were then inserted into holders. Soon this type of pen was in common use. Within twenty years quill nibs had been replaced by steel ones.

The next chapter in the pen saga begins in 1884 in America. A young insurance agent, Lewis Waterman, tipped his inkwell over a contract just at the moment of signing and consequently lost a sale worth one hundred thousand dollars. This misfortune determined waterman to design a pen containing its own supply of ink – the fountain pen.

While the fountain pen was gaining in popularity, another invention hit the writing public. The ballpoint. Although patents on ballpoint pens date back to the 1880s, the world's first workable version was developed in 1943 by Lazlo Joseph Biro, a Hungarian living in Argentina.

8. Выберите правильный вариант, исходя из содержания текста:

1. The ancient … were writing on papyrus with pen and ink.
- Greeks
- Romans
- Egyptians

2. Parchment spread to other countries. So did the … .
- papyrus
- paper
- reed pen

3. The word pen is taken from the … term for feather.
- Chinese
- Russian
- Latin

4. The feather was taken from the wings of … .
- hens
- geese
- ducks

5. The ballpoint pen was developed in … .
- Hungary
- the USA
- Argentina

6. An American insurance agent designed … .
- an umbrella
- the fountain pen
- the bicycle

9. Перескажите текст «The Pen Story».

Unit 2

1. Прочитайте и запомните следующие слова и словосочетания:

miracle – чудо
achievement – достижение
dot – точка
flexible – гибкий
triangular shapes ("Cuneiform" writing) – в форме треугольников
hieroglyphics – иероглифы
Phoenician – финикийский
Mediterranean – средиземноморский
ink – чернила
illiterate – неграмотный

2. Назовите глаголы, образованные от следующих существительных, и переведите их:

invention, mixture, record, beginning, waiter, printing, production, importance.

3. Приведите недостающие формы глаголов, запомните их:

came, was, made, know, stand, can, written, spreading, grew, seen, say, have.

4. Переведите названия следующих видов деятельности:

writing, reading, recording, inventing, using, speaking, developing, becoming, beginning, trading, changing, producing.

5. Найдите в тексте слова time, times, like и выберите их значение в данных предложениях.

6. Подберите пары синонимов глаголов:

start, change, make, record, speak, call, write, begin, grow into, produce.

7. Прочитайте и переведите текст.

The Miracle of Writing

Among all the achievements of human beings, the invention of writing is one of the greatest. But perhaps the time will come during our lives when reading and writing become out of dates.

Writing was not invented once, but perhaps, six different times, in places as far apart as China and America. Each time it started with simple pictures and lines or dots these were good enough to record objects or numbers. But something more flexible was needed to record language.

A kind of writing which had this flexibility was invented in Mesopotamia, in about 3000 B.C. The writing was made of triangular shapes and we know call it cuneiform writing. Like picture writing, it was used in trade, but it was also important for recording ideas about religion and philosophy. Though we don't know what the language these people spoke sounded like, we know a lot about them from their writing.

Meanwhile the Egyptians had developed another kind of writing – "hieroglyphics". These were a mixture of pictures and signs which were used by the kings and priests. Egyptian hieroglyphic writing is one of the most beautiful and complicated

ways of writing that has been invented. But it was too complicated to become as widely used as cuneiform writing.

Around 1200 B.C. writing began to make the last and most important step in its development: the beginning of the alphabet, signs which stand for sounds and which can be used to write any of the words we speak. Nobody knows when, where or by whom the first alphabet was invented. But by 1000 B.C. Phoenician traders, from the area we now call Lebanon, were spreading their alphabet writing throughout the Mediterranean world. The Greeks and later the Romans, changed it, and it grew into the alphabet of letters you can see on this page.

With the alphabet it was possible to write down anything that was said. There were all sorts of stories, myths and traditions waiting to be written down. The invention of paper and ink helped the alphabet to spread quickly, and many more people learned to read and write illiterate until long after printing was invented. However, there was a great problem that lasted from Greek and Roman times until the Middle Ages – everything was written by hand. So it was slow and expensive to produce copies of books.

8. Выберите правильный вариант, исходя из содержания текста:

1. The … had developed "hieroglyphics".
- Chinese
- Egyptians
- Greeks

2. The invention of … helped the alphabet to spread quickly.
- pictures
- printing
- paper and ink

3. Hieroglyphics were a mixture of … and … .
- lines and dots

- religion and philosophy
- pictures and signs

4. To produce copies of books was … and … .
- cheap and easy
- slow and beautiful
- slow and expensive

5. Something more … was needed to record language.
- usual
- complicated
- flexible

6. The Mesopotamian writing was made of … shapes.
- square
- triangular
- round

9. Перескажите текст «The Miracle of Writing».

Unit 3

1. Прочитайте и запомните следующие слова и словосочетания:

printing – печать
pastime – развлечение, игра
to oust – вытеснять, выгонять
decade – десятилетие
sparse – редкий, разбросанный
condition – условие
widespread – широко-распространенный
frequent – частый
to satisfy – удовлетворять
medium income – средний доход

books of prayers – молитвенные книги
entertaining – развлекательный, забавный
instructive – поучительный
undoubtedly – несомненно
church – церковь
mediaeval – средневековый
reign – правление
in correspondence with – в соответствии с
to prohibit – запретить
treatise – трактат, научный труд
splash – всплеск

2. Переведите словосочетания, обращая внимание на разные способы выражения определения.

Mass pastime, people's homes, intellectual life, risen needs, great amount, printing house, the humans hearts, stable form.

3. Определите по префиксам значения следующих пар слов:

used – unused
interested – uninterested
important – unimportant
known – unknown
doubtedly – undoubtedly
stable - unstable

4. Определите, являются ли выделенные слова существительным или глаголом, назовите признаки, подтверждающие это:

the factor <u>changed</u> it; the <u>change</u> of life; the climate <u>changed</u>; nothing <u>changes</u>; this <u>changes</u>; those <u>changes</u>; new <u>changes</u>; it is <u>changing</u>; were <u>changed</u>; to <u>change</u>; both <u>changes</u>; these <u>changes</u>; was <u>changed</u>.

5. Выберите соответствующие значения слов:

a) several decades –   а) несколько лет;
                        б) несколько десятилетий;
                        в) несколько декад.
b) instructive –   а) инструктивный;
                        б) обучающий;
                        в) тренировочный.
c) publishing –   а) публичный;
                        б) опубликование;
                        в) общественный.

6. Найдите слова с отрицательным значением.

Invention, income, unusual, discover, indirectly, information, initial, undoubtedly, unimportant.

7. Прочитайте и переведите текст.

The invention of printing (part 1)

The books as the mass pastime have been ousted from our lives for several decades already. Modern electronic mass media (radio, television) are ousting books more and more; the bookshelves in people's homes are getting sparse. However, several hundreds years ago the invention of printing was the initial factor that at once changed all conditions of the intellectual life of Europe.

In Europe the books became cheaper and more widespread when the use of paper became more frequent, especially as a strong rise of intellectual life of society went together with the development of universities. Already in the 15th century almost everywhere there were booksellers and corporations of book-copiers who tried to satisfy the needs not only of rich people, but of people with medium income as well. These were the books of prayers, didactic and entertaining books. But still, if a man started

reading or even copying books at the time, he did it basically neither for his own pleasure, not for education. He was most probably interested in the matter of saving his soul.

In the 17th century the book becomes both interesting and instructive and the production of them makes progress in quality, cheapness and beauty.

One of the most important epochs in the development of printing was the 19th century. At this time a good book started to bring good money to its author. Then people began to give the word "writer" the same meaning as we do now.

Finally, in the 19th century the book becomes a powerful political weapon.

There is a well-known saying "An invention is the child of necessity" and it was probably an unusual passion for classical writers at that time. Copying books by hands could not satisfy the risen needs. Undoubtedly, having received such great amount of information, human thought started working faster than ever before. At least, the mental outlook of the mass that directly or indirectly participated in intellectual moments broadened.

The church as the main guard of mediaeval traditions received the first strike from printing, this even disregarding the publishing of the Bible.

In the end of the 16th century there is already a censorship in all Western European countries where there were printing houses. In France in the reign of Francois I an attempt was made to prohibit printing houses at all. Anyway the books were obtained and printed beyond the law. Nevertheless, measures of this kind showered the development of printing considerably.

In European countries, and not only there, there appears a stable form of their own literary language, and the most essential works of literary authors were brought in correspondence with them.

Speaking about the political treatises of the Antiquity and the Middle Ages, it can be noted that after the works of Plato, Aristotle (Politica), Augustine Aurelius (On the City Divine) a

new splash of development of political thought happened right in the time of the spread of printing. Niccolo Machiavelli may have become the founder of the theory of the state with free morals, the theory, which penetrated the humans hearts with the help of books.

It was not surprising that under the influence of the growth of education of the people the population started to understand politic better.

8. Выберите правильный вариант, исходя из содержания текста:

1. The bookshelves in people's homes are getting … .
   - longer
   - sparse
   - wide

2. There is a well-known saying "An invention is the child of …".
   - richness
   - poverty
   - necessity

3. Already in the … century almost everywhere there were booksellers.
   - 17 th
   - 19 th
   - 15 th

4. In the end of the 16th century there is already a … in all Western European countries.
   - revolution
   - war
   - censorship

5. In the 19th century a good book started to … … … to its author.
   - bring problems

- bring good money
- bring back

6. The books have been ousted from our lives for several … already.
 - centuries
 - decades
 - years

9. Перескажите текст «The invention of printing (part 1)».

Unit 4

1. Прочитайте и запомните следующие слова и словосочетания:

to judge – судить
superficial observation – поверхностное наблюдение
acme – высшая точка чего-либо
availability – доступность
in its own turn – в свою очередь
increase – увеличение, рост
self-consciousness – самосознание
enlightenment – просвещение

2. Переведите следующие пары слов:

face – to face   issue – to issue
judge – to judge   burn – to burn
sum – to sum   shape – to shape
spin – to spin   print – to print
book – to book   turn – to turn
struggle – to struggle work – to work

3. Уточните по словарю значения следующих слов с суффиксом – ship:

leadership, friendship, censorship, citizenship, township.

4. Найдите в колонке В эквиваленты следующим словам и словосочетаниям из колонки А:

A	B
probably	вступает в
in their turn	узнать
at best	человеческая мысль
natural sciences	в свою очередь
get to know	возможно
human thought	естественные науки
approaches	в лучшем случае

5. Прочитайте следующие паронимы и переведите их:

since – science	burn – born
century – country	whole – hole
great – create	sun – son
work – walk	true – tree
some – same	new – now

6. Выберите из списка глаголов те, которые употреблены в прошедшем времени:

was proved, appear, became, were, spins, have been, were burnt, is being stimulated, led, approaches.

7. Прочитайте и переведите текст.

The invention of printing (part 2)

Before the 15th century the level of the development of the scientific knowledge was extremely low. People judged the world only on the basis of religious dogmas or, at best, on the basis of superficial observation of the surrounding reality.

But the social practice faced man with the problems which were impossible to solve on the basis of old conceptions. Now the scientifically based knowledge, which summed up the experience and created the theory, had the decisive importance.

New ways of research, based on observation, experience, and experiment were worked out. New knowledge in the spheres of mechanics, astronomy, chemistry, natural sciences, and geography was accumulating. New sciences also appeared – such as hydrodynamics, trigonometry. At the same time people were doing a large number of inventions and discoveries: the microscope, the telescope, the thermometry, the barometer, it was proved that the Earth is spherical, and that, together with other planets, it spins around the sun. Europeans get to know about all the continents of the Earth.

Before that, in the 15th century a way of production of the cheap writing material (paper) and book printing were invented, which became a true revolution in the development of science and education. The exchange of knowledge and the spread of new ideas would have been impossible without that.

However, the development of scientific thought did not come to Europe without blood. In the middle of the 16th century all European Catholic reaction began, and Italy became its first victim. In the reign of cardinal Caraffa the struggle with the educated thought and books reached its acme. He issued "index of forbidden books" and it was periodically reprinted and added to with the greatest works of human thought. A punishment threatened one for reading these books, the books themselves were burnt down.

So, printing was the greatest achievement of the epoch of the Renaissance, this invention virtually turned over the whole European life in the 16th century. Books served as a weapon for fighting between the Catholic and the Reformist churches. The institute of censorship appeared and took its final shape in Europe.

Together with the publication of works of literary authors the official print also appeared and became a weapon in the hands of state apparatus.

But probably the most important thing is that printing led to lowering prices on books and, therefore, the increase of their availability for the population. This, in its own turn, led to the increase of education.

Scientific and creative thought is being stimulated, new sciences appear. Printing creates an additional possibility for the spread of scientific knowledge. Literary languages of European peoples are formed, which, in their turn, leads to the growth of national self-consciousness.

First significant treatises on political philosophy since the times of Antiquity appear. Europe approaches the epoch of the Enlightenment.

8. Выберите правильный вариант, исходя из содержания текста:

1. Before the 15th century a way of production of the … writing material (paper) was invented.
   - expensive
   - necessary
   - cheap

2. In the middle of the 16th century a lot of books were … … .
   - published
   - burnt down
   - reprinted

3. Printing was the greatest … of the epoch of the Renaissance.
- failure
- wonder
- achievement

4. The development of scientific thought did not come to Europe without … .
- blood
- wars
- violence

5. Printing led to … prices on books.
- rising
- lowering
- creating

6. It was proved that the Earth is … .
- square
- flat
- spherical

9. Перескажите текст «The invention of printing (part 2)».

Unit 5

1. Прочитайте и запомните следующие слова и словосочетания:

to define – определять
invention – изобретение
to allow – позволять, разрешать
enemy – враг
probably – вероятно
to reach – достигать

destination – назначение, предназначение; место назначения
frequently – часто
to relay – перекладывать, передавать
Cyrus the Great – Кир Великий
megaphone – рупор
blanket – покрывало
leafy branches – ветки с листьями
puffs of smoke – клубы дыма
drum – барабан
hollow – пустой
log – бревно
rope – веревка

2. Подберите эквиваленты к следующим словам и выражениям:

a kind of code	немного похож
very badly	вид шифра
still in use	в прежние времена
a little like	число
far away	очень плохо
in early	вдали
times	все ёще используются
the number	

3. Дайте антонимы следующих слов:

easy, run, give, little, old, tall, up, receive, strong, village.

4. Обратите внимание на то, как образуется множественное число следующих существительных:

a foot [fut] – feet [fl:t]
the news [njɑ:z] – the news [njɑ:z]
a man [mхn] – men [men]
a series ['slqrɈz] – series ['slqrɈz]

5. Составьте, переведите и запомните словосочетания с глаголом to be:

easy, coming, far away, way of communication, not very effective, made of, able to, still in use.

6. Выберите из приведенных предложений то, где глагол <u>to make</u> переводится как <u>заставлять</u>:

1. Megaphones made voices louder.
2. We made a plan yesterday.
3. Who made a mistake in the report?
4. Don't make a noise!
5. She made us wait a little.
6. The scientists are making a lot of experiments in this field now.

7. Прочитайте и переведите текст.

Communication

What is communication? The dictionary defines it: "giving or exchanging information or news by speaking or writing".

In today's world, long-distance communication is easy. We can call people on the telephone, send them telegrams, or write them letters. We receive news and other information on radio or television every day. Our modern inventions allow us to communicate with people in every part of our planet.

In early times, how did people communicate over long distances? How did they tell other people about a storm that was coming or an enemy who was planning to attack?

At first, people probably used their feet. When the people of one village wanted to send a message to someone who was far away, they gave the news to a runner. This messenger ran to the nearest village and gave the message to another runner. Then the second runner took it to a third runner, and so on.

This was a very slow method of communication, and the message didn't always reach its destination. The messengers had to run through forests and fields, cross rivers, and climb mountains. Sometimes they met wild animals and never arrived at the next village. And the message frequently became mixed up, because each person who relayed the information changed it a little.

People used other methods of communication, too. Cyrus the Great, who founded the Persian Empire, built a series of towers. A man with a very strong voice stood on each tower. When the king wanted to send a message, he gave it to the man on the first tower, who shouted it to the man on the second tower, who relayed it to the man on the third tower. These messengers usually used megaphones, which made their voices louder.

The use of fire and smoke was another primitive way of communication. People used blankets or leafy branches to control the puffs of smoke that came from a fire. The number and size of the puffs made a kind of code. This method wasn't very efficient on rainy days or at night, and little wind could mix up the message very badly.

A few old methods of communication are still in use today. One of these methods is the use of drums. Some drums are made of hollow logs and animal skins. When the drummer hits the drum, it makes a noise that sounds a little like human speech. Drumbeats travel quickly, but they can travel only a little way.

In 1970, a man in France invented the semaphore, which was a tall pole with "arms" at the top. Ropes moved the arms up and down to form letters of the alphabet. Semaphore operators were able to relay messages very quickly. A kind of semaphore is still in use on railroads.

Efficient long-distance communication had to wait for the discovery of electricity.

8. Выберите правильный вариант, исходя из содержания текста.

1. In today's world, long-distance communication is … .
    - difficult
    - easy
    - unnecessary

2. We receive … on radio or TV every day.
    - money
    - good marks
    - news

3. The use of fire and smoke was a … way of communication.
    - modern
    - primitive
    - new

4. In 1790, a man in … invented the semaphore.
    - Germany
    - England
    - France

5. … made voice louder.
    - Drums
    - Megaphones
    - Smokes

6. Efficient long-distance communication had to wait for the discovery of ... .
    - electricity
    - Periodic Table of Elements
    - gravity

9. Перескажите текст «Communication».

Unit 6

1. *Прочитайте и запомните следующие слова и словосочетания:*

to switch – включать
instantly – мгновенно
man-made = artificial – искусственный
physicist – физик
arc – дуга
candle – свеча
source – источник
recognition – признание
entirely – полностью
an incandescent lamp – лампа накаливания
carbon filament – нить (углеродная)
tungsten – вольфрам
supply – снабжать
contribution – вклад
aid – помощь
measuring devices – измерительные приборы
mankind – человечество

2. *Образуйте от следующих слов прилагательные с помощью суффиксов и переведите их:*

-ful: success, use, help, power.
-er: cheap, long, young, cold, light, short.
-al: electric, physics, industry, technics.

3. *Найдите русскому слову соответствующее английское.*

Улучшение – improve, improvement, improved.
Электрический – electronics, electric, electricity.
Вклад – contribution, contribute, contributing.

Станок – machine, mechanism, mechanics.
Дешевле – cheap, cheapest, cheaper.

4. По схеме «It is (was) … who …» (именно …) переведите следующие предложения:

1. It was a young Russian engineer, Alexander Lodygin, who made the first incandescent lamp.
2. It was again Lodygin who invented a lamp with a tungsten filament.
3. It is also electricity that gives life to everything.

5. Образуйте и переведите Participle I (действительное причастие) от следующих глаголов:

look, use, illuminate, invent, work, make, light, give.

6. Переведите следующие словосочетания с Participle I:

engineering progress, manufacturing plant, measuring devices.

7. Прочитайте и переведите текст.

Uses of Electricity

Electricity is the power that has made possible the engineering progress of today. Wherever we look around us, we can find this power serving us in some way.

When we use a switch and have our room instantly flooded with light, we seldom think of what is happening to make it possible. Probably the most important use of electricity in the modern home is producing light.

Do you know that the first ever man-made electric light illuminated the laboratory of the St. Petersburg physicist Vasily Petrov in 1802? He had discovered the electric arc, a form of the

gas discharge. But in Petrov's experiments the arc flame lasted for only a short time.

In 1876 Pavel Yablochkov invented an arc that burned like a candle for a long time and it was called "Yablochkov's candle". The source of light invented by Yablochkov won world-wide recognition. But while he and several other inventors were improving the arc light, some engineers were working along entirely different lines. They sought to develop an incandescent lamp. It was a young Russian engineer, Alexander Lodygin, who made the first successful incandescent lamp. The famous American inventor Thomas Edison improved the lamp having used a carbon filament. But it was again Lodygin who made another important improvement in the incandescent lamp, having invented a lamp with a tungsten filament, the lamp we use today.

Another electric light we use today is the light of the luminescent lamp – a "cold" daylight lamp. Artificial daylight lamps are much cheaper than incandescent lamps and last much longer. This is the lighting of the future.

The uses of electricity in the home do not end with lighting. There are more and more electric devices helping us in our home work.

But we should not forget that electricity is the most important source of energy in industry as well. A worker in a modern manufacturing plant uses on the average in the machines which he operates over 10,000 kilowatt-hours of electrical energy a year. This means that he uses enough electrical energy to supply seven or eight modern homes during a year.

Automation which is one of the main factors of technical progress today is impossible without electricity.

Our life can't be imagined without telephone, telegraph and radio communications. But it is also electricity that gives them life. In recent years electricity has made a great contribution to radio communication between the spaceships and also between the astronauts and the earth.

Little could be done in modern research laboratory without the aid of electricity. Nearly all of the measuring devices used in developing nuclear power for the use of mankind are electrically operated.

8. Выберите правильный вариант, исходя из содержания текста.

1. Probably the most important use of electricity is … .
   - making dinner
   - transmitting images
   - producing light

2. Artificial daylight lamps are much … than incandescent lamps.
   - greater
   - expensive
   - cheaper

3. Automation is impossible without … .
   - robots
   - electricity
   - telephone and telegraph

4. … made the first incandescent lamp.
   - Thomas Edison
   - Alexander Lodygin
   - Pavel Yablochkov

5. Our life … be imagined without communications.
   - can
   - can't
   - must

6. Vasily Petrov discovered the electric …, a form of the gas discharge.
   - circle

- light
- arc

9. Перескажите текст «Uses of electricity».

Unit 7

1. Прочитайте и запомните следующие слова и словосочетания:

to prove – доказывать
wire – провод
Danish – датский
needle – игла
letters – зд. буквы
wavy – волнистый
dots and dashes – точки и тире
to lay – проложить
instantly – мгновенно

2. Употребите глагол _to publish_ в соответствующем времени в зависимости от обстоятельства.

This scientist (publish) his article (at present, every year, last semester, tomorrow, next month).

3. Задайте разные вопросы к следующим предложениям:

1. Morse invented a code that used dots and dashes for the letters of the alphabet.
2. By 1861 telegraph wires stretched from the Atlantic to the Pacific.
3. The 4,000 – kilometer cable broke three times.

4. Образуйте превосходную степень сравнения от следующих многосложных прилагательных и составьте с ними предложения:

famous, interesting, useful, wonderful, important, efficient, popular.

5. Поставьте сказуемое в страдательном залоге:

1. Frankin published his ideas about electricity in 1752.
2. In 1837 two English scientists sent a message by electric telegraph.
3. Americans organized the Atlantic Telegraph Company in 1856.

6. Придумайте предложения со следующими сказуемыми:

a) is sent, was sent, will be sent, sends, sent;
b) is used, was used, will be used, uses, used.

7. Прочитайте и переведите текст.

Telegraph

Benjamin Franklin, an American who is famous for his interesting and useful inventions, published his ideas about electricity in 1752. Scientists in many countries became interested in this wonderful form of energy. They wanted to find the answer to a very important question: could the electricity be used to develop a fast, efficient system of long-distance communication? Experiments proved that electricity could travel instantly over a very long piece of wire. How could electricity be used to send a message? A Danish scientist discovered that electricity could move a needle from left to right and that the needle could be pointed at letters on a piece of paper. Then a German government worker made up a code system that could be used with an electric

needle. In 1837 two English scientists sent a message by electric telegraph for a distance of more than 1.6 kilometers.

Samuel Morse, an American portrait painter, was experimenting with an electric telegraph too. At first he connected a pencil to an electric wire. When the electricity came through the wire the pencil made wavy lines. Then Morse invented a code that used dots and dashes for the letters of the alphabet. Finally, he discovered that telegraph messages did not have to be written, they could be sent in sound.

On May 24, 1844, the first long-distance message was sent by telegraph for 64 kilometers.

Telegraph companies were formed in many cities. By 1861 telegraph wires stretched from the Atlantic to the Pacific. In Europe too, Samuel Morse's system became popular.

But telegraph wires couldn't be hung over an ocean. Messages to and from Europe had to be sent by ship – a journey of two or three weeks. A new method was needed.

The Atlantic Telegraph Company which was organized in 1856 wanted to try to lay a cable on the floor of the Atlantic Ocean. The 4,000-kilometer cable broke three times. Each time a new cable had to be made. Finally, on July 27, 1866, the first transatlantic message was sent from Newfoundland to Ireland.

Later cables were laid to Central and South America. At last news and business information could be sent instantly to almost every country in the world.

8. Выберите правильный вариант, исходя из содержания текста.

1. Experiments proved that electricity could travel … .
   - slowly
   - instantly
   - quickly

2. Samuel Morse, an American … painter, was experimenting with an electric telegraph too.
- landscape
- sea
- portrait

3. Electricity could move a … from left to right.
- needle
- noodle
- novel

4. Morse invented a … .
- alphabet
- code
- language

5. … to and from Europe had to be sent by ship.
- Fruit
- Coal
- Messages

6. The first long-distance message was sent by telegraph for … .
- 640 kms
- 64 miles
- 64 kms

9. Перескажите текст «Telegraph».

Unit 8

1. Прочитайте и запомните следующие слова и словосочетания:

mass media – средства массовой информации

feature – черта, особенность
entertaining – развлекательный
in comparison with – по сравнению с
cover – обложка
binding – переплет
unavailable – не имеющийся в распоряжении, в наличии
to impact – влиять

2. Выберите слово, не подходящее по теме, из нижеприведенных:

shop, market, to buy, to sell, goods, shop-assistant, magazine, cash, department store.

3. Поставьте _much_ в значении _гораздо, намного_ перед прилагательными в сравнительной степени и переведите:

fast, long, good, young, early, new, easy.

4. Определите, синонимами или антонимами являются пары слов:

moving pictures – cinema; Internet – world-wide-web; available – unavailable; modern – new; youngest – oldest.

5. Определите, какой частью речи является в предложении выделенное слово, и переведите предложения.

1. TV has a great number of <u>uses</u> today.
2. This TV set <u>uses</u> a sensor mechanism.
3. A.Bell built a device that people could <u>use</u> to talk to one another over long distances.
4. In our University there is no charge for the <u>use</u> of reading-rooms, laboratories, and libraries.
5. We <u>use</u> a lot of international words in our speech.

6. Переведите словосочетания:

characteristic features, global community, the earliest kind, the most exciting, is widespread for, in much detail, while driving a car, self-expression, in numerous ways.

7. Прочитайте и переведите текст.

Mass Media

Mass media are one of the most characteristic features of modern civilizations. People are united into one global community with the help of mass media. People can learn about what is happening in the world very fast using mass media.

The mass media include newspapers, magazines, radio, TV.

The earliest kind of mass media was newspaper. The first newspaper was Roman called "Acta Diurna" started in 59 B.C.

Magazines appeared in 18th century.

The most exciting and entertaining kind of mass media is television. It brings moving pictures and sounds directly to people's homes. So one can see events in faraway places.

Radio is widespread for its portability. It can be easily carried around. People like to listen to the radio in the park, on the beach, at the seaside, in the car, while driving a car, on the picnic. The main kind of radio entertainment is music, news, musical quiz.

Newspapers can present all comment on the news in much detail in comparison with radio and TV.

Magazines are designed to be kept for a long time. So they have cover and binding. They are printed on better paper then newspapers.

The youngest kind of mass media is global computer net called Internet. People think that Internet is kind of mass media of the future. People can find on world-wide-web whole information about all things from sport to travel, from music to shopping. Internet is the most advanced and fast-growing kind of digital media. It gives people the freedom of speech and self-expression

unavailable before, at the same time allowing many new and unforeseen combinations of different media types. Internet is also the foundation of new technologies that will impact the society in numerous ways, such as e-commerce and virtual multi-user communities.

8. *Выберите правильный вариант, исходя из содержания текста.*

1. The earliest kind of mass media was … .
    - radio
    - newspaper
    - books

2. Magazines have … .
    - pictures and stories
    - cover and binding
    - paper and letters

3. Television is … and … kind of mass media.
    - old and ordinary
    - out-of-date and famous
    - exciting and entertaining

4. A global computer net is called … .
    - Interface
    - Internet
    - Interpol

5. Internet is the foundation of … .
    - new policy
    - new economics
    - new technologies

6. Radio is … for its portability.
    - useless

- useful
- widespread

9. Перескажите текст «Mass Media».

Unit 9

1. Прочитайте и запомните следующие слова и словосочетания:

to shape – формировать
current events – текущие события
sheets – листы
59 B.C. – 59 год до нашей эры
A.D. 800'S – 800-е годы нашей эры
carved – гравированный
advantage – преимущество
major – главный
preceding – предшествующий
provide – предоставлять
circulation – тираж
per issue – на выпуск
entertainment – развлечение
community – зд. город
to report – сообщать

2. Образуйте производные слова с окончанием – ing от следующих глаголов и переведите их:

comment, shape, inform, write, print, publish, include, finance, travel, serve.

3. Прочитайте и переведите следующие однокоренные слова:

import – importantce – important – importable;
form – to form – inform – information;
day – daily – nowadays – everyday – yesterday – day-time – Sunday – today.

4. Переведите следующие слова с суффиксом – ly, определите, какой частью речи они являются:

early, probably, firstly, regularly, certainly, locally, weekly, daily, specially, usually.

5. Прочитайте текст. Найдите слова с нестандартным образованием множественного числа.

There are a few words taken from Latin and Greek that still retain their original plurals in English. In some cases we can use either. Formulas is seen more often than formulae.

Antenna – antennae (pl). Many think that media, strata and phenomena are all singular. They aren't. Datum, a plural, is used both ways.

Here are some foreign singular and plural forms of words often used in English. Latin: medium (a means of mass communication) – media, nucleus (ядро атома) – nuclei, Greek: analysis – analyses, axis – axes, crisis – crises, hypothesis – hypotheses, phenomenon – phenomena.

6. Составьте предложения, используя словосочетания из обеих колонок.

a) Newspapers have certain advantages	a) presents and comments on the news.
b) There are daily newspapers	b) was Chinese publication

c) The first printed newspaper — called 'Dibao'.
d) Weekly newspapers serve usually — c) for smaller areas.
— d) and weekly newspapers.
e) Newspaper is a publication that — e) over other mass media.

7. Прочитайте и переведите текст.

Newspaper

Newspaper is a publication that presents and comments on the news. Newspapers play an important role in shaping public opinion and informing people of current events.

The first newspaper were probably handwritten newssheets posted in public places. The earliest daily newssheet was "Daily Events" which started in Rome in 59 B.C. The first printed newspaper was Chinese publication called "Dibao" started in A.D. 800's. It was printed from carved wooden blocks. The first regularly published newspaper in Europe was "Avisa Relation", started in Germany in 1609.

Newspapers have certain advantages over other mass media – magazines, TV and radio. Newspaper can cover more news and in much detail than TV or radio newscast can do. Magazines focus on major national and international events of the preceding week. But newspaper focuses on local news as well and provides information and comments faster than magazine can do.

There are about 1700 daily and 7500 weekly newspapers in the US. The circulation of some weeklies is no more than a few hundred of copies per issue and the circulation of some dailies is over a million of copies.

There are daily newspapers and weekly newspapers. Daily newspapers print world, national and local news. Many dailies are morning papers, others are afternoon papers. Sunday issues of the dailies are usually larger than the weekday ones. They may include special sections on such topics as entertainment, finance and travel or Sunday magazine, a guide to TV programmes,

colored comics. The major dailies in the US are "Christian Science Monitor", "New York Times", "USA Today", "Wall Street Journal", "Washington Post".

Weekly newspapers serve usually for smaller areas. They are printed in small communities where people know each other and are interested in activities of their friends and neighbors. Weeklies report of weddings, births, deaths and news of local business and politics. Most weeklies do not print world and national news.

8. Выберите правильный вариант, исходя из содержания текста.

1. Newspapers have certain … over other mass media.
   - disadvantages
   - advantages
   - features

2. Newspapers focus on … news faster than magazine can do.
   - local
   - foreign
   - cultural

3. The first printed newspaper was … .
   - "Daily Events" (Rome)
   - "Dibao" (China)
   - "Avisa Relation" (Germany)

4. There are … newspapers and … newspapers.
   - monthly … early
   - daily … weekly
   - long … short

5. Magazines … .
   - sell goods
   - attract customers

- publish articles

6. The first newspaper was … .
   - hand-operated
   - hand-made
   - hand-picked

9. Перескажите текст «Newspaper».

Unit 10

1. Прочитайте и запомните следующие слова:

purpose – цель
to devise – изобретать
to generate – вырабатывать
to detect – обнаруживать
passage – прохождение
succeed in – удаваться
tube – зд. лампа
to amplify – усиливать
circuit – схема
broadcasting – радиовещание
to usher – объявить, возвестить
to convey – передавать

2. Определите, к каким частям речи относятся следующие однокоренные слова:

operation – operate – operator – operable;
transmit – transmission – transmitter;
radiation – radiate – radiator – radio;
develop – development – developed – developing;
generate – generator – generation – generated.

3. Укажите предложения, в которых выделенное слово является определением.

1. Complex systems of <u>radio</u> transmission networks are situated through at the world.
2. The Russian scientist A.S. Popov worked much at the problem of <u>radio</u> communication.
3. It is necessary to <u>radio</u> the latest news to distant parts of the country.
4. Now we can see many different <u>radio</u> and TV sets in every house.
5. The invention of <u>radio</u> made by Popov did not interest the government.

4. Переведите слова с суффиксом - less:

wireless, treeless, weightless, countless, careless, cordless.

5. Составьте предложения из следующих слов, расположенных в произвольном порядке:

1. Has, radio, number, used, nowadays, of.
2. Due to, ships, over, can, distances, radio, long, communicate, the.
3. The, radio, astronomy, great, has made, radio, thanks to, telescopes, achievements, development, of.

6. Выберите правильный вариант перевода модального глагола или его эквивалента:

a) be able to communicate – мочь, быть в состоянии, быть должным;
b) can be used – можно использовать, должно использоваться, может быть использовано;

c) must observe – могут наблюдать, должен наблюдать, следовало бы понаблюдать;
d) was able to detect – смог обнаружить, должен обнаружить, вынужден был обнаружить;
e) could develop – должен был развить, должен развить, смог развить.

7. Прочитайте и переведите тексты.

Uses of Radio Waves

Radio transmission or reception of electromagnetic radiation in the radio frequency range. The term is commonly applied also to the equipment used, especially to the radio receiver.

The prime purpose of radio is to convey information from one place to another through the intervening media (i.e., air, space, nonconducting materials) without wires. Besides being used for transmitting sound and television signals, radio is used for the transmission of data in coded form. In the form of radar it is used also for sending out signals and picking up their reflections from objects in their path. Long-range radio signals enable astronauts to communicate with the earth from the moon and carry information from space probes as they travel to distant planets. For navigation of ships and aircraft the radio range, radio compass (or direction finder), and radio time signals are widely used. Radio signals sent from global positioning satellites can also be used by special receivers for a precise indication of position. Digital radio, both satellite and terrestrial, provides improved audio clarity and volume. Various remote-control devices, including rocket and artificial satellite operations systems and automatic valves in pipelines, are activated by radio signals. The development of the transistor and other microelectronic devices led to the development of portable transmitters and receivers. Cellular and cordless telephones are actually radio transceivers. Many telephone calls routinely are relayed by radio rather than by wires; some are sent via radio to relay satellites. Some celestial bodies

and interstellar gases emit relatively strong radio waves that are observed with radio telescopes composed of very sensitive receivers and large directional antennas.

In its most common form, radio is used for the transmission of sounds (voice and music) and pictures (television). The sounds and images are converted into electrical signals by a microphone (sounds) or video camera (images), amplified, and used to modulate a carrier wave that has been generated by an oscillator circuit in a transmitter. The modulated carrier is also amplified, then applied to an antenna that converts the electrical signals to electromagnetic waves for radiation into space. Such waves radiate at the speed of light and are transmitted not only by line of sight but also by deflection from the ionosphere .

Development of Radio Technology

Radio is based on the studies of James Clerk Maxwell, who developed the mathematical theory of electromagnetic waves, and Heinrich Hertz, who devised an apparatus for generating and detecting them. Guglielmo Marconi, recognizing the possibility of using these waves for a wireless communication system, gave a demonstration (1895) of the wireless telegraph, using Hertz's spark coil as a transmitter and Edouard Branly's coherer (a radio detector in which the conductance between two conductors is improved by the passage of a high-frequency current) as the first radio receiver. The effective operating distance of this system increased as the equipment was improved, and in 1901, Marconi succeeded in sending the letter S across the Atlantic Ocean using Morse code. In 1904, Sir John A. Fleming developed the first vacuum electron tube, which was able to detect radio waves electronically. Two years later, Lee de Forest invented the audion, a type of triode, or three-element tube, which not only detected radio waves but also amplified them.

Radio telephony – the transmission of music and speech – also began in 1906 with the work of Reginald Fessiden and Ernst F. W. Alexanderson, but it was not until Edwin H. Armstrong

patented (1913) the circuit for the regenerative receiver that long-range radio reception became practicable. The major developments in radio initially were for ship-to-shore communications. Following the establishment (1920) of station at Pittsburgh, Pa., the first commercial broadcasting station in the United States, technical improvements in the industry increased, as did radio's popularity. In 1926 the first broadcasting network was formed, ushering in the golden age of radio. Generally credited with creating the first modern broadband FM system, Armstrong built and operated the first FM radio station, in 1938 at Alpine, N.J. The least expensive form of entertainment during the Great Depression, the radio receiver became a standard household fixture, particularly in the United States. Subsequent research gave rise to countless technical improvements and to such applications as radio facsimile, radar, and television. The latter changed radio programming drastically, and the 1940s and 50s witnessed the migration of the most popular comedy and drama shows from radio to television. Radio programming became mostly music and news and, to a lesser extent, talk shows. The turn of the century saw a potential rebirth for radio as mobile digital radio entered the market with a satellite-based subscription service in Europe (1998) and in the United States (2000). Two years later, a land-based digital radio subscription service was inaugurated in the United States. Cellular telephones are another popular form of radio used for communication.

8. Выберите правильный вариант исходя из содержания текстов.

1. Marconi succeeded in sending the letters across … .
    - Lake Baikal
    - the Atlantic Ocean
    - the Mississippi River

2. The audion is … .

- a diod
- a cathode
- a triode

3. Radio is based on the studies of … .
- James Clerk Maxwell
- Marconi
- Lee de Forest

4. The golden age of radio began in … .
- 1938
- 1913
- 1926

5. Morse code is a … .
- poem
- a system of signs
- name of a book

6. Cellular telephones are another popular form of … .
- TV
- radio
- cinema

9. Перескажите текст "Uses of Radio Waves".

Unit 11

1. Прочитайте и запомните следующие слова и словосочетания:

wireless – беспроволочный
moving picture – движущееся изображение
meanwhile – тем временем

alongside – наряду с
profit – прибыль
satellite – спутник
dozen – дюжина

2. Переведите следующие интернациональные слова:

mechanical, public, demonstration, service, commercial, police, culture, cable, channel.

3. Закончите вопросы к предложению:
Vladimir Zworykin developed an electronic system to produce a picture in 1928-1928.

a) When did …
b) Who …
c) What did …
d) What for did …
e) What system did …
f) Did Zworykin … or … ?
g) V.Zworykin developed …, didn't he?

4. Подберите русские эквиваленты к английским словосочетаниям.

Both transmitter and receiver; both sound and vision; both shows and cartoons; both education and culture; both symphonies and programs about art; both movies and news.

5. Сопоставьте следующие похожие по написанию и звучанию слова, переведите их:

police – policy – politics;
world – word – what;
storey – story – history – store – to store;

through – though – thorough – thought;
principal – principle;
since – science;
hair – here – her – hear – hire.

6. Определите по суффиксам, какой частью речи являются следующие слова и переведите их:

electronic, simply, development, viewer, recorder, available, television, transmitter, mechanical, advertising, insurance, officer, important, mainly, receiver, entertainment.

7. Прочитайте и переведите текст.

Television

Invented by: John Logie Baird, Vladimir Zworykin.
Nationality: British, Russian.
Place of invention: America.
Date: 1925-1928.
Purpose: to transmit moving pictures by wireless waves.

The name "Television" comes from Greek word meaning "far" and Latin word meaning "to see" so it means "to see far".

John Logie Baird invented a mechanical system for transmitting moving pictures which he used for the world's first public television demonstration, in 1926.

Baird's system was based on light passing through spinning perforated discs at both transmitter and receiver.

Meanwhile, Vladimir Zworykin developed an electronic system based on a gun firing electrons at a coated surface within a cathode ray receiver tube to produce a picture. This principle was further developed by RCA (Radio Corporation of America).

Baird's mechanical system was used by the BBC (British Broadcasting Corporation), alongside the electronic system in the world's first regular television service in 1936. The electronic system proved to be the best and Baird's system was abandoned.

The first American television service began in 1939. Color TV services started in America in 1951 and Britain in 1967.

There are commercial stations, they sell advertising time to pay for their operating costs and to make profit. The public stations are nonprofit organizations.

Commercial TV stations broadcast mostly entertainment programs to attract lager number of viewers.

These programs include light dramas called situation comedies, action-packed dramas about life of detectives, police officers, lawyers and doctors, show dancers and singers, movies, quiz shows, soap operas, cartoons, talk shows. On talk shows a host interviews politicians, TV, movie stars, athletes. There are also sport programs, brief summaries of local, national and international news.

Advertising is an important part of commercial TV. Commercials appear between and during most programs. They urge viewers to buy different kinds of products – from dog food to hair spray, from cars to insurance polices.

Public TV focuses mainly on education and culture. Public TV also broadcasts plays, ballets, symphonies as well as programs about art and history. It attracts less viewers then commercial TV.

In just half a century, television has covered the planet. TV affects our daily life in a way that no other media can. It was simply an idea of a machine able broadcast both sound and vision. First TV sets were in black and white.

Since 1980 there have been three developments of TV. The first is video, which has given viewers the power to control what they watch and when they watch it. These days, fifty percent of homes have a video-cassette-recorder (VCR) and millions more are being sold every year.

The second is satellite TV. Thanks to direct broadcast satellites (DBS) dozens of new channels are now available to everyone who buys a receiving "dish". Many of these new channels specialize in one kind of program – only news, sport, cartoons, music, movies.

The third development is cable – a system of hi-tech wires which provides even more channels.

So, TV has come a very long way in a very short time.

8. *Выберите правильный вариант, исходя из содержания текста.*

1. John Logie Baird was … .
    - Russian
    - British
    - American

2. Vladimir Zworykin developed … .
    - a bicycle
    - an electronic system
    - a mechanical system

3. BBC used … .
    - Baird's system
    - Zworykin's system
    - Bell's system

4. Advertising is an important part of … .
    - lives of many people
    - our history
    - commercial TV

5. Millions of people buy a receiving … .
    - cup
    - fork
    - dish

6. Video, satellite and cable are the major … of TV.
    - problems
    - developments
    - failures

9. Перескажите текст «Television».

Unit 12

1. Прочитайте и запомните следующие слова и словосочетания:

monolithic hooped reinforced concrete foundation	монолитный кольцевой железобетонный фундамент
a 10-angled reinforced concrete band	десятиугольная железобетонная лента
a system of stressed hooping	система кольцевой напряженной арматуры
stability	устойчивость
a sixfold margin of safety	шестикратный запас на опрокидывание
to rest upon a rock	опираться на скалу
to result in the loss of earth from under the foundation	приводить к выходу грунта из-под фундамента
to turn down an opinion	отвергать мнение
to be confirmed by life	быть подтвержденным жизнью
a conical casing	коническая оболочка
banket (banquette)	насыпь, берма
a leg	опора, стойка
a reinforced concrete bole	железобетонный ствол

pocket	гнездо; стакан
to run	зд. проходить
means of communication	средства коммуникации
interstorey floors	междуэтажные перекрытия
uneven settling	неравномерная осадка
to occur	происходить, иметь место

2. Переведите следующие предложения, принимая во внимание разные значения предлога by:

1. The tower of the TV centre in Moscow was designed <u>by</u> Nikolai Nikitin.
2. <u>By</u> 5 o'clock I shall be free and go with you to the cinema.
3. <u>By</u> the spring of 1945 World War II was over.
4. Nikitin's project has been confirmed <u>by</u> life.
5. The tower was erected <u>by</u> teams of builders.
6. <u>By</u> the year 2010 cable television will have been used more widely.

3. Подберите к английским словосочетаниям соответствующие русские эквиваленты:

by means of	вся конструкция
result in	привести
after the design	из-за фундамента
were of the opinion	в непосредственной близости
the whole structure	с помощью
because of the foundation	по проекту
in its vicinity	из-под фундамента
from under the foundation	придерживались мнения

4. Подберите к словам в колонке А синонимы или близкие по значению слова из колонки В:

A	B
was created	to rest upon
to say	a base
to stand	was designed
a foundation	to recommend
to occur	an opinion
a hypothesis	to happen

5. Прочитайте следующие словосочетания с числительными:

535m high; the 32-thousand-ton tower; 9.5m wide; 3m high; 74m in diameter; the 10-angled; the 8th Congress; 4.65m; 40-metre foundation; 10 legs; 60.6m; 18m; 63m; 500mm thick; 7.5m.

6. Составьте предложения об известных вам научных достижениях с помощью следующих выражений:

1. Scientists expressed their concern … – ученые высказали своё мнение …
2. The Congress recognized … – Конгресс признал …
3. Specialists suggested … – специалисты предложили …
4. Scientists were of the opinion that … – ученые придерживались мнения, что …
5. The specialists recommended … – специалисты рекомендовали …

7. Прочитайте и переведите текст.

The Foundation of the Ostankino TV Tower

The reinforced concrete tower of the TV centre in Moscow was built after the design of Nikolai Nikitin. The tower is 535m high.

The 32-thousand-ton tower rests upon a monolithic hooped reinforced concrete foundation 9.5m wide, 3m high and 74m in diameter. In the 10-angled reinforced concrete band of the foundation prestressing was created by means of a system of stressed hooping.

The stability of the tower has a sixfold margin of safety.

The 8th International Soil Mechanics and Foundations Congress recognized N.Nikitin's idea of building the foundation at the depth of 4.65m to be a brilliant one.

While the foundation was being built, specialists expressed their concern that the depth was insufficient for such a high tower. Relying on the experience of putting up high-rise structures, specialists suggested a hypothesis the necessity to plant the base of the TV tower on supports upon a rock.

Scientists were of the opinion that because of the foundation, ground work in its vicinity (the building of collectors, tunnels, metro lines etc.) could result in the loss of earth from under the foundation. The specialists who shared this opinion recommended a 40-metre foundation. But N. Nikitin turned down that opinion and proved that his designed tower could stand even without having a foundation. Nikitin's calculations have been confirmed by life.

The reinforced concrete support of the whole structure is a conical casing which rests upon bankets of the foundation with 10 reinforced concrete legs.

The diameter of the lower base of the casing is 60.6m, being 18m at the height of 63m. The upper part of the reinforced concrete bole, beginning at the height of 321m, is made in the form of a cylinder with an exterior diameter of 8.1m. The base walls of the tower are 500mm thick.

In the centre of the conical base, resting upon an independent foundation (a round reinforced concrete slab 12m in diameter and 1m think), a reinforced concrete "pocket" 63m high and 7.5m in diameter was erected through which run means of communication. The beam ends of 15 interstorey floors rest upon the pockets. The construction of separate foundations for the low independent structures – the tower and the "pockets" – allows to exert upon the ground different pressure when uneven settling occurs.

8. Выберите правильный вариант, исходя из содержания текста.

1. The specialists recommended a 40- … foundation.
   - mile
   - metre
   - feet

2. The Ostankino TV Tower was built after the design of … .
   - Vera Muchina
   - Nikolai Nikitin
   - Zurab Tsereteli

3. The tower is 535m … .
   - long
   - wide
   - high

4. The tower rests upon a … foundation.
   - stone
   - concrete
   - wooden

5. Nikitin's idea of building the foundation was recognized a … one.
   - strange

-   brilliant
-   fantastic

6. The stability of the tower has a … margin of safety.
-   threefold
-   tenfold
-   sixfold

9. Перескажите текст "*The Foundation of the Ostankino TV Tower.*"

Unit 13

1. Прочитайте и запомните следующие слова и словосочетания:

to centre attention on – сконцентрировать внимание на
digits – цифры
column – колонка
to compute – вычислять, считать
reasonable – разумный
to perform – выполнять
addition – сложение
subtraction – вычитание
multiplication – умножение
division – деление
to express – выражать

2. Переведите следующие однокоренные слова:

a centre – central – to centre;
computer – to compute – computing;
adding – addition – to add – additive;

instruct – instruction – instructor;
use – useful – useless – usable.

3. Выберите из списка слов то, которое не соответствует тематике:

information, display, hardware, program, operations, woods, digits, computer, data, printer.

4. Придумайте заголовок для этой шутки.

A teacher was explaining fractions (дроби) to the class of girls and boys. After having written several examples on the blackboard, he asked a boy whether he would prefer (предпочтет ли) one-fifth or one-eighth of a lemon. «I'd prefer one-eighth, sir». Then the teacher began explaining again that though (хотя) the fraction one-eighth looked larger than the fraction one-fifth, it was really the smaller of the two. «I know that, sir. I don't like lemons».

5. Заполните пропуски предлогами *without, in, out, of, on, into.*

1. A modern computer … each second can perform more than 100,000,000,000 operations.
2. Hardware is useless … software.
3. A computer can take … information, perform a sequence … reasonable operations and put … answers.
4. The business adding machine printed … paper tape the number entered … its keyboard.

6. Найдите сказуемое в каждом предложении. Переведите все предложения.

1. The hostel our students live in is not far from the University.

2. People present at the demonstration of Popov's invention were sure of its great future.

3. The number of components supercomputers consist of is great.

4. We could park our car nowhere.

5. Hardware means the different types of equipment a computer consists of.

7. *Прочитайте и переведите текст.*

What is computing?

Suppose you sit down with pencil and pen and centre your attention on adding a set of figures. You add first all the digits in the right-hand column, then all the digits in the next column, and so on until you finally arrive at the answer. When you do this, you are computing.

When you stop at a street corner, looking first to the left for any coming car, then to the right, to cross the street or to wait on the sidewalk – you are computing.

When you are walking along a poorly marked path in the woods, thinking if you are really on the path or have lost it – you are computing.

When you are taking in information or data, performing reasonable operations (mathematical or logical operations) on the data, and are producing one or more answers – you are computing.

A machine can also do this. It can take in information or data, perform a sequence of reasonable operations on the information which it has received and put out answers. When it does this, it is computing.

A very simple example of a computer is the ordinary business adding machine which prints on paper tape the number entered into its keyboard, and also prints a total when you press the total key. A complex example of a computer is a modern automatic digital computer which in each second can perform more than 100,000,000,000 additions, subtractions, multiplications, or divisions.

A computing machine can take in and store information because the hardware inside the machine expresses arithmetical and logical relations, such as adding or subtracting, comparing or selecting. A computer can also put out information, display the answers when it receives them. Hardware is useless without software which is computer instructions and programs.

8. Выберите правильный вариант, исходя из содержания текста.

1. When you stop at a street corner, you… .
  - are reading
  - are smiling
  - are computing

2. Hardware is useless without … .
  - a tape-recorder
  - software
  - your favourite book

3. A machine can take in and store information because … .
  - the hardware inside the machine expresses arithmetical and logical relations
  - it likes this
  - it's useless

4. A computer displays the answers on … .
  - the mouse
  - the keyboard
  - the screen

5. Software is the computer… .
  - table
  - instructions and programs
  - hardware

6. Computer can perform additions, subtractions, multiplications or … .
    - exhibitions
    - divisions
    - inventions

9. Перескажите текст «What is computing?».

Unit 14

1. Прочитайте и запомните следующие слова:

unit – зд. блок, узел
associated – объединенный
scale – зд. размещать
to fit – установить
circuit – схема
to reflect – отражать
to measure – измерять
to assemble – собрать
master – зд. главный
to proliferate – увеличиваться
previously – ранее
arrangement – устройство

2. Напишите исходную форму, по которой нужно искать следующие слова в словаре:

larger, accordance, previously, two-dimensional, following, accessible, architecture, typical.

3. Переведите словосочетания, учитывая:

а) первый компонент:
например: electronic circuit – электронная схема

equivalent	
typical	
five-electrode	
electric	
detector	
magnetic	circuit
anode	
cathode	
associated	
large-scaled	
integrated	

б) второй компонент:
например: circuit elements – элементы схемы

voltmeter	circuit
control	circuit
movement	circuit

4. Подберите к русским причастиям соответствующие английские эквиваленты:

1. размещенный – scale; scaled; scaling.
2. объединенный – integrated; integrating; integrate.
3. размещенный – storing; stored; store.
4. связанный – associated; associating; associate.
5. известный – knew; known; know.
6. сделанный – made; make; making.
7. разделенный – dividing; divide; divided.

5. Подберите синонимы из текста к следующим словам:

	A		**B**
to get	data	to deliver	associated
to supply	linked	to create	goods
to make	products	to perform	information
to do		to fetch	

6. Найдите сказуемые в следующих предложениях:

1. Present microprocessors vary in their detailed architecture.
2. A feature of bit-sliced chips made by the bipolar technology is that they are microprogrammable.
3. A typical microprocessor chip measures half a centimeter on a side.
4. Large-scale integrated circuits reflect the state of evolution of a miniaturization process that began in the late 1940's.

7. Прочитайте и переведите текст.

What is a microprocessor?

A microprocessor is the central arithmetic and logic unit of a computer, together with its associated circuitry, scaled down so that it fits on a single silicon chip (sometimes several chips) holding tens of thousands of transistors, resistors and similar circuit elements. It is a member of the family of large-scale integrated circuits that reflect the present state of evolution of a miniaturization process that began with the development of the transistor in the late 1940's. A typical microprocessor chip measures half a centimeter on a side. By adding anywhere from 10 to 80 chip provide timing, program memory, random-access memory, interfaces for input and output signals and other auxiliary functions one can assemble a complete computer system on a board whose area does not exceed the size of this page. Such an assembly is a microcomputer, in which the microprocessor

serves as the master component. The number of applications for microprocessors is proliferating daily in industry, in banking, in power generation and distribution, in telecommunications and in scores of consumer products ranging from automobiles to electronic games.

As in the central processing unit, or CPU, of a larger computer, the task of the microprocessor is to receive data in the form of strings of binary digits (O's and 1's), to score the data for later processing, to perform arithmetic and logic operations on the data in accordance with previously stored instructions and to deliver the results to the user through an output mechanism such as an electric typewriter, a cathode-ray-tube or a two-dimensional plotter. A typical microprocessor would consist of the following units: a decode and control unit (to interpret instructions from the stored program), the arithmetic and logic unit, or ALU (to perform arithmetic and logic operations), registers (to serve as an easily accessible memory for data frequently manipulated), an accumulator (a special register closely associated with the ALU), address buffers (to supply the control memory with the address from which to fetch the next instruction) and input-output buffers (to read instructions or data into the microprocessor or to send them out).

Present microprocessors vary in their detailed architecture depending on their manufacture and in some cases on the particular semiconductor technology adopter. One of the major distinctions is whether all the elements of the microprocessor are divided among several identical modular chips that can be linked in parallel, the total number of chips depending on the length of the "word" the user wants to process: four bits (binary digits), eight bits, 16 bits or more. Such a multichip arrangement is known as a bit-sliced organization. A feature of bit-sliced chips made by the bipolar technology is that they are "microprogrammable": they allow the user to create specific sets of instruction, a definite advantage for many applications.

8. Выберите правильный вариант, исходя из содержания текста.

1. CPU is a … .
    - Central park of Ukraine
    - Communist Party of Uganda
    - Central Processing Unit

2. The transistor was invented … .
    - in the early 1940's
    - in the late 1940's
    - in the last 1940's

3. The results are delivered to the users through … .
    - the tape-recorder
    - an output mechanism
    - the MP

4. The ALU … .
    - translates from foreign languages
    - registers data
    - performs arithmetic and logic operations

5. Multichip arrangement is known as … .
    - a multi-sliced organization
    - a bit-sliced organization
    - a great-sliced organization

6. Microprocessor is … of a computer.
    - the past and non-important
    - the peripheral part
    - the central arithmetic and logic unit

9. Перескажите текст «What is a microprocessor?».

Unit 15

1. Прочитайте и запомните следующие слова:

application – применение
numerous – многочисленный
contemporary – современный
to escape – избежать
impact – столкновение
jet – реактивный
variety – разнообразие
sophisticated – сложный
engine – двигатель
emission – выхлоп
adjustment – регулировка
appropriate – соответствующий
appliances – бытовая техника

2. Подберите пары синонимов:

too, modern, to optimize, contemporary, different, also, as well as, such as, complex, diverse, to improve, sophisticated..

3. Выберите правильный перевод слов:

1. Icy – лед; ледяной; заледенеть.
2. Wet – мокрый; намокать; сырость.
3. Intelligent – разум; умный; умнеть.

4. Переведите следующие слова глаголами:

control, handle, transfer, relay, alarm, impact, size, game, test, input, model, output.

5. Переведите письменно английские причастия, используя в переводе русские причастия с окончаниями « - енный», «- аный».

Sophisticated, included, connected, involved, specialized, replaced, relayed, extended, adjusted, made, applied.

6. Укажите, какие из выделенных слов являются глаголами:

A. 1. we control; 2. our control; 3. must control; 4. a good control; 5. it did not control.

B. 1. this place; 2. can place; 3. did not place; 4. my place; 5. will place.

C. 1. will work; 2. the work; 3. does not work; 4. its work; 5. did not work.

D. 1) This device works well.
   2) Do you know the works of his scientists?
   3) This computer is to control the operation of the new robot.
   4) This TV set has a remote control.

7. Прочитайте и переведите текст.

The Applications of Microprocessors

The applications of microprocessors are so numerous that it is hard to visualize any aspect of contemporary life that will escape its impact.

Modern jet aircraft depend on a variety of sophisticated microprocessor systems for navigation, communication, passenger comfort and safety, engine control and control of aerodynamic surfaces.

Automobiles include microprocessors both for emission control and for optimizing engine adjustments to improve gasoline mileage. Microprocessors also are connected to safety devices, such as sensors to prevent skidding on wet or icy surfaces.

In business offices among the first applications of micro-processors involve the distribution and control of information. Desk-sized computers became nearly as common as typewriters. They handle small, specialized data bases appropriate to each person's job as well as accounting information and personnel data.

The transfer of typewritten documents between offices is largely replaced by electronic memorandums relayed through the office computer system.

In industry microprocessors are now used for such diverse tasks as machine-tool control and remote monitoring of oil fields. Microcomputers also make possible a new generation of "intelligent" robot arms and hands capable of factory assembly operations heretofore too complex for mechanization.

In the home microprocessors have already appeared in a most of video games and such household appliances as microwave ovens and food blenders. They extend in temperature   controls, refrigerators, telephones, solar energy systems and to fire- and burglary-alarm systems.

8. Выберите правильный вариант, исходя из содержания текста.

1. … depend on variety of systems.
   - Universities
   - Jet aircraft
   - Cosmonauts

2. Microprocessors make possible a new generation of … robot arms and hands.
   - "intellectual"
   - "interesting"
   - "intelligent"

3. … - sized computers become common as typewriters.
  - Machine
  - Desk
  - TV set

4. Microprocessors are … to safety devices.
  - divided
  - separated
  - connected

5. Household appliances are … .
  - microwave ovens, food blenders and so on.
  - bricks, cement, logs and so on.
  - machine-tools, sensors, controls and so on.

6. The applications of microprocessors are … .
  - numerous
  - non-effective
  - numerical

9. Перескажите текст "The Applications of Microprocessor."

Unit 16

1. Прочитайте и запомните следующие слова и словосочетания:

to inscribe – вписывать
steady – непрерывный
proliferation – расцвет
to dedicate – посвятить
array of capabilities – набор возможностей
memory capacity – емкость памяти

character – символ
to take into account –принять во внимание
to accommodate – разместить
purpose – цель
purchaser – покупатель
hardware – аппаратное обеспечение
software – программное обеспечение
recreation – отдых, развлечение; восстановление сил
to facilitate – облегчать; продвигать; способствовать

2. Подберите к следующим словам и словосочетаниям русские эквиваленты:

A. 1. either … or; 2. any; 3. ever since; 4. so far; 5. how; 6. even; 7. however; 8. such as; 9. not quite; 10. at least; 11. most of ; 12. therefore; 13. almost; 14. some; 15. more.

B. 1. с тех пор (как); 2. поэтому; 3. как; 4. однако; 5. такой как; 6. или … или; 7. большинство; 8. почти; 9. любой; 10. не вполне; 11. до сих пор; 12. как; 13. даже; 14. больше; 15. около.

3. Прочитайте и переведите словосочетания с числительными.

The late 1950s; 64 kilobytes; 65,536 characters; 10, 000 words; 4 segments.

4. Сопоставьте прилагательные, оканчивающиеся на – al, и глаголы того же корня с суффиксом - ize. Переведите глаголы.

Special – специальный; specialize – … .
Organizational – организационный; organize – … .
Personal – личный; personalize – … .
Analytical – аналитический; analyze – … .

Characteristical – характерный; characterize – … .
Individual – отдельный; individualize – … .

5. Определите по суффиксам, какие из нижеприведенных слов являются: а) существительными; б) глагольными формами; в) наречиями; г) прилагательными.

Electronics, different, instruction, formulated, serving, segment, processor, personal, fairly, memory, possible, hardware, potentially, secondary, linked, controlling.

6. Выберите формы глагола, которые можно перевести прошедшим временем.

A. 1. We are dividing; 2. We divide; 3. We divided; 4. We had been dividing; 5. We were dividing.
B. 1. He defined; 2. He will define; 3. He is defining; 4. He defines; 5. He was defining.
C. 1. I consider; 2. I shall consider; 3. I considered; 4. I have considered; 5. I was considered.
D. 1. They improved; 2. They will improve; 3. They are improving; 4. They were improving; 5. They improve.

7. Прочитайте и переведите текст.

Personal computer

There has been talk of a "computer revolution" ever since the electronics industry learned in the late 1950s to inscribe miniature electronic circuits on a chip of silicon. What has been witnessed so far has been a steady, remarkably speedy evolution. With the proliferation of personal computers, however, the way indeed be open for a true revolution in how business is conducted, in how people organize their personal affairs perhaps even in how people think.

A personal computer is a small computer based on a microprocessor; it is a microcomputer. Not all microcomputers,

however, are personal computers. A microcomputer can be dedicated to a single task such as controlling a machine tool or metering the injection of fuel into an automobile engine; it can be a word processor, a video game or a " pocket computer" that is not quite a computer. A personal computer is something different: a stand-alone computer that puts a wide array of capabilities at the disposal of an individual. A personal computer is defined as a system that has all the following characteristics:

1. The price of a complete system should be as low as possible.

2. The system either includes or can be linked to secondary memory in the form of cassette tapes or disks.

3. The microprocessor can support a primary memory capacity of 64 kilobytes or more. A 64-kilobyte memory can store 65,536 characters, or some 10,000 words of English text.

4. The computer can handle at least one high-level language, such as BASIC, FORTRAN or COBOL. In a language of this kind instructions can be formulated at a fairly high level of abstraction and without taking into account the detailed operations of the hardware.

5. The operating system facilitates an interactive dialogue; the computer responds immediately (or at least quickly) to the user's actions and requests.

6. The system is flexible enough to accommodate a wide range of programs serving varied applications, it is not designed for a single purpose or a single category of purchasers.

The definition will surely change as improved technology makes possible the inclusion of more memory and of more special hardware and software features in the basic system.

The personal-computer market can be divided into four segments: business, home, science and education. The business segment is becoming the largest one. The home-computer segment utilizes most of the units for recreation (primarily for playing video games) but they also serve as powerful educational aids for children, as word processors, electronic message centers

and personal-finance tools. A broad range of new applications will be made possible by software now under development.

Computers intended for scientific and other technical applications tend to be more powerful than other personal computers and to have components that facilitate their being linked to analytical and sensing instruments. The market is therefore characterized by products with specialized hardware and an array of specialized programs.

The educational segment is potentially very large. Computer-assisted instructions involves the student in a lively interaction with subject matter in almost any field of study and allows the individual to proceed at his own pace. The ability to work with a computer is coming to be considered a necessary basic skill and even some programming ability may soon be required in many occupations; clearly the place to acquire such skill is in elementary and secondary school.

8. Выберите правильный вариант, исходя из содержания текста.

1. A PC is a … computer based on a microprocessor.
   - large
   - small
   - old

2. The price of a complete system should be … .
   - as low as possible
   - as high as possible
   - as long as possible

3. The PC market can be divided into … segments.
   - five
   - three
   - four

4. BASIC, FORTRAN, COBOL are … .
- films
- languages
- names

5. The computer can … one high-level language.
- speak
- listen to
- handle

6. The ability to work with a computer is considered a … .
- trick
- rare thing
- necessary basic skill

9. Перескажите текст «Personal computer».

Unit 17

1. Прочитайте и запомните следующие слова:

CAD (computer-aided design) – САПР (система автоматизированного проектирования)
to convert – превратить
precise – точный
complex – сложный
explanation – объяснение
three-dimensional – трехмерный
to suppose – предполагать
арргropriate – соответствующий
techniques – зд. технические приемы, техника
hidden – скрытый
sources – источники

2. Не ошибитесь в переводе следующих «ложных друзей переводчика»:

to convert – превратить, а не …
complex – сложный, а не …
to process – обрабатывать, а не …
data – данные, а не …
actual – настоящий, а не …
to present – представлять, а не …
figure – цифра, а не …

3. Подберите к английским «-ing формам» соответствующий русский эквивалент:

A. 1. creating; 2. providing; 3. using; 4. sowing; 5. painting; 6. specifying; 7. moving; 8. translating; 9. rotating; 10. rendering; 11. turning; 12. corresponding; 13. rendering; 14. presenting.

B. 1. соответствуя; 2. рисуя; 3. вращая; 4. воспроизводя; 5.создавая; 6. уточняя; 7. переводя; 8.сопоставляя; 9. снабжая; 10. сберегая; 11. двигая; 12. используя; 13. представляя; 14. соизмеряя.

4. Переведите следующие английские терминологические слова и словосочетания:

1) mechanical engineering;
2) computer-aided design;
3) car industry;
4) computer graphics;
5) computer-aided engineering;
6) graphic package;
7) primitive attribute;
8) palette;
9) electric engineers;

10) three-dimensional graphics;
11) icon.

5. Определите, в каких предложениях использованы формы пассивного залога. Переведите предложения.

1. Computer animation is used by engineers and scientists, students and painters.
2. It is a process of creating objects and pictures.
3. The collection of tools in a package is known as a palette.
4. The basic geometric shapes are called primitives.
5. A computer works with hundreds of formulas to convert the bits of data into different shapes and colours.

6. Начинайте перевод словами «Для того, чтобы»:
To use …; To analyze …; To draw …;
To develop …; To be …; To present … .

1. To use an icon you can activate it by clicking on it.
2. To analyze problems scientists use computer animation.
3. To draw and manipulate objects on a computer the user works with a graphic package.
4. To develop, model and test car designs CAD software is applied.
5. To be displayed on the screen images must be choosen by user.
6. To present information electric engineers use computer graphics.

7. Прочитайте и переведите текст.

Computer Graphics

Computer graphics are known to be pictures and drawings produced by computers. A graphics program interprets the input provided by the user and transports it into images that can be displayed on the screen, printed on paper or transferred to

microfilm. In the process the computer uses hundreds of mathematical formulas to convert the bits of data into precise shapes and colours. Graphics can be developed for a variety of uses including illustrations, architectural designs and detailed engineering drawings.

Mechanical engineering uses sophisticated programs for applications in computer-aided design (CAD) and computer-aided manufacturing (CAM). In the car industry CAD software is used to develop, model and test car designs before the actual parts are made. This can save a lot of time and money.

Basically, computer graphics help users to understand complex information quickly by presenting it in more understandable and clearer visual forms. Electric engineers use computer graphics for designing circuits and in business it is possible to present information as graphics and diagrams. These are certain to be much more effective ways of communicating than lists of figures or long explanations.

Today, three-dimensional graphics along with colour and computer animation are supposed to be essential for graphic design, computer-aided engineering (CAE) and academic research. Computer animation is the process of creating objects and pictures which move across the screen; it is used by scientists and engineers to analyze problems. With appropriate software they can study the structure of objects and how it is affected by particular changes.

A graphic package is the software that enables the user to draw and manipulate objects on a computer. Each graphic package has its own facilities, as well as a wide range of basic drawing and painting tools. The collection of tools in a package is known as a palette. The basic geometric shapes, such as lines between two points, arcs, circles, polygons, ellipses and even text, making graphical objects are called primitives. You can choose both the primitive you want and where it should go on the screen. Moreover, you can specify the «attributes» of each primitive, e.g., its colour, line type and so on. The various tools in a palette

usually appear together as pop-up icons in a menu. To use one you can activate it by clicking on it.

After specifying the primitives and their attributes you must transform them. Transformation means moving or manipulating the object by translating, rotating and scaling the object.

Translation is moving an object along an axis to somewhere else in the viewing area. Rotation is turning the object larger or smaller in any of the horizontal, vertical or depth direction (corresponding to the x, y and z axis). The term «rendering» describes the techniques used to make your object look real. Rendering includes hidden surface removal, light sources and reflections.

8. Выберите правильный вариант, исходя из содержания текста.

1. Mechanical engineering uses … program.
- easy
- difficult
- sophisticated

2. Electric engineers use computer graphics for … .
- designing bureaus
- designing circuits
- designing projects

3. Computer … is the processor creating objects and pictures.
- animation
- music
- graphics

4. Primitives are the … .
- people of long age
- very simple things
- the basic geometric shapes

5. Palette is a … .
- French woman
- collection of tools in a package
- name of the street in Paris

6. The computer uses hundreds of … to convert the bits of data into precise shapes and colours.
- characters
- formulas
- chips

9. Перескажите текст «Computer Graphics».

Unit 18

1. Прочитайте и запомните следующие слова:

cryptography – шифрование
secure – надежный
digital – цифровой
encryption – кодирование
access – доступ
firewall – брандмауэр, межсетевой защитный экран
accuracy – точность
competitors – конкуренты
fraud – обман
benefits – зд. доходы, прибыль
conveniences – удобства
enormous – огромный
implementation – внедрение
support – поддержка
consideration – зд. учет

2. Образуйте новые слова с помощью следующих суффиксов и переведите их:

- tion -	- ity -
inform – сообщать;	secure – безопасный;
encrypt – шифровать;	confidential – доверительный;
decrypt – расшифровать;	proper – собственный;
communicate – общаться;	complex – сложный;
implement – внедрять;	possible – возможный;
consider – считать;	anonym - анонимный;
integrate – внедрять;	
protect – защищать;	

3. Выберите соответствующие эквиваленты:

1. To attack the system with …
2. To transmit data …
3. To protect a message …
4. To read it …
5. To provide the level of security …
6. To encode it …

7. To design imperfect systems …

1. Чтобы передать данные …
2. Чтобы прочитать его …
3. Чтобы обеспечить уровень секретности …
4. Чтобы напасть на систему …
5. Чтобы защитить сообщение …
6. Чтобы спроектировать несовершенные системы …
7. Чтобы закодировать его …

4. Переведите предложения с модальными глаголами.

1. Cryptography <u>can</u> prove your identify or protect your anonymity.
2. It <u>can</u> prevent vandals from changing your Web page.
3. Present-day computer security is a house of cards; it <u>may</u> stand for now, but it <u>can't</u> last.

4. No one <u>can</u> guarantee 100% security.
5. But we <u>can</u> work toward 100% risk acceptance.
6. You <u>should</u> keep your passwords.
7. We <u>must</u> secure our systems.
8. Unauthorized users <u>can't</u> read encoded data.

5. Определите видо-временные глагольные формы и переведите:

	are publishing …
	were publishing …
	have published …
	had published …
We	shall publish …
	are to publish …
	have to publish …
	publish …
	published …

Закончите предложения, дополнив подходящими по смыслу словами.

6. Переведите следующие пословицы и поговорки. Подберите к ним соответствующие русские эквиваленты. Составьте ситуации с любыми из них.

1. Live and learn.
2. He that never climbed never fall.
3. It is never too late to learn.
4. Four eyes see more than two.
5. A little knowledge is a dangerous thing.

7. Прочитайте и переведите текст.

Cryptography

From e-mail to cellular communications, from secure Web access to digital money, cryptography is an essential part of today's information systems. The only way to protect a message is to encode it with some form of encryption. Data encryption is very important for network security, particularly when sending confidential information. Encryption is the process of encoding data so that unauthorized users can't read it. Decryption is the process of decoding encrypted data transmitted to you. The most common methods of protection are passwords for access control, encryption and decryption systems, and firewalls. Firewall is a software and hardware device that allows limited access to an internal network from the Internet.

Cryptography helps provide accuracy and confidentiality. It can prove your identity or protect your anonymity. It can prevent vandals from changing your Web page and industrial competitors from reading your confidential documents. And in the future, as commerce and communications continue to move to computer networks, cryptography will become more and more vital.

But the cryptography now on the market does not provide the level of security it advertised. Most systems are not designed and implemented together with cryptographers. Present-day computer security is a house of cards; it may stand for now, but it can't last. Electronic vandalism is an increasingly serious problem. Computer vandals take advantage of technologies newer than the system they attack, using techniques the designers never thought of and even invent new mathematics to attack the system with.

No one can guarantee 100 % security. But we can work toward 100 % risk acceptance. Fraud exists in current commerce systems. Yet these systems are still successful, because the benefits and conveniences are greater than the losses. Some systems are not perfect, but they are often good enough. A good

cryptographic system provides a balance between what possible and what is acceptable.

The good news about cryptography is that we already have the algorithms and protocols we need to secure our systems. The bad news is that that was the easy pan; implementing the protocols successfully requires considerable expertise. Thus, there is an enormous difference between a mathematic algorithm and its concrete implementation in hardware and software.

Design work is the main support of the science of cryptography and it is very specialized. Cryptography combines several areas of mathematics: number theory, complexity theory, information theory, probability theory, abstract algebra, and formal analysis, among others. Unfortunately, few can do the science properly, and a little knowledge is a dangerous thing: inexperienced cryptographers almost always design imperfect systems. Quality systems use published and well-understood algorithms and protocols. Besides, only when cryptography is designed with careful consideration of users-needs and then integrated, can it protect their systems, resources, and data.

8. Выберите правильный вариант, исходя из содержания текста.

1. Firewall is a … .
   - musical term
   - software and hardware device
   - technical abbreviation

2. In future cryptography … .
   - will become more vital
   - will be abolished
   - will not be obligatory

3. … can guarantee 100% security.
   - Everybody

- Nobody
- No one

4. Present-day computer security is a … .
   - dangerous thing
   - house of cards
   - house of programs

5. A good cryptographic system provides … .
   - an equality
   - a balance
   - an equilibrium

6. Computer vandals even invent … to attack the system with.
   - computers
   - programs
   - new mathematics

9. Перескажите текст «Cryptography».

Unit 19

1. Прочитайте и запомните следующие слова и словосочетания:

to deal with – иметь дело с
sequence – последовательность
disturbance – помеха
redundancy – чрезмерность, избыток
probability theory – теория вероятности
precise – точный
trade off – компромисс, взаимные уступки
desirability – желательность

2. Переведите словосочетания, начиная со второго компонента.

communication	
information	
probability	
relativity	
gravitation	theory
modeling	
space	
mathematical	
control	

3. Задайте все возможные вопросы к следующим предложениям:

1. Communication theory deals primarily with systems for transmitting information or data from one point to another.
2. In the early 1940's a mathematical theory was developed.
3. Wiener, Kolmogorov, Kotelnikov are scientists who worked in the field of information theory.

4. Подберите пары антонимов.

The best, encoder, output, extensive, negative, high-frequency, prior to, theory, decoder, later on, practices, simple, the worst, cheap, low-frequency, input, positive, complicated.

5. Переведите, обратите внимание на количество русских слов, необходимых для перевода следующих английских видо-временных форм глаголов.

Is being tested; was developed; has been made; is being applied; are constructed; is planned; will become; has been extended.

6. Подберите английский эквивалент русскому причастию (возможны два варианта ответа).

1. обрабатываемый, обработанный;
2. применяемый, примененный;
3. образуемый, образованный;
4. подвергаемый, подвергнутый;
5. представляемый, представленный;
6. изменяемый, измененный;
7. устанавливаемый, установленный.

1. modified; 2. processed; 3. subjected; 4. represented; 5. established; 6. applied; 7. formed.

7. Прочитайте и переведите текст.

Communication Systems and Information Theory

1. Communication Theory. Communication theory deals primarily with systems for transmitting information or data from one point to another. The source output might represent, for example, a voice waveform, a sequence of binary digits form a magnetic tape, the output of a set of sensors in a space probe, a sensory input to a biological organism, or a target in a radar system. The channel might represent, for example, a telephone line, a high frequency radio link, a space communication link, a storage medium, or a biological organism (for the case where the source output is a sensory input to that organism). The channel is usually subjected to various types of noise disturbances, which on a telephone line, for example, might take the form of a time-varying frequency response, crosstalk from other lines, thermal noise, and impulsive switching noise. The encoder represents any processing of the source output performed prior to transmission. The processing might include, for example, any combination of modulation, data reduction, and insertion of redundancy to combat the channel noise. The decoder represents the processing of the

channel output with the objective of producing at the destination an acceptable replica of (or response to) the source output.

2. Information Theory. In the early 1940's a mathematical theory, for dealing with the more fundamental aspects of communication systems, was developed. The distinguishing characteristics of this theory are, first, a great emphasis on probability theory and, second, a primary concern with the encoder and decoder, both in terms of their functional roles and in terms of the existence (or nonexistence) of encoders and decoders that achieve a given level of performance. In the past 30 years, information theory has been made more precise, has been extended, and brought to the point where it is being applied in practical communication systems.

As in any mathematical theory, the theory deals only with mathematical models and not with physical sources and physical channels. One would think, therefore, that the appropriate way to begin the development of the theory would be with a discussion of how to construct appropriate mathematical models for physical sources and channels. This, however, is not the way that theories are constructed, primarily because physical reality is rarely simple enough to be precisely modeled by mathematically tractable models. The procedure will be rather to start by studying the simplest classes of mathematical models of sources and channels, using the insight and the results gained to study progressively more complicated classes of models. Naturally, the choice of classes of models to study will be influenced and motivated by the more important aspects of real sources and channels, but the view of what aspects are important will be modified by the theoretical results. Finally, after understanding the theory, it can be found to be useful in the study of real communication systems in two ways. First, it will provide a framework within which to construct detailed models of real sources and channels. Second, and more important, the relationship established by the theory provide an indication of the types of trade off that exist in constructing encoders and decoders for given systems. While the above

comments can be applied to almost any mathematical theory, they are particularly necessary here because quite an extensive theory must be developed before the more important implications for the design of communication systems will become apparent.

3. Conclusion. Much of modern communication theory stems from the works of communication systems and also the desirability of modeling both signal and noise as random processes. Wiener was interested in finding the best linear filter to separate the signal from additive noise with a prescribed delay and his work had an important influence on subsequent research in modulation theory. Also Wiener's interest in reception with negative delay (that, is, prediction) along with Kolmogorov's work on prediction if the absence of noise have had an important impact on control theory. Similarly, Kotelnikov was interested in the detection and estimation of signals at the receiver.

8. Выберите правильный вариант, исходя из содержания текста.

1. Communication theory deals with systems for … information.
   - copying
   - transmitting
   - receiving

2. In the … 30 years information theory has been made more precise.
   - next
   - future
   - past

3. The source output might represent … .
   - a voice waveform
   - a picture-book
   - an organism

4. Information theory does not deal with … .
- mathematical models
- physical sources and channels
- chemical processes

5. Wiener was interested in finding the best … to separate the signal from noise.
- round mirror
- linear filter
- way

6. Information theory is being applied in … .
- mathematics
- power engineering
- practical communication systems

9. Перескажите текст "Communication Systems and Information Theory."

Unit 20

1. Прочитайте и запомните следующие слова и словосочетания:

explosion – взрыв
formerly – раньше
conversely – напротив
fiber – волокно
conversation – разговор
cellular – сотовый
copper – медь
simultaneous – одновременный
require – требовать
trunk – зд. магистраль

bundle – пучок
sheaths – оболочки
core – сердцевина, ядро
cladding – обмотка, оболочка
stray – случайный, отклонившийся
bubble-free – беспузырьковый
boundary – граница
blur – смазать, сделать неясным

2. Прочитайте и переведите следующие пары слов с похожим правописанием и произношением:

could – cold	carry – curry
hair – here	still – steal
weak – week	father – farther
one – won	tree – free
know – no	call – cool
send – sand	very – vary
date – data	form – from
boots – booths	

3. Переведите следующие словосочетания, начиная с первого компонента:

1)
radio
super high frequency
high-frequency
short   waves
ultra short
low-frequency
long
2)
conducting
dielectric   layer
diffused

insulating
surface

4. Заполните пропуски:

1.	Radio space is very … .	1. connected
2.	A new worldwide telecommunication system is … on transmitters in space.	2. carried
3.	Telephones were … through underground wires.	3. routed
4.	Great amounts of information are … along optical fibers.	4. limited
5.	A call will be … directly to a satellite from the phone.	5. based

5. Переведите следующие словосочетания, обращая внимание на существительное в функции определения:

1. fax machines, computer modems, and new telephone users;
2. hair – thin strands of glass;
3. a cellular phone conversation;
4. radio phone systems;
5. fiber-optic cables;
6. ultra-pure bubble-free glass;
7. solar powered phone booths.

6. Уберите слово, выпадающее из тематического ряда слов:

copper, boron, silicon, germanium, glass.

7. Прочитайте и переведите текст.

The Information Explosion

A revolution in communications is taking place. Telephones, formerly connected through underground wires, are increasingly

becoming hand held devices that transmit via radio waves. Soon people could be reached anywhere on the globe via a network of satellites.

Conversely, television, originally broadcast on the same frequencies that cellular phones now use, is set to become a digital medium, providing hundreds of different channels piped into homes along optical fibers - hair-thin strands of glass that carry enormous amounts of information at the speed of light.

A cellular phone conversation is accompanied by unheard digital exchanges (a series of "I" and "O" representing data) as the handset and the computers that control the network process the call. The cells the phones are named after are a mosaic of hexagonal areas, each with a transmitter/receiver or base station at its center. More people can use cellular phones than other radio phone systems because the signals used are very weak, so frequencies used in one cell may be reused in another a short distance away.

Every 15 minutes, each base station beams out a message asking all the handsets within its cell to "report in." This enables the central computers to know where to route a call when a handset is phoned.

Digital superhighways

The fast-growing number of fax machines, computer modems, and new telephone users demands transmission lines that can handle far greater numbers of calls than traditional copper. This demand is being met by fiber-optic cables, which carry digital messages in the form of rapid bursts of intense laser light. Capable of carrying hundreds of thousands of simultaneous phonecalls down a pair of glass strands, in addition to fax messages, computer data, and television signals, fiber-optic cables are revolutionizing global communication and home entertainment. Some cable operators already offer a huge choice of channels, interactive games, and even on-demand video films. Conversations are more intelligible when the two parties can see one another. However, video phones, which make this possible by

simultaneously transmitting pictures and speech, are still not widely used. This is because transmitting a complete video signal requires the sending of more than 200 million bits (units of information) a second - 4000 times more than existing cables can handle. Accepting lower picture quality and using compression, a technique by which redundant or repeated bits of data are omitted, the signal can be reduced to 64,000 bits per second. Even this is beyond the capacity of ordinary telephone lines, so current videophones can send only crude, still pictures. One model, sending data at 14,400 bits per second, takes five seconds to send one still picture.

Data highway

An optical trunk cable comprises a bundle of optical fibers around a thicker strengthening wire, contained in layers of protective sheaths. Each fiber has a core, through which light travels, and a cladding, which contains the light in the core. Both are made from silicon glass, with small amounts of boron or germanium added to improve transmission properties A plastic sheath around the cladding ensures that no stray light passes into other fibers.

Light Pipes

Optical fibers can transmit digital data in the form of up to 2 billion pulses of laser light a second. This makes them the ideal medium for carrying the rapidly increasing numbers of telephone calls, fax messages, and computer information traveling from place to place. The glass they are made of is so clear that signals can travel for tens of miles before they have to be amplified - ten times farther than traditional copper cables. A fiber is in fact made up of two concentric layers of ultra-pure bubble-free glass. The cylindrical core is surrounded by a cladding drawn from glass with a different refractive index. Laser light shone into the core is confined in a process called total internal reflection - rays hitting the boundary between the two layers at a shallow enough angle are reflected rather than escaping. Because fibers are so thin -

narrower even than human hair - they can be bent quite sharply before light "leaks" out input pulse.

Narrow cables

A pulse of light sent down an optical fiber with a wide core can travel along many alternative paths, some involving many more reflections than others. Over long distances the pulse becomes spread out and "blurred", eventually merging with the edges of entertainment. However, in a narrow-core fiber, the pulse has only one possible path - straight down the center. Blurring of the pulse is greatly reduced and clear signals can therefore be sent over longer distances in such fibers.

Blanket coverage

A proposed new worldwide telecommunication system based on transmitters in space will have the ability to connect two people anywhere on the globe. The system shown will include 77 satellites, uniformly spaced, 475 miles above the earth and linked by digital signals to form a cellular network. Subscribers to the system will be able to communicate with any telephone on the terrestrial networks. A call will be routed directly to a satellite from handsets, earphones, or even solar powered phone booths.

Patterns of use

Radio space is very limited, with demands on it from many different users, so that only a small range of frequencies is available in each country for cellular telephones.

Each hexagonal cell has a base station, which is assigned a portion of the limited radio channels available. All the channels are assigned over a pattern of 8 cells, and because the transmitters have such low power - and therefore range - this pattern can be repeated to let an entire country be covered with a small number of channels.

The number of local users determines cell size. Cells in a major city may be as small as 330 ft wide, enabling the available channels to be reused more often.

The process of changing frequencies as a user crosses a cell boundary during a call is highly complex, and involves much unheard radio traffic between computers.

The base station at first dealing with the call constantly monitors the strength of the phone signal. As the user walks or drives away from the base station, the strength of the signal from his phone decreases. When it falls below a critical level, the base station sends a digital message, alerting the central exchange, which instructs nearby bases to measure the strength of the signal reaching them.

The exchange then tells the phone to retune to a channel on the cell receiving the strongest signal, and the conversation is resumed.

8. *Выберите правильный вариант, исходя из содержания текста.*

1. Optical fibers are hair-thin strands of … .
   - metal
   - plastics
   - glass

2. Bit is a unit of … .
   - mass
   - speed
   - information

3. Video-phones are still not … .
   - designed
   - used
   - bought
4. … is used in light pipes.
   - Engine
   - Laser
   - Steam

5. A new worldwide communication system is based on … .
- clients
- spaceships
- transmitters

6. The number of … determines cell size.
- banks
- channels
- local users

9. Перескажите текст "The Information Explosion."

Unit 21

1. Прочитайте и запомните следующие слова:

alien – чужой
cunning – хитрость, ловкость
ancient – древний
exciting – волнующий
violence – насилие
to suit – подходить
characters – зд. герои, действующие люди
score – счет

2. Заполните таблицу на словообразование:

существительное, глагол	прилагательное	наречие
care	careful, …	…
differ	…	…
logics	…	…
…	instructive	…
human	…	-
length	…	-

use	usable, …	-
suit	…	-

3. Переведите предложения, обращая внимание на модальные глаголы и их эквиваленты:

1. Each pixel has a number so that the computer can recognize it.
2. You can write a computer game – it's so simple, people say!
3. If football isn't for you, you could test your arriving skill in Hard Driving?
4. A game could be sports, an adventure, a battle, a detective story, anything.
5. You have to work out each section of the game very carefully.
6. You have to give the computer very careful instructions so it knows what to do!

4. При переводе используйте русские причастия с суффиксами « - ущ», « - ящ», « - ющ», « - ащ».

Coming, using, finding, exciting, suiting, choosing, winning, knowing, writing, giving, scoring, calling.

5. Определите разницу между глаголами to like и to be like при переводе следующих предложений:

1. Children like to go to the circus.
2. Computers are like children – you have to give them very careful instructions so they know what to do!
3. The weather is like to change.
4. People like traveling.

6. Составьте предложения и переведите их.

1. Each instruction is …	1. is very exciting.
2. The screen has …	2. write a computer game?
3. John Ritman …	3. a program.
4. The world of computing games …	4. for the computer.
5. How does John …	5. hundreds of little dots.
6. The list commands is …	6. is a well-known British programmer.
7. There are different languages …	7. to suit everyone.
8. There's a game …	8. very simple.

7. Прочитайте и переведите текст.

Computer Games

Computer games are becoming more and more popular – some say too popular. But where do they come from? How do they work?

Battle with an alien spacecraft. Win the World Cup for your country. Use your skill and cunning to find your way through ancient castles. Yes, this is the exciting world of computer games! It's not all about violence: there's a game to suit everyone, from problem – solving to sports, and more and more are appearing in shops, cafes and clubs. The most popular game last century was World Cup 90, a realistic football contest for two players. You choose your international team and, using your skill and tactics, control your team to win the Cup. If football isn't for you, you could join the Turtles, or test your driving skill in Hard Driving.

Few people know more about computer games than John Ritman, a well-known British programmer. He has written Match Day, a football program, Batman and Head Over Heels – both arcade adventures. So how does John write a computer game?

It takes a lot of careful and logical planning. At first he doesn't know what the characters or story will be. You think of the type of game you want to write and then find a story. It could be sports, an adventure, anything. Then you have to work out each section of the game very carefully. Computers are like children – you have to give them very careful instructions so they know what to do!

Each instruction is very simple. It is the combination of instructions, in a very long list, that makes footballers score goals and spacecraft fly in computer games. This list of commands is what people refer to as a "program". The computer understands it in the form of numbers, but there are different languages through which human words are translated into numbers for the computer.

Sometimes the instructions tell the computer to show something on the screen. The screen has hundreds of little dots on it which are called pixels. Each pixel has a number so that the computer can recognize it. If you give the computer the number that means "red" and the number of a dot it will make that dot red. Repeat instructions like these thousands and thousands of times, and you have a computer game. It's as simple as that!

8. Выберите правильный вариант, исходя из содержания текста.

1. The games are about… .
     - alien spacemen
     - shops, cafes and clubs
     - computers

2. John Ritman … .
     - is the most popular British programmer
     - is one of the well-known British programmers
     - has written *World Cup 90*

3. The game *World Cup 90* is the game … .

- about turtles
- for testing of your driving skill
- of your international football team

4. John Ritman believes that computers are like children because … .
- they don't know what to do without instructions
- they play with each other
- they are unpredictable

5. What is the computer program?
- It is the list of words.
- It is the list of numbers
- It is the list of human words translated into numbers for the computer.

6. Computer must recognize … .
- the member of each program
- the screen
- the hundreds of little dots, called pixels

9. Перескажите текст «Computer Games».

Unit 22

1. Прочитайте и запомните следующие слова и словосочетания:

icon – зд. идол
business sense – деловое чутьё
quick mind – быстрый ум
revolutionize – перевернуть
generous – щедрый
charity – благотворительность
wealth – богатство

employee – служащий

2. Переведите словосочетания, содержащие глаголы с –ing окончанием. При переводе передайте:

а) процесс, действие:
producing Boeing aircraft; spending all time; writing programs; learning about computers; doing their homework; finishing school; the world of computing; finishing his studies; playing golf and bridge; helping others.

б) определение:
an operating programme; an operating system; hard – working student.

3. Задайте разные вопросы к предложениям:

1. Microsoft was started by Bill Gates in 1975 and it has become the world's largest computer software company.
2. Bill Gates has written two books, both are best – sellers.

4. Подберите слова из второй колонки, к словам из первой так, чтобы получились общеизвестные словосочетания:

get interested	everything
the world	company
his favorite	in computers
to computerize	success
to be very	mind
software	of computing
a business	subjects
a quick	ambitious

5. Прочитайте следующие интернациональные слова, переведите их:

company, university, producing, business, microcomputer, best-seller, plan, reason, revolutionize.

6. Подберите предлоги *on, after, in, of, to, at, instead of, about* **для предложений:**

1. … finishing school … 1975, Bill went … Harvard, America's most famous university.
2. Everyone has heard … Bill Gates, the icon … American business and the richest man … the world.
3. Bill Gates was born … the 28th … October … 1955, … Seattle …, USA.
4. … 13 he get interested … computers.
5. They were spending all their time writing programs and learning … computers … doing their homework.
6. He spends very little … himself.
7. He is also fond … reading … science.

7. Прочитайте и переведите текст.

Bill Gates:
The Richest Man in the World

Everyone has heard of Bill Gates, the icon of American business and the richest man in the world.

Microsoft, the business he started with a friend in 1975, has become the world's largest computer software company, although the company is in big trouble today – the US government has broken it up-experts say it will remain successful.

Bill Gates was born on the 28th of October 1955, in Seattle, USA. Seattle was once famous for producing Boeing aircraft, but is now better known as the home of Microsoft. From his parents Bill got a good business sense and a quick mind. His father is a lawyer and his mother was a teacher and then a company director.

At school Boll soon showed that he was very intelligent. His favourite subjects were Maths and Science. At 13 he got interested in computers. Bill Gates and his friend Paul Allen were soon spending all their time writing programmes and learning about computers instead of doing their homework.

After finishing school in 1975, Bill went to Harvard, America's most famous university. Most of the time he worked on the computers in the university laboratory. The next year, he and Paul Allen wrote an operating programme for the Altair, one of the world's first microcomputer. Bill knew, even then, that he would revolutionize the world of computing and he left Harvard before finishing his studies.

The two friends started Microsoft in 1975, and very soon it became a business success.

In 1980, Gates bought a small company which produced an operating system called DOS (Disc Operating System). He made some changes to it and renamed it MS-DOS. He sold the rights to use this system to IBM (International Business Machine). Since 1960 MS-DOS has been standard operating system for all PCs. Microsoft has also developed such well-known programmes as Windows, Excel and Internet Explorer.

Bill's dream is to computerize everything – TVs, telephones, lights, even the way you cook dinner…

One reason for his success is that Bill has always been very ambitious and hard-working.

This hasn't left him much time for a normal personal life, but in 1994 he married Melinda French, a Microsoft employee. The couple has two children: a daughter, born in 1996, and a son, born in 1999. Bill Gates has written two books, the *Road Ahead* (1955) and *Business and the Speed of Thought* (1999). Both books are best-sellers.

Bill hasn't got much free time, but when he has a chance he likes playing golf and bridge. He is also fond of reading about science.

For such a rich person, his life is simple, and he spends very little on himself. When it comes to helping others, though, Gates is very generous. The Bill and Melinda Gates Foundation has already given $300 million to charity, and he says he plans to give away almost all of his wealth when he retires.

8. Выберите правильный вариант, исходя из содержания текста.

1. Microsoft has become the … .
    - world's largest automobile company
    - world's largest computer software company
    - world's largest fruit company

2. At 13 Bill got interested in … .
    - biology
    - math's and science
    - computers

3. He went to Harvard, America's most famous … .
    - institute
    - high school
    - university

4. Bill Gates has already been very … .
    - lazy and stupid
    - simple and kind
    - ambitious and hard-working

5. The Bill and Melinda Gates Foundation has already given $300 million to … .
    - wars
    - charity
    - moving pictures industry

6. Everyone has heard of Bill Gates … .
- the famous actor of Hollywood
- the icon of American business
- the father of computers

9. Перескажите текст "Bill Gates: The Richest Man in the World."
Unit 23

1. Прочитайте и запомните следующие слова:

density – плотность, емкость
damage – вред
to retrieve – восстановить
available – доступный
access – доступ

2. Переведите следующие словосочетания:

hard discs, magnetic fields, airport metal detector, an access time, one disadvantage, to hold information, to record information, multimedia materials and application.

3. Подберите эквиваленты к следующим словам:

1. than, a lot of, besides, through, without, in addition, both … and, again, more than, such as.

2. более чем, множество, вдобавок, через, без, как … так, чем, кроме, такой (также) как, снова.

4. Ознакомьтесь со следующей таблицей изобретений в области информационных технологий. Что бы вы добавили в нее?

BC – Visual communication was practiced.

1791 - Optical telegraphy was used by Claude Chappe in France, optical telegraphy was also known as semaphore

1832 - A telegraph communication was established in St. Petersburg by Pavel Shilling, magnetized needles were used.

1839 - An electric telegraph was devised by Charles Wheatstone and William Cooke in England.

1843 - The first message was transmitted along a telegraph line in the USA by Samuel Morse. His Morse code of signals was used.

1851 - The first international connection was made between England and France through the underwater telegraph cable.

1876 - The telephone was invented by Alexander Graham Bell in the USA.

1890s - Experiments with wireless telegraphy were successfully conducted by Alexander Popov in Cronstadt Harbour.

1891 - A telephone cable was laid between England and France.

1894 - Wireless telegraphy was pioneered by Guglielmo Marconi in Italy.

1956 - The first transatlantic telephone cable was laid.

1988 - Videophones were introduced in Japan.

5. Найдите в словаре расшифровку следующих сокращений:

MB, GB, ms, CD-ROM, MO, e.g., i.e.

6. Составьте предложения со следующими сказуемыми:

can store – могут хранить;
can be transported – могут быть переданы;

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can occupy – могут занимать (место);
can hold – может содержать;
can be used – могут быть использованы;
can not be changed – не может быть изменен;
can be written – может быть записан.

7. *Прочитайте и переведите текст.*

Optical Disks and Drives

Optical discs can store information at much higher densities than magnetic discs. Thus, they are ideal for multimedia applications where images, animation and sound occupy a lot of disc space. Besides, they are not affected by magnetic fields. This means that they are secure and stable, e.g. they can be transported through airport metal detectors without damaging the data. However, optical drives are slower than hard disks. While there are hard drives with an average access time of 8 milliseconds (ms), most CD-ROM (Compact Disc Read-Only Memory) drives have an access time of 150 to 20 ms.

There are various types of optical drives, which have become a reality. CD-ROM systems use optical technology. The data is retrieved using a laser beam. To read CD-ROM disks, you need an optical drive (a CD-ROM player). A typical CD-ROM disk can hold 650 MB (megabytes) of sound, text, photographs, music, multimedia materials and applications. In addition, most CD-ROM drives can be used to play audio CDs. Do you remember that CD stands for compact disc?

Yet CD-ROM technology has one disadvantage. The data on a CD-OM cannot be changed or «written» to, i.e. it is impossible to add your own material to what is on the disc. It is like a music CD. It is not designed for you to write on, it is designed to hold a lot of information that the user doesn't need to change.

Magneto-optical (MO) drives use both a laser and an electro-magnet to record information. Consequently, MO discs are

rewritable, that is they can be written to, erased, and then written again. They are available in two formats. Their capacity may be more than 2 GB (gigabyte) or 230 to 640 MB. Such combined devices are good for back up purposes and storage of large amounts of information such as a dictionary or encyclopedia.

8. Выберите правильный вариант, исходя из содержания текста.

1. Most CD-ROM drives have … of 150 to 20 ms.
   - length
   - optical discs
   - an access time

2. CD-ROM systems use … .
   - electric current
   - optical technology
   - magnetic fields

3. The data on a CD-ROM … .
   - can not be changed
   - can not be watched
   - can not be looked at

4. MO drives use … to record information.
   - both a photon and an electromagnet
   - both a laser and a needle
   - both a laser and an electromagnet

5. Optical drives are … than hard discs.
   - quicker
   - older
   - slower

6. Do you remember that CD stands for …?

- cash documents
- Civil Defence
- compact disc

9. Перескажите текст "Optical Disks and Drives."

Unit 24

1. Прочитайте и запомните следующие слова и словосочетания:

crucial role – ключевая роль
to differentiate – отмечать
collaboration – сотрудничество
instantaneous – мгновенный
compatriot – соотечественник
humankind – человечество
well – колодец
purpose – цель

2. Переведите следующие слова с отрицательным префиксом un –:

unreal, unprecedented, unlike, unreality, unsocial, unlimited.

3. Переведите следующие слова с окончанием « - ing» как обозначающие процесс:
например, beginning – начало (от «to begin»)

communicating, storing, drawing, broadcasting, spreading, considering, conferencing, presenting, searching, sending, receiving, interacting, using, playing, paying.

4. Определите границы слов в предложениях и переведите их.

1. TherearenobordersfortheInternet.
2. Communicationhasbecomeinstantaneous.
3. TheNetislikebottomlesswell.
4. Whenmindsinteractnewideasemerge.

5. Переведите следующие видовременные формы глаголов:

1. This person	lived
	lives
	will live
	is living
	has lived
	had been living

2. The universities	will provide
	provided
	have provided
	provide
	had been providing
	are providing

6. С какими существительными нужно использовать местоимения *much* и *many*? Распределите по группам.

Efforts, students, information, ideas, time, avenues, people, businesses, work.

7. Прочитайте и переведите текст.

Communication Revolution (part 1)

Since the early times communication played a crucial role in human society. The major characteristic of human society that

differentiates us from animal society is our ability to store and pass information from generation to generation. Our progress continued as we moved from drawings to storytelling, from writing to town criers, from town criers to postmen, from postmen to telegraph, from telegraph to telephone, from telephone to radio, from radio to television, from television to computers. All the previous ways of communication set the stage for the present unprecedented integration of communication capabilities, which we call Internet. Internet revolutionized the communication world like nothing before. It has become a worldwide broadcasting mechanism for spreading the information. It has become a means for interaction and collaboration between individuals and institutions. Communication has become instantaneous. Time and geographical location are no longer boundaries for communication.

If you are a Netizen (Net citizen), you can consider any person on the Net your compatriot. It does not matter where this person lives. In the virtual reality of the Net you live next door to everyone. There are no borders for the Internet. You do not work in Moscow or Los Angeles any more, you work in cyberspace. You can be a part of any chart room or a part of Usenet which is a worldwide public conferencing network that makes it possible for computer users around the world to have public discussion, raise question or problems so they can get help, or send e-mail to reach other practically instantaneously. Social limitations and conventions no longer prevent potential friendships or partnerships.

The presentation of information is not a priority of one agency any more. People can find lots of information in the Net from different sources and this information is presented at different angles. People now have an ability to ask questions, to raise their concerns, to express their observations.

There are hundreds of thousand of users out there, with thousand more coming on every day. The new users are both searching for information and bringing information with them

and, in doing so, they add megabytes of data to the Internet. The Internet is, indeed, a vibrant, living web of interconnecting links crisscrossing the entire globe and providing multiple avenues to information on a scale unprecedented in the history of humankind. Not since the beginning of public libraries have we had such an invitation. Now, it is up to us to use it wisely and well.

Information is treated differently now. It is amazing to see how many different ideas people have and how much these differences contribute to finding the right answer. The Net is like bottomless well - one never knows what one can find there and where there is the end of it. Communication has really become "a creative process". Robert Taloy and J.C.R. Licklider, a prophet of the Net, established several principles of how the computer would play a helpful role in human communication: "We believe that communicators have to do something nontrivial with the information they send and receive. And to interact with the richness of living information-not merely in the passive way that we have become accustomed to using books and libraries, but as active participants in an ongoing process, bringing something to it through our interaction with it, and not simply receiving from it by our connection to it… When minds interact, new ideas emerge. We want to talk about the creative aspect of communication". Every person on the Net can make an intellectual contribution to the global society. It means that access to the Net needs to be universal. It is a long way to go to achieve this goal, but a lot has been done in this direction already.

There exist both public and private services and sources of information. The public and free services often come about through the voluntary efforts of one or a few people. The Net has only developed because of the hard work and voluntary dedication of many people.

In the United States, you can get unlimited number of hours on the Internet playing about $20.00 a month and this cost is definitely going down. The competitiveness of providers is growing and this will drive the monthly connection down.

A lot of people in the United States have free access to the Internet (actually there is no free access to the Net, somebody is always paying for it). The universities provide free access to the Net for their students, professors, staff, etc. Many businesses are also connected and allow their employees to use the Net for business purposes. The so-called "K-12 Net" exists which allow all school teachers in the United States a free use of the Internet from school computers and the teachers in their turn can invite school students to be a part of the online community. Most public libraries now offer free online service through their computers.

The Net follows the best traditions of society and has become a public institution like public library or public education, which is opened to everybody. Cornell University, for example, has an ongoing project to convert 100,000 books, printed over the past century, on the development of American infrastructure-books on bridges, roads, and other public works.

There is another process going on with the Internet- its commercialization.

8. Выберите правильный вариант, исходя из содержания текста.

1. The Internet is … .
   - a collection of networks
   - several computers in several countries
   - a special term for a special project

2. The word Netizen is used to describe … .
   - a person who has a computer
   - a person who uses Internet and its resources
   - a computer programmer

3. There are … of users out there.
   - tens of thousand
   - hundreds of thousand

- many thousand

4. An average monthly fee for the use of the Internet in the US is
…. .
- $10.00
- $20.00
- $30.00

5. This fixed fee allows you to spend on line … .
- 50 hours a month
- 100 hours a month
- unlimited number of hours a month

6. American libraries provide Internet service for … .
- a small change
- free
- $10.00 a month

9. Перескажите текст "*Communication Revolution (part 1)*. "

Unit 25

1. Прочитайте и запомните следующие слова и словосочетания:

to advertise – рекламировать
to market – торговать
opportunities – возможности
warehouses – склады, большие магазины
retail stores – розничные магазины
visionary – зд. мечтательный
to fuel – снабжать
to subscribe – подписываться
browser – браузер

boom – всплеск, бум

2. Переведите следующие наречия, назовите слова, от которых они произошли:

lastly, early, primarily, privately, traditionally, commonly, slightly, scientifically, directly, lately, independently.

3. Переведите следующие словосочетания «существительное + существительное», где первое выступает в роли определения:

communication revolution; research purposes; television industry; audio and video streams; Defense Department; communication network; Science Foundation; Internet growth; "home pages".

4. Сопоставьте следующие пары слов и переведите:

design – to design; attack – to attack; fuel – to fuel; view – to view; turn – to turn; time – to time; force – to force; effect – to effect.

5. Выберите соответствующий перевод:

The Internet		
	grows …	был спроектирован
	advertises …	соединяет
	markets …	обязан своим созданием
	connects …	растет
	was designed …	снабжается
	owes its design …	представляет
	has been fueled …	создан
	has growth …	рекламирует
	represents …	торгует
	created …	растет

6. Составьте пары антонимов и переведите их:

in the early, were destroyed, dependent, increased, much, large, were built, in the late, independent, decreased, little, small.

7. Прочитайте и переведите текст.

Communication Revolution (part 2)

Starting in the early 1980s and continuing to this day, the Internet grew beyond its primarily research purposes to include increased commercial activity. Businesses advertise and market on the Internet. Online catalogs and advertising provide many opportunities, and online shopping is becoming more and more popular. There are lots of companies that are trying to make profit through the Internet.

Businesses are creating their own private network. The Internet can connect warehouses, manufacturing sites, retail stores, and customers easily.

One should not conclude that the Internet has now finished changing. The Internet, although a network in name and geography, is a creature of the computer, not the traditional network of the telephone or television industry. It is now changing to provide such new services as audio and video streams. Videoconferencing is becoming more and more common. The future in the Internet is here already – it is in Internet telephone and, slightly further out, in Internet television.

The Internet was the result of some visionary people in the early 1960s who saw great potential value in allowing computers to share information on research and development in scientific and military fields.

The Internet owes its design to the US Defense Department's ARPANET project of 1969 (the name derives from the Advanced

Research Project Agency, the research group within the Pentagon responsible for the project). The Internet was designed in part to provide a communication network that would work even if some of the sites were destroyed by nuclear attack. If the most direct route was not available, routers would direct traffic around the network via alternate routes.

In the late 1980s the National Science Foundation built five supercomputer centers to give any academic researcher access to high-power computers. The Foundation built its own network to connect the five centers, and individual university network were linked to the closest one. Soon the connections were also being used for purposed such as electronic mail (e-mail), which gave birth to "people to people" communication traffic.

Internet growth has been fueled by individual users. Most of them subscribe to local networks that provide a connection to the wider Internet. Many individuals, as well as business, create their own "home pages" – points of access that allow anyone on the Internet to view and download information. Internet has also growth through the development of the World Wide Web: a collection of thousand of independently owned computers, called Web servers, that are linked worldwide. Using software "browsers" such as Netscape, individuals can enter the Web through local providers or through the large online services and browser or "surf" the Internet. The popularity of the Internet has in turn created a boom in telecommunications services and in new technologies many times faster, such as cable modems, digital subscriber lines, fiberoptics, and wireless.

The Internet represents a force that leaves few areas of our lives unaffected.

8. Выберите правильный вариант, исходя из содержания текста.

1. A lot of companies have their own "home pages" on the Internet … .

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- to see their products
- to provide information and receive it
- to reserve cyberspace

2. Videoconferencing is becoming … .
 - more and more difficult
 - more and more common
 - faster and easier

3. The Internet first started … .
 - as a University research project
 - as a research project within US Defense Department
 - as a project of California computer company

4. The Internet is a creature of … .
 - the computer
 - the designer
 - the tradition

5. The National Science Foundation built five … .
 - Hydro Electric stations
 - Supercomputer centres
 - museums

6. Electronic mail gave birth to … .
 - "people to people" communication traffic
 - work for the postmen
 - new banks

9. Перескажите текст *"Communication Revolution (part 2). "*

Список сокращений

A.D.	anno domini
	(лат.) нашей эры
ALU	arithmetic and logic unit
	арифметико-логическое устройство, АЛУ
ARPANET	Advanced Research Project Agency
	Управление перспективных исследовательских программ (США)
BASIC	Beginners All Purpose Symbolic Instruction Code
	универсальный символический язык для начинающих программистов, БЭЙСИК
B.C.	before Christ
	(лат.) до нашей эры
BBC	British Broadcasting Corporation
	Британская вещательная корпорация, Би-би-си
CAD	Computer-Aided Design
	автоматизированное проектирование, САПР
CAM	Computer-Aided Manufacturing
	автоматизированное производство
CAE	Computer-Aided engineering
	автоматизированный труд инженера
COBOL	Common Business Oriented Language
	алгоритмический язык для экономических и коммерческих задач, КОБОЛ
CPU	Central Processing Unit
	центральный процессор, ЦПУ
e.g.	exempli gratia
	(лат.) например
ft	foot, pl. - feet
	фут ≈30см
FM	frequency modulation
	частотная модуляция (радио), обозначение УКВ – диапазона

FORTRAN	FORmula TRANSlator
	переводчик формул
GB	gigabyte 1,000,000,000
i.e.	id est
	(лат.) то есть
IBM	International Business Machine
	американская международная фирма, выпускающая вычислительное оборудование, Ай Би ЭМ
LASER	Light Amplification by Stimulated Emission of Radiation
	ЛАЗЕР, лазер
MB	megabyte 1,000,000
MS-DOS	Microsoft Disc Operating System
	дисковая операционная система Майкрософт
ms	Millisecond 1/1,000th
MO	Magneto-optical drives
N.J.	New Jersey
	Нью Джерси (штат США)
Pa.	Pennsylvania
	Пенсильвания (штат США)
RCA	Radio Corporation of America
	Американская радиовещательная корпорация, Ар-Си-Эй
PC	Personal Computer
	персональный компьютер
ROM	Read-Only Memory
	постоянное запоминающее устройство, ПЗУ

Ключи к тестам

стр.9
1. Egyptians
2. reed pen
3. Latin
4. geese
5. Argentina
6. the fountain pen

стр.11
1. Egyptians
2. paper and ink
3. pictures and signs
4. slow and expensive
5. flexible
6. triangular

стр.17
1. sparse
2. necessity
3. 15
4. censorship
5. bring good money
6. decades

стр.21
1. cheap
2. burnt down
3. achievement
4. blood
5. lowering
6. spherical

стр.26
1. easy
2. news
3. primitive
4. France
5. Megaphones
6. electricity

стр.30
1. producing light
2. cheaper
3. electricity
4. Alexander Lodygin
5. can't
6. are

стр.33
1. instantly
2. portrait
3. needle
4. code
5. Messages
6. 64 kms

стр.37
1. newspaper
2. cover and binding
3. exciting and entertaining
4. Internet
5. new technologies
6. widespread

стр.41
1. advantages
2. local

3. "Daily Events" (Rome)
4. daily … weekly
5. publish articles
6. hand-made

стр.46
1. the Atlantic Ocean
2. a triode
3. James Clerk Maxwell
4. 1926
5. a system of signs
6. radio

стр.51
1. British
2. an electronic system
3. Baird's system
4. commercial TV
5. dish
6. developments

стр.56
1. metre
2. Nikolai Nikitin
3. high
4. concrete
5. brilliant
6. sixfold

стр.60
1. are computing
2. software
3. the hardware inside the machine expresses arithmetical and logical relations
4. the screen

5. instructions and programs
6. divisions

стр.65
1. Central Processing Unit
2. in the late 1940's
3. an output mechanism
4. performs arithmetic and logic operations
5. a bit-sliced organization
6. the central arithmetic and logic unit

стр.67
1. Jet aircraft
2. "intelligent"
3. Desk
4. connected
5. microwave ovens, food blenders and so on
6. numerous

стр.73
1. small
2. as low as possible
3. four
4. languages
5. handle
6. necessary basic skill

стр.78
1. sophisticated
2. designing circuits
3. animation
4. the basic geometric shapes
5. collection of tools in a package
6. formulas

стр.83
1. software and hardware device
2. will become more vital
3. No one
4. house of cards
5. a balance
6. new mathematics

стр.88
1. transmitting
2. past
3. a voice waveform
4. chemical processes
5. linear filter
6. practical communication systems

стр.95
1. glass
2. information
3. used
4. Laser
5. transmitters
6. local users

стр.99
1. alien spacemen
2. is one of the well-known British programmers
3. of your international football team
4. they don't know what to do without instructions
5. It is a list of commands
6. the hundreds of little dots, called pixels

стр.104
1. world's largest computer software company
2. computers

3. university
4. ambitious and hard-working
5. charity
6. the icon of American business

стр.108
1. an access time
2. optical technology
3. can not be changed
4. both a laser and an electromagnet
5. slower
6. compact disc

стр.113
1. a special term for a special project
2. a person who uses Internet and its resources
3. hundreds of thousand
4. $20.00
5. unlimited number of hours a month
6. free

стр.117
1. to provide information and receive it
2. more and more common
3. as a research project within US Defense Department
4. computer
5. supercomputer centres
6. "people to people" communication traffic

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