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АНГЛИЙСКИЙ ЯЗЫК

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PART I

I. Read and try to memorize the following words. Make up sentences using these words.

sociability	общительность	inactivity	пассивность
kind-heartedness	отзывчивость	carelessness	беспечность
courtesy	вежливость	disorderliness	неорганизованность
arrogance	высокомерие	self-esteem	самооценка
rudeness	грубость	self-criticism	самокритичность
discourtesy	хамство	modesty	скромность
hard worker	трудолюбие	impudence	наглость
responsibility	ответственность	resentment	обидчивость
perseverance	настойчивость	shyness	застенчивость
dishonesty	недобросовестность	selfishness	эгоизм

II. Read and translate the following information in Russian.

A character is a word of Greek origin and literally means a sign, a distinguishing feature. It defines features of the behavior of an individual and his or her relationship with others. Its traits determine patterns of behavior and a way of life of a human being.

Psychologists divide traits of human nature into four groups:

Relation to others:

positive traits: sociability, kind-heartedness, attention, courtesy, respect;

negative traits: morose manners, arrogance, rudeness, discourtesy, disdain;

Attitude to work, to objectives and goals:

positive traits: hard worker, a taste for creativity, scrupulousness, responsibility, entrepreneurial attitude, perseverance;

negative traits: laziness, propensity for routine work, dishonesty, irresponsibility, inactivity, carelessness, disorderliness;

Attitude to oneself:

positive traits: self-esteem, adequate pride and self-criticism, modesty, respect for the individual self;

negative traits: self-conceit, impudence, vanity, resentment, shyness, self-absorption, selfishness, arrogance, self-humiliation;

Attitude to things:

positive traits: accuracy, gentle handling of things;

negative traits: carelessness, negligence.

Two groups of human nature: the attitude of an individual to colleagues and the people around him or her and the attitude to work - are the central, or core, relationship of an individual. These two groups, being the central relationship, play an important role in the up-bringing of a person and the formation of his or her line of behavior.

Psychologists agree that it is impossible to overcome some deformity of nature and foster necessary positive qualities. In other words, you can not only generate a certain trait (quality), you can just bring up the whole system of traits (qualities), paying particular attention, first of all, to the formation of relationships to people (staff) and work. Despite the assertion of the existence of the central group of relationships, it is important to note, that there are people with a more holistic and less holistic or contradictory character.

III. Describe the following traits of character. Do you possess them? Responsibility, tolerance, honesty, decisiveness, kindness, friendliness, optimism, generosity, envy, intemperance, pessimism, touchiness, aggression, slyness.

IV. Describe your character in some sentences.

V. Answer the following questions. 1. Do you have a lot of friends? Is it easy for you to make friends? 2. Can you say that you're the responsible person? Why do you think so? 3. Is it possible to say that you're the honest person? Are there any situations when you have to lie? 4. Are you the emotional person? In what cases do you have to hide your emotions? 5. Do you have a sense of humor? What do you prefer – to joke or to laugh at somebody's jokes? 6. Are you the decisive person? Can you prove it? 7. Are you the tolerant person? Are there any persons who irritate you? 8. Is it easy to hurt your feelings? What makes you think so? 9. Are there any traits of character that you hate? What are they? 10. What traits of character do you want to develop in yourself? Why? 11. Do you often have quarrels with people? Why? 12. Are you the talkative person? Is it difficult for you to talk to the unknown people? 13. Are you the jealous person? What makes you think so? 14. Do you often envy other people? What can provoke your envy?

VI. Make up the story about yourself.

PART II

I. Read and try to memorize the following words.

education	образование	to remain	оставаться
industrial	промышленный	Embankment	набережная
ancient	древний	city habitant	житель города
to be founded	быть основанным	to grow	расти
to be situated	находиться	population	население
bank of the river	берег реки	to offer	предлагать
district	район	a wide range of	широкий спектр
many-storied	многоэтажный	development	развитие
apartment house	жилой дом	mechanical engineering	
block of flats	жилой дом		машиностроение
recreation areas	места отдыха	coal mining	добыча угля

enterprise	предприятие	plants and factories	заводы
thanks to	благодаря чему-л.		и фабрики
construction	строительство	flower bed	клумба
		within urban limits	в пределах

II. Compose two-three sentences using as many words from the previous exercise as possible.

III. Read and translate the following text in Russian.

My native town is Kemerovo. Kemerovo is an administrative, cultural, educational and industrial center of Kuzbass, located in the south of Western Siberia. It's not an ancient town. It was founded in 1918. First its name was Shcheglovsk and then it was renamed in Kemerovo in 1924.

The town of Kemerovo is situated on the river Tom. The river divides it into two parts. The older part of the town lies on the right bank of the river. Here you can see some old buildings and historical part of the city. There is also the museum «Krasnaya Gorka», where you can learn a lot of interesting facts about first settlers of the city.

But there are also new districts on the right bank of the river consisting of modern many-storied apartment houses, commercial centers and recreation facilities. Every year hundreds of Kemerovites move to live in these huge blocks of flats.

On the left bank of the river Tom some newer districts are situated. Nevertheless, here you one can also find some old buildings. The whole architectural complex called “the old center” remains almost untouched since the middle of the last century. There is the beautiful Embankment, where the city habitants and our guests like to walk in summer. In this district all city administration buildings are also situated.

Kemerovo is growing town. Now its population is a little bit more than 500 thousand people. But a lot of student coming to study in Kemerovo contribute to its permanent growth. Kemerovo is one of the main educational centers of Western Siberia. There is a lot of higher education institution offering a wide range of educational programs to the young people from different Siberian regions.

Among those there is Kuzbass Technical University, which is the largest education center of Kuzbass. There are also Kemerovo State University, Institute of Food Industry, University of Arts and Culture, Medical Institute, University of Trade and Commerce and many other educational institutions.

Kemerovo is also the industrial city. In the past its industrial development was determined by coal mining and mechanical engineering plants. Now there are no mining enterprises but thanks to the development of chemical, fertilizer, construction and some other plants and factories it still remains the important industrial centers.

There are a lot of recreation areas in the town. Kemerovo is well known for its green parks where people of all ages can find everything for their leisure activities. There are many trees and flower beds along the streets and it's very pleasant to walk around the town, especially in summer.

Kemerovo is the cultural capital of the region. Here one can visit Drama Theatre, Philharmonic Society, Puppet Theatre, some smaller theatres among which there are the students' theatres "Lozha" and "Vstrecha". The best artists from all over the world often come to our city and we can enjoy their performances. There are also some modern cinema halls and the circus in our city.

My town is noted for its unique piny wood situated within urban limits. It gives us the all the year round possibility to go there for a walk or picnics. There you can see many skiers in winter. I like my city very much and I'm sure that I will come here as often as possible even if I will leave it in future.

IV. Answer the following questions. 1. What is your native town? 2. Is your native town ancient or modern? 3. Do you know the history of your native town? 4. Where is your native town situated? 5. Which river runs through your city? 6. What is your town famous for? 7. Are there any architectural monuments in your town? What are they? 8. Are there any museums in your town? Have you visited them? 9. What places of your city are popular among the citizens? 10. What famous people lived in your town? 11. Which is the main street in your city? Who is it named after? 12. Are there any Universities in your town? What are they? 13. Do you often visit theaters? Why? 14. Are there any industrial enterprises in your town? 15. What goods are produced in your town? 16. What can you say about cultural life of your town? 17. How do people of your town spend their leisure time? 18. Are you proud of your town? Why?

V. Process the information given in the text in the following way:

- a) divide the text into some parts according to its content;
- b) write out a number of key-words to each part of the text;
- c) retell each part using the key-words;
- d) determine the main idea of the text;
- e) retell the text in 10-12 sentences.

VI. Compose the story about your own native city.

PART III

I. Read and try to memorize the following words.

to stretch	протягивать	furniture	мебель
to include	включать в себя	origin	происхождение
to border	граничить	according to	в соответствии с
lowland	низменность	power	власть
to vary	изменяться	to be divided into	делиться на
along	вдоль	to head	возглавлять
copper	медь	judicial	судебный
aircraft	авиатехника	hardly	едва, вряд ли
armaments	вооружение	environment	окружающая среда

moist	влажный	to devoid	свободный от чего-л.
arid	засушливый	unlike	в отличие от
rugged		indigenous	местный
	труднопроходимый	immense	огромный
flat	плоский	sustained	непрерывный
population density	плотность	despite	несмотря на
	населения	barely	всего лишь
relatively	относительно		

II. Compose two-three sentences using as many words from the previous exercise as possible.

III. Read and translate the following text in Russian.

The United States of America is the fourth largest country in the world (after Russia, Canada and China). It occupies the southern part of North America and stretches from the Pacific to the Atlantic Ocean. It also includes Alaska in the north and Hawaii in the Pacific Ocean.

The total area of the country is about nine and a half million square kilometers. The USA borders on Canada in the north and on Mexico in the south. It also has a sea-border with Russia. The USA is made up of 50 states and the District of Columbia, a special federal Area where the capital of the country, Washington, is situated. The population of the country is more than 270 million.

If we look at the map of the USA, we can see lowlands and mountains. The highest mountains are the Rocky Mountains, the Cordillera and the Sierra Nevada. The highest peak is Mount McKinley which is located in Alaska. America's largest rivers are the Mississippi, the Missouri, the Rio Grande and the Columbia. The Great Lakes on the border with Canada are the largest and deepest in the USA.

The climate of the country varies greatly. The coldest regions are in the north. The climate of Alaska is arctic. The climate of the central part is continental. The south has a subtropical climate. Hot winds blowing from the Gulf of Mexico often bring typhoons. The climate along the Pacific coast is much warmer than that of the Atlantic coast.

The USA is a highly developed industrial country. It's the world's leading producer of copper and oil and the world's second producer of iron ore and coal. Among the most important manufacturing industries are aircraft, cars, textiles, radio and television sets, armaments, furniture and paper.

Though mainly European and African in origin, Americans are made up from nearly all races and nations, including native Americans. The largest cities are: New York, Los Angeles, Chicago, Philadelphia, Detroit, San-Francisco, Washington and others.

The United States is a federal union of 50 states, each of which has its own government. The seat of the central (federal) government is Washington, DC. According to the US Constitution the powers of the government are divided into 3

branches: the executive, headed by the President, the legislative, exercised by the Congress, and the judicial.

The Congress consists of the Senate and the House of Representatives. There are two main political parties in the USA: the Republican and the Democratic, though there's hardly any difference between their political lines.

The major characteristic of the United States is probably its great variety. Its physical environment ranges from the Arctic to the subtropical, from the moist rain forest to the arid desert, from the rugged mountain peak to the flat prairie. Although the total population of the United States is large by world standards, its overall population density is relatively low; the country has some of the world's largest urban concentrations as well as some of the most extensive areas that are almost devoid of habitation.

The United States contains a highly diverse population; but, unlike a country such as China that largely incorporated indigenous peoples, its diversity has to a great degree come from an immense and sustained global immigration. Probably no other country has a wider range of racial, ethnic and cultural types than does the United States.

The exports and imports of the United represent major proportions of the world total. The United States also influences the global economy as a source and as a destination for investment capital. The country continues to sustain an economic life that is more diversified than any other on Earth, providing the majority of its people with one of the world's highest standards of living.

The United States is relatively young by world standards, being barely more than 200 years old. America was the first of the European colonies to separate successfully from its motherland, and it was the first nation to be established on the premise that sovereignty rests with its citizens and not with the government.

IV. Answer the following questions. 1. What is the place of the USA among the largest countries? 2. What is the total area of the USA? 3. What countries does the USA border on? 4. How many states are there in the USA? 5. Are there any great mountains in the USA? What are they? 6. Are there any large rivers and lakes in the USA? What are they? 7. Describe the climate of the USA. 8. Does the climate of the USA vary greatly in its different parts? 9. What are the most important manufacturing industries of the USA? 10. What are the largest cities of the USA? 11. How many branches are the powers of the USA government divided in? 12. What are the main political parties in the USA? 13. Is the overall population density high in the USA? 14. In what way does the USA economy influence the world trade?

V. Give the summary of the text using key words and language clichés: it is reported about the development of (the improvement of, the experiment in the field of, the results of, a new design of, the characteristics of); details of design (technology, process) are given; it is told in details about; a brief description of ... is given; it is told in short about; special (much) attention is given (is paid) to; it is specially noted that; some facts (figures, terms, characteristics) are given.

PART IV

I. Translate the words and memorize them.

have relations with	named after
be founded	transform
construction	mining
teaching staff	department
branch	scientific
environmental protection	water purification
mineral deposit	industrial safety
training	physics
design	applied
research	chemistry

II. Translate the following word-chains. Mind word-formation: technique – technical – technician, mine – miner – mining, academy – academic – academician, construct – constructor – construction – reconstruction, mechanic – mechanical – electromechanical – mechanism, counsel – counselor – counseling, train – trainer – trainee – training, certify – certificate – certification, teach – teacher – teaching, purify – purification, apply – applied – application – applicant, transmit – transmitter – transmission, perform – performer – performance, name – rename, educate – education, provide – provider – provision

III. Read the text and answer the following questions: When was the university founded? What was its name at that time? How many faculties did it have at that time? What were they? When did its first academic year start? How big was the teaching staff at first? What happened in 1965? When was the Mining Institute renamed into the university? Which higher institutions has the university got international relations with? What licenses has the university got?

T.F. Gorbachev Kuzbass state technical university in short was founded on August 30, 1950 as Mining Institute on the basis of Kemerovo mining and construction technical school. The first 300 students came from Moscow. The first academic year started on the 1st of November. There were only two faculties: mining and mine construction and electromechanical. At that time there were 14 departments and 27 members of the teaching staff (only 6 of them had academic degrees).

In 1965 the Mining Institute was transformed into Kuzbass Polytechnic Institute.

In November 1993 it was renamed into Kuzbass State Technical University.

It 2011 it was named after its first rector – the Doctor of Sci. Tech., professors, the Hero of the Soviet Union, Timofey Fedorovich Gorbachev.

In 1997 the university opened training and counseling centers in the cities of Anzhero-Sudzhensk, Belovo, Mezhdurechensk, Novokuznetsk, Prokopyevsk and

Tashtagol. In 1998 training and counseling centers were transformed to branches of KuzSTU. There are four branches now – Belovo, Mezhdurechensk, Novokuznetsk, and Prokopyevsk.

Kuzbass state technical university has international relations with higher education institutions and the companies in the USA, Germany, Holland, Sweden, Great Britain, China, Mongolia and neighboring countries.

The university has got several research laboratories: applied thermo physics, improvement of ways of development of coal fields, environmental protection, processes and devices of water purification, geodynamic division into mineral deposits.

The university has licenses for design of buildings and constructions, for expertise of industrial safety, for performance of geodetic works, for development of standards of emissions of the polluting substances in environment, for providing telematic services and services of data transmission.

Today KuzSTU is one of the largest higher education institutions of Siberia. The history of KuzSTU is closely connected with history of Kuzbass and is one of its symbols.

IV. Find English equivalents in the text.

- | | |
|-----------------------------|------------------------------------|
| 1. был основан | 13. учреждение высшего образования |
| 2. государственный | 14. соседние страны |
| 3. на основе | 15. угольные месторождения |
| 4. горный техникум | 16. исследовательские лаборатории |
| 5. назван в честь | 17. улучшение способов разработки |
| 6. учебный год | 18. защита окружающей среды |
| 7. строительство шахт | 19. проектирование зданий |
| 8. кафедра | 20. приборы для очистки воды |
| 9. был преобразован | 21. передача данных |
| 10. был переименован | 22. залежи полезных ископаемых |
| 11. филиалы | 23. тесно связан |
| 12. международные отношения | |

V. Read the text and fill in the gaps. Use the information from the site of KuzSTU.

KuzSTU it is the largest higher educational institution in the region. The University has imposing personnel's potential. There are 684 instructors in it. 1 ___ academicians and associate members, State prize and Russia's Government prize laureates, Honored Scientists are among the professors of the university and. Some leading specialists of various branches of industry work at the University. At present there are 2 ___ institutes, 3 ___ faculties and 52 departments, many well-equipped laboratories, a research institute, a computer centre, a large library and 2 museums in it. The training for 4 ___ specialties is carried out. Some towns and cities of Kemerovo region have branches of the University. The total amount of

students is 5 ____. Full-time students are 6 ____, students by correspondence are 7 ____ and post-graduates are 8 ____. There is a post-graduate course for 9 ____ specialties. People working for a doctor's degree and post-graduates can present their thesis for the Scientific Board of the University. The total amount of graduates is about 52,000 engineers. There are Heroes of Socialist Labor, the heads of regional, municipal administrations, representatives of different Ministries and Departments, academicians and associate members of various Academies among them. They work in all regions of the Russian Federation. But they have made the most valuable contribution in the development of the main branches of industry in Kuzbass.

Kuzbass State Technical University has 8 buildings with total area of 102578 m, 10 ____ hostels (one is for family students), geodesic base and skiing lodge, 11 ____ dining-halls, a dispensary, a polyclinic, recreation facilities. The University has necessary technical devices for computer training of students. There are more than 700 PCs and 220 terminals of total use system. The University has access to the Internet.

The size of the book stock of the University's library is more than 500,000 copies (including 250,000 copies of study aids and 270,000 ones of research literature). The University has international connections with higher educational institutions and firms in different countries. The best students have a chance to study abroad. Great attention is paid to the spare time of students. There is a theatre-studio «Lodge» and some other amateur groups. The University is famous for its sportsmen. It also has the scientific newspaper «Vestnik» where instructors and students can publish the results of their research work in it.

In 1994 the Trustee Council was formed which consists of many enterprises and firms of the region.

VI. Find English equivalents in the text

- | | |
|--------------------------------------|----------------------------------|
| 1. кадровый потенциал | 10. проводится, осуществляется |
| 2. государственная премия | 11. студенты, обучающиеся заочно |
| 3. почетный ученый | 12. аспиранты |
| 4. различные отрасли промышленности | 13. диссертация |
| 5. в настоящее время | 14. выпускники |
| 6. кафедра | 15. ценный вклад |
| 7. научно-исследовательский институт | 16. размер библиотечного фонда |
| 8. хорошо оборудованные лаборатории | 17. базы отдыха |
| 9. студенты очной формы обучения | 18. учиться за границей |
| | 19. совет попечителей |
| | 20. научная газета |
| | 21. предприятие |

PART V

I. Read and try to memorize the following words.

to embrace	охватывать	to pollute	загрязнять
path	путь, маршрут	dangerous	опасный
available	доступный	to allow	позволять
accurate	точный	to grow	расти
approximately	приблизительно	reliable	надёжный
router	маршрутизатор	expensive	дорогой
to intercept	перехватить	to save money	экономить
to encode	кодировать	to increase	увеличивать
to crack	взломать	constantly	постоянно
to design	проектировать	amount	объём

II. Compose two-three sentences using as many words from the previous exercise as possible.

III. Read and translate the following text in Russian.

1. The Internet has already entered our ordinary life. Everybody knows that the Internet is a global computer network, which embraces hundreds of millions of users all over the world and helps us to communicate with each other.

2. The history of Internet began in the United States in 1969. It was a military experiment, designed to help to survive during a nuclear war, when everything around might be polluted by radiation and it would be dangerous to get out for any living being to get some information to anywhere.

3. Information sent over the Internet takes the shortest and safest path available from one computer to another. Because of this, any two computers on the net will be able to stay in touch with each other as long as there is a single route between them. This technology was called packet switching.

4. Invention of modems, special devices allowing your computer to send the information through the telephone line, has opened doors to the Internet for millions of people.

5. Most of the Internet host computers are in the United States of America. It is clear that the accurate number of users can be counted fairly approximately, nobody knows exactly how many people use the Internet today, because there are hundred of millions of users and their number is growing.

6. Nowadays the most popular Internet service is e-mail. Most of the people use the network only for sending and receiving e-mail messages. They can do it either they are at home or in the internet clubs or at work. Other popular services are available on the Internet too. It is reading news, available on some dedicated news servers, telnet, FTP servers, etc.

7. In many countries, the Internet could provide businessmen with a reliable, alternative to the expensive and unreliable telecommunications systems its own

system of communications. Commercial users can communicate cheaply over the Internet with the rest of the world.

8. When they send e-mail messages, they only have to pay for phone calls to their local service providers, not for international calls around the world, when you pay a good deal of money.

9. But saving money is only the first step and not the last one. There is a commercial use of this network and it is drastically increasing. Now you can work through the internet, gambling and playing through the net.

10. However, there are some problems. The most important problem is security. When you send an e-mail, your message can travel through many different networks and computers. The data is constantly being directed towards its destination by special computers called routers.

11. Because of this, it is possible to get into any of the computers along the route, intercept and even change the data being sent over the Internet. But there are many encoding programs available. Notwith-standing, these programs are not perfect and can easily be cracked.

12. Another big and serious problem of the net is control. Yes, there is no effective control in the Internet, because a huge amount of information circulating through the net. It is like a tremendous library and market together. In the future, the situation might change, but now we have what we have. It could be expressed in two words – an anarchist's dream.

IV. Translate the text and present the main information of every passage in one sentence in one sentence.

V. Answer the following questions. 1. What social network do you prefer? Why do you like it? 2. Do you have your favorite sites? What are they? 3. Do you download music from the Internet? Do you pay for it? 4. Do you like watching the movies on-line or prefer to go to the cinema? Why? 5. Does the Internet help you in your studies? In what way? 6. Can you imagine your life without the Internet? Why? 7. Do you visit foreign sites? Why? 8. How many hours do you spend surfing the Internet? How do you think is it much? 9. Do you use the social networks every day? Why? 10. Can the Internet be dangerous? For whom? 11. Do you play online games? Why? 12. Do you get acquainted with people through the Internet? Why? 13. Have you ever been the victim of hacking? 14. Don't you afraid that somebody can use your personal information for some bad purpose? Do you try to defend yourself? 15. Do you buy anything through the Internet? Why?

VI. Imagine you life without the Internet? In what way would your life be changed concerning the following things: reading, listening to the music, watching the movies, playing the computer games, meeting with the friends, sports, studies, free time, sleeping, eating, visiting the library, organizing your time, communication, learning news, spending money.

PART VI

I. Read and try to memorize the following words.

to appear	появляться	disaster	беда, катастрофа
to spread	распространяться	fibers	волокна
invention	изобретение	achievement	достижение
to grow	расти	weapon	оружие
to return	возвращаться	to cure	лечить
vacuum cleaner	пылесос	to investigate	исследовать
hardly	едва, с трудом	disease	болезнь
wage	зарплата		

II. Compose two-three sentences using as many words from the previous exercise as possible.

III. Read and translate the following text in Russian.

As the years go forward our life becomes faster, a lot of new things appear, our mind develops and it cannot stop. It's like a strong river which never ends to run and it is rapidly spreading all over the earth. Many centuries ago people even couldn't imagine that we will be able to exchange information using telephone, fax, Internet as long as they couldn't think that there are a lot of planets except our earth and that people can fly there.

If we think how had everything developed, how many new things had appeared and how had the minds of people become so wide we even won't be able to understand it because nowadays we cannot imagine our life without such inventions like lamps, ovens, central heating and others.

During the centuries people have been invented the things to make our life easier. A great invention such as transport plays one of the most important roles in our life. We live in flats, can appear in different point of earth within a day, can say hello to people who live in another point of the world. All those things are a product of technical progress and it doesn't stop to grow and develop.

Nowadays we live surrounded by machines and other inventions. And with new inventions we become happier because nearly everything is making by machine not by ourselves. And from day to day appear more and more new things. And we don't think about how the first inventions were created.

The only thing we know that we never will return to the life which people lived a lot of centuries ago because there is no way back. Everything is handy. We use at home vacuum cleaners to clean the flat, ovens to cook, lifts to walk down in our houses, lamps to make our flats light.... There are a lot of such things like this, and we even don't think about when and where and who invented it. And it's so simple to us.

Our century is a century of developing informational connection. One of the greatest inventions of the century is computer. It's the coup in the technology. When

Charles Babbage (1792–1871), a professor of mathematics at Cambridge University invented the first calculating machine in 1812 he could hardly have imagined the situation we find ourselves today.

Computer becomes like a brain of human but the only thing it cannot do is to feel. The other things are easy to it. As everything computers also develop. The possibilities of it are so wide. It can do more than 500000 sums in a fraction of a second. Programming became one of the most useful and popular profession. Nowadays computers can pay wages, reserve seats on planes, control sputniks, compose music.

It is science that does us good or does it bring disaster? To answer the question whether science does us good or does it brings disaster isn't a simple task. We should take into consideration many facts. On the one hand a lot of outstanding discoveries made the life of the people more comfortable and pleasant. Without scientific discoveries and inventions no progress would be possible.

Thanks to discovery of electricity we can listen to the radio, watch TV, see films, people learned how to produce steel and metal alloys – now we use railways and airplanes. Development of chemistry led to new synthetic fibers and people got more clothing and food. People learned to use scientific achievements in curing incurable earlier diseases.

But on the other hand such outstanding discoveries of the 20th century as atom fission led to creation of the weapons of mass destruction. We should say that science has a potential for both good and evil. Medical men use laser to cure and investigate diseases and the same time laser can be used for destruction.

Achievements of biology and chemistry are also used to cause damage to people. All this shows that science can take good forms and evil forms. What form does it take depends on the way people work with science. It is impossible to stop progress, to stop people to investigate and explore the world.

But people should care it wouldn't be led in wrong direction. Scientists need you thinking in a new much broader way than before. In this respect the education and cultural level are of great importance. They have to influence politicians, warn them of possible effects of using new discoveries. Scientists and politicians think that it's their responsibility for not using scientific developments to cause damage and destruction. There is a lot of work to be done in this direction.

IV. Write the annotation to the text. Follow the guidelines.

a) Formulate the theme of information from the text using the following clichés: the text deals with (touches upon, is devoted to, describes), the main idea of the texts is to show (to analyze, to describe). Determine the sphere of knowledge this information belongs to.

b) Process the information given in the text in the following way:

- a) divide the text into some parts according to its content;
- b) write out a number of key-words to each part of the text;
- c) retell each part using the key-words;

- d) determine the main idea of the text;
- e) retell the text in 10–12 sentences.

c) Give the summary of each paragraph using key words and language clichés: it is reported about the development of (the improvement of, the experiment in the field of, the results of, a new design of, the characteristics of); details of design (technology, process) are given; it is told in details about; a brief description of ... is given; it is told in short about; special (much) attention is given (is paid) to; it is specially noted that; some facts (figures, terms, characteristics) are given.

d) Present your annotation of the text according to the following structure.

1. Sphere of knowledge this information belongs to.
2. The theme of the text.
3. Summary of the text.

V. Quiz: Science and technology.

1. All radioactivity is man-made. Is this statement true or false?
2. Electrons are smaller than atoms. Is this statement true or false?
3. Lasers work by focusing sound waves. Is this statement true or false?
4. The continents on which we live have been moving their location for millions of years and will continue to move in the future. Is this statement true or false?
5. Which one of the following types of solar radiation does sunscreen protect the skin from? (X-rays, Infrared, Ultraviolet, Microwaves)
6. Does nanotechnology deal with things that are extremely... (small, large, cold, hot).
7. Which gas makes up most of the Earth's atmosphere? (hydrogen, nitrogen, carbon dioxide, oxygen).
8. What is the main function of red blood cells? (Fight disease in the body, Carry oxygen to all parts of the body, Help the blood to clot)
9. Which of these is a major concern about the overuse of antibiotics? (It can lead to antibiotic-resistant bacteria. Antibiotics are very expensive. People will become addicted to antibiotics)
10. Which is an example of a chemical reaction? (Water boiling, Sugar dissolving, Nails rusting)
11. Which is the better way to determine whether a new drug is effective in treating a disease? If a scientist has a group of 1,000 volunteers with the disease to study, should she... (Give the drug to all of them and see how many get better. Give the drug to half of them but not to the other half, and compare how many in each group get better)
12. What gas do most scientists believe causes temperatures in the atmosphere to rise? (Carbon dioxide, Hydrogen, helium, radon)
13. Which natural resource is extracted in a process known as «fracking»? (Coal, Diamonds, Natural gas, Silicon)

PART VII

I. Remember the following words and word combinations

environment	окружающая среда
ecology	экология
abundance	изобилие, избыток
climate	климат
adaptation	приспособление
habitat	родина, ареал, место обитания
emit	выделять, испускать
population	население, популяция
scarce	недостаточный, редкий
generation	поколение, род
soil	почва
species	вид, порода, разновидность
lineage	происхождение, потомство
trait	черта, особенность
ecosystem	экосистема

II. Translate the following word chains. Mind the word-formation: nature – natural, ecology – ecological, environment – environmental – environmentally – environmentalism, consume – consumer – consumption, produce – producer – production, generate – generation – generator, pollute – polluter – pollution – pollutant, science – scientific – scientist, adapt – adaptation – adaptive – adaptively, evolve – evolution – evolutionary, vary – variable – variability

III. Read the text and answer the questions: 1. What is the origin of the word «ecology»? 2. Who recorded the first observations and notes on the natural history of plants and animals? 3. Who introduced the evolutionary treatise? 4. What problems do ecologists deal with? 5. What applications of ecology do you know? 6. What sciences is ecology closely related to?

Ecology (from Greek: οἶκος, «house»; -λογία, «study of») is the scientific study of the relations that living organisms have with respect to each other and their natural environment. Variables of interest to ecologists include the composition, distribution, amount (biomass), number, and changing states of organisms within and among ecosystems.

Ecosystems are sustained by the biodiversity within them. Biodiversity is the full-scale of life and its processes, including genes, species and ecosystems forming lineages that integrate into a complex and regenerative spatial arrangement of types, forms, and interactions.

Ecosystems create biophysical feedback mechanisms between living (biotic) and nonliving (abiotic) components of the planet. These feedback loops (цепь обратной связи) regulate and sustain local communities, continental climate

systems, and global biogeochemical cycles.

Ecology is a sub-discipline of biology, the study of life. The word «ecology» was coined in 1866 by the German scientist Ernst Haeckel (1834–1919). Ancient philosophers of Greece, including Hippocrates and Aristotle, were among the earliest to record observations and notes on the natural history of plants and animals. Modern ecology branched out of natural history and matured into a more rigorous science in the late 19th century. Charles Darwin's evolutionary treatise including the concept of adaptation, as it was introduced in 1859. Ecology is not synonymous with environment, environmentalism, natural history or environmental science.

Ecologists seek to explain:

- Life processes and adaptations
- Distribution and abundance of organisms
- The movement of materials and energy through living communities
- The succession development of ecosystems, and
- The abundance and distribution of biodiversity in context of the environment.

Ecology is a human science as well. There are many practical applications of ecology in conservation biology, wetland management, natural resource management (agriculture, forestry, fisheries), city planning (urban ecology), community health, economics, basic and applied science and human social interaction (human ecology).

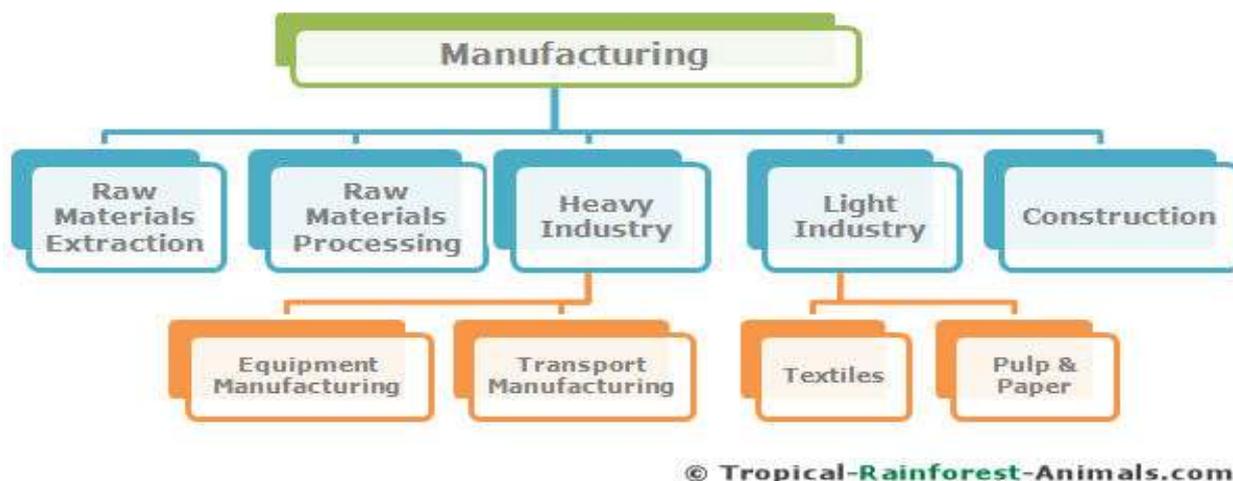
IV. Match the words with their definitions.

- | | |
|------------------------------------|--|
| 1. ecology | a. is the principle that when two species compete for the same critical resources within an environment, one of them will eventually outcompete and displace the other. |
| 2. habitat | b. is climate, weather, and natural resources that affect human survival and economic activity. |
| 3. plant | c. is the natural environment of an organism; place that is natural for the life and growth of an organism. |
| 4. competitive exclusion principle | d. is a system, or a group of interconnected elements, formed by the interaction of a community of organisms with their environment. |
| 5. natural environment | e. is living organisms belonging to the kingdom Plantae |
| 6. ecosystem | f. is a class of individuals having some common characteristics or qualities; distinct sort or kind. |
| 7. species | g. is the scientific study of the relations that living organisms have with respect to each other and their natural environment |
| 8. climate | h. the composite or generally prevailing weather conditions of a region, as temperature, air pressure, humidity, precipitation, sunshine, cloudiness, and winds, throughout the year, averaged over a series of years. |

V. Read the text and find English equivalents to the following words and word-combinations.

- | | |
|---------------------------|--------------------------------|
| 1. грязные пары | 9. разлагаться |
| 2. тяжелая промышленность | 10. добыча полезных ископаемых |
| 3. энергетика | 11. строительство |
| 4. ископаемое топливо | 12. парниковые газы |
| 5. вредные газы | 13. переработка сырья |
| 6. отходы | 14. источник |
| 7. удобрения | 15. древесина |
| 8. вырубка лесов | |

Sources of Pollution



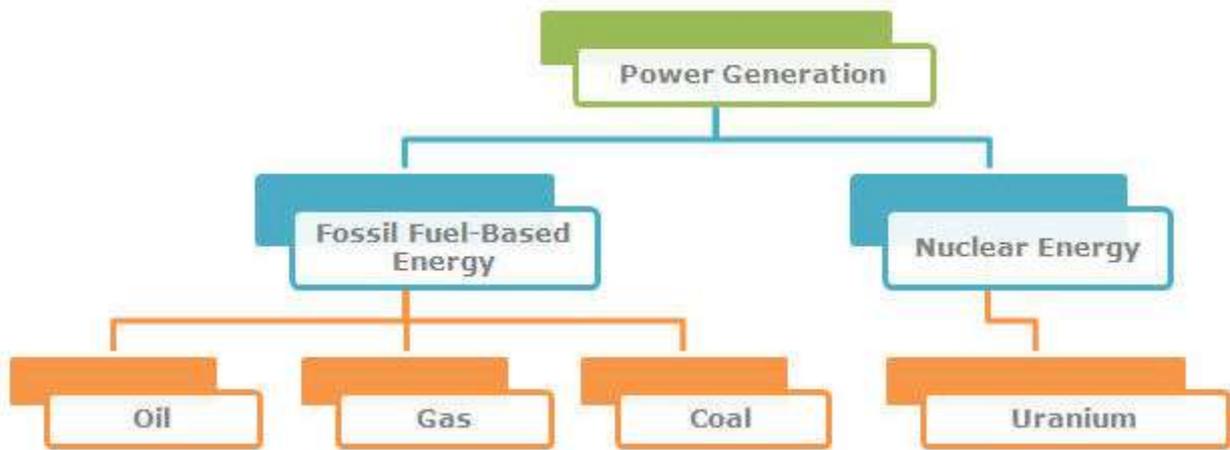
When we think of pollution, the first thing that naturally comes to mind is manufacturing. And that is no surprise. Images of enormous chimneys emitting heavy dirty fumes into the air are very powerful indeed, and are directly associated with pollution. Manufacturing includes numerous industries which are in fact sources of all types of pollution – air, land and water.

So each of these sectors including their own sub-sectors is a source of pollution: raw materials extraction, raw materials processing, heavy industry, light industry, construction.

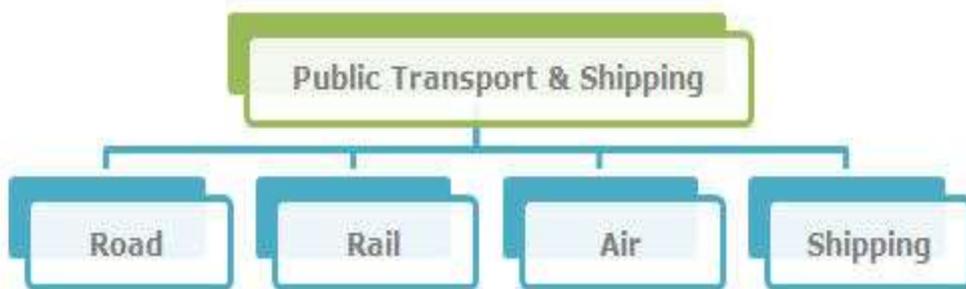
Power generation is another huge source of pollution which is nowadays associated with smoky chimneys even more than manufacturing.

The classical example here is the burning of fossil fuels to generate power. Carbon dioxide and other harmful gases are emitted in the process and cause serious ecological damage for many years to come.

Nuclear power is far from being a clean source of energy. The toxic radioactive waste produced as a result of its generation takes thousands of years to decompose and become harmless. So don't fall for the lie of looking at nuclear as a «green» source of energy just because it doesn't emit greenhouse gases into the atmosphere.

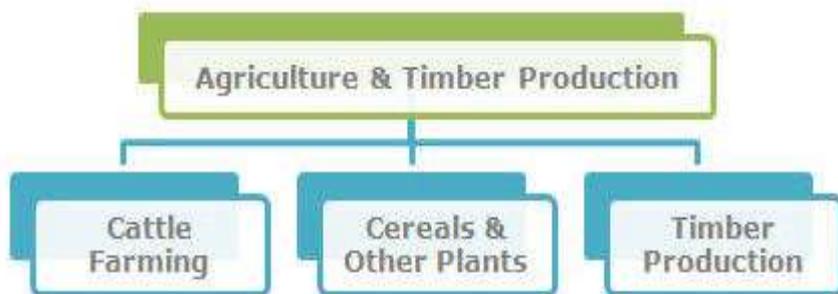


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Public transport & shipping are also significant contributors to global pollution levels. All of them use fossil fuels for operation. Rail transport is probably the cleanest of all the types, and air transport is assumed to be one of the least efficient ones.



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The public often doesn't realize just how significant a source of pollution agriculture & timber production have become.

Livestock farming uses vast amounts of resources and produces a lot of waste. Harmful fertilizers are widely used to grow cereals and other plants – such chemicals affect negatively the wider environment as well as human health.

Timber production is a major cause of global deforestation which releases carbon dioxide into the atmosphere.

VI Answer the following questions to the text: 1. What are the main industrial sources of pollution? 2. How does power generation contribute to environmental pollution? 3. Why can't nuclear power be considered «green»? 4. Why are public transport and shipping also significant contributors to global pollution? 5. Which types of transport can be probably assumed the cleanest of all, and the least efficient ones? 6. What damage does agriculture cause? 7. What is a major cause of global deforestation? Why?

VII. Read the text and write out the problems caused by consumption. Think of the ways to solve them. Discuss your ideas with other students

Consumption Side

While production sectors are obvious examples of «pollution creation», consumption presents a more subtle side to this issue.

When we look at individual consumers, a lot of pollution comes from landfill disposal of post-consumption waste which could actually be recycled. At the same time, there are many consumer goods which cannot be recycled – and they end up on the landfill as well.

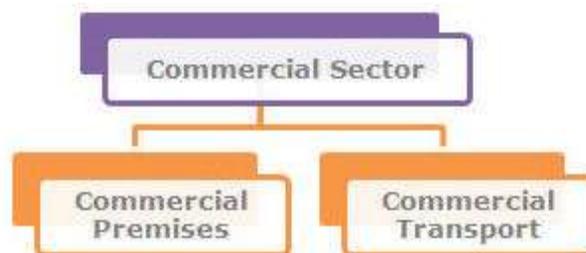
As for the wider residential sector, domestic gas heating systems and private transport are no doubt some of the major contributors to global pollution. On top of that, many residential items which can or cannot be recycled (ex., domestic furniture) are also sent to landfills.



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Sources of pollution by individual consumers and residential sector: food, clothing, other personal goods, private housing, private transport.

The social sector may include both governmental and non-governmental organizations.



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Sources of pollution by commercial & social sectors: commercial premises (недвижимость), commercial transport, governmental & non-governmental bodies'

premises, transport for use by governmental & non-governmental bodies, pollution agents.

We refer to pollution agents as the chemicals which are released into the environment as part of the waste products generated from production and consumption activities. In other words, pollution agents are the «operators» which make pollution «happen». They are also known as environmental pollutants, air pollutants and so on. Some of them are carbon dioxide, sulfur dioxide, nitrogen oxides.

PARTS VIII–IX

I. Read and try to memorize the following words.

to face	сталкиваться	to climb	взбираться
to make sure	убедиться	the ladder	лестница
to enable	поощрять	salary	зарплата
inclination	наклонность	sociable	общительный
to succeed	преуспеть	timid	пугливый, робкий
to be forced	быть вынужденным	skill	навык
prospects	перспективы	exhausting	изматывающий
promotion	карьерный рост	to devote	посвящать

II. Compose two-three sentences using as many words from the previous exercise as possible.

III. Read and translate the following text in Russian.

1. Choosing a career is one of the most important problems in our life. Sooner or later everyone faces it. But the sooner we begin to think about it the greater is our chance to learn more about it and to make sure that we made a correct choice.

2. It gives us a goal to work towards and enables to choose a right, suitable course of study. We are happy if we made a correct choice.

3. But it is of course very difficult to choose your future profession when you are young; you haven't yet discovered all your abilities and inclinations. We usually want to choose prestigious and high-paid professions.

4. But when become older we begin to understand that to succeed in such professions one must have a great talent. That is why few boys and girls choose their profession at an early age.

5. School education plays an important role in choosing a career. It helps children to discover their special talents and forms their character. But of course nobody is free from mistakes.

6. You can be forced into a career path before you really know what you would like to do in future. That is why we must not be in a hurry and do our best not to make a mistake. We should think about how well we can do what we would like to do.

7. Because of a wide difference of jobs we should find out all we can about any job which interests us. Very often it is the profession of the parents that influences the choice of the children.

8. In families where parents are fond of their work, children know much about it and often choose the same profession as their parents. Some families have their own family traditions according to which children make their choice.

9. Perhaps the best way to prepare for any job is to get a good education, to do well at the University and to learn all you can outside it. Jobs are changing and the new ones are constantly appearing.

10. Some years from now there will be a number of new jobs nobody knows anything about today. By reading and talking to people we can learn what great opportunities are in store for us.

11. Nowadays there is a great variety of jobs to any taste. Choosing a future career, we should consider the following things.

12. **Pay.** Is the size of your salary important? Of course there may be various situations, but if you are going to be independent, successful and wealthy, you have to find a well-paid job. Moreover, if you are going to have a family, you should be ready to support it, to be a breadwinner.

13. Naturally, you'd like to live in good conditions, and your children to study at good schools, and then to enter prestigious universities, to travel all around the world and so on. Now you understand why you should take money into consideration when choosing a job.

14. **Further training, promotion prospects and job conditions** should also be kept in mind. Just after graduating it is very difficult to find a plum job which will respond to all your preferences.

15. It is usually a monotonous, tedious clerical job, but if you are a capable and hard-working person, you will certainly be offered an opportunity to climb the ladder.

16. **Place of work.** You ought to decide whether you want to work indoors (cashier, chemist, librarian, secretary, etc.) or outdoors (driver, firefighter, estate agent, etc.). Your choice may be based on your lifestyle or health condition.

17. **Full-time, part-time, flexitime jobs.** There is no set pattern to part-time working. It may involve a later start and earlier finish time than a full-time position, working mornings or afternoons only, fewer working days in a week for less salary.

18. It is a perfect variant for students who want to juggle their studies and work, as well as flexitime jobs. Employees decide by themselves when to begin and end their working day.

19. **Communication with different people.** Meeting and dealing with people doesn't appeal to every person. Some people are not very sociable; on the contrary, they are timid, shy and diffident.

20. Frankly speaking, it is a great talent to have communication skills. If you think you have it, you may choose a profession involving close contacts with people, such as a doctor, a journalist, a lawyer, a guide, a teacher.

21. **Business trips.** You should keep in mind that some professions imply travelling all over the world, such as tour guides, scientists, actors, journalists, pilots and so on. It's not always fun.

22. Business trips may last a week, a month and even more. You may be sent to London for a few days, and then you'll spend only a few hours in Paris, and right after that, without any rest, you'll have to go to Berlin.

23. Sometimes it turns out that you don't have even an hour for yourself just to relax and see the town you've come to. Such trips may be very exhausting and stressful. However, if you are young, ambitious and full of energy, you will be able not only to do your job successfully but also see the world.

24. **Aspiration for creative work.** If you are a creative person, it's a must for you to find such job. It can be a job of an artist, a tailor, a designer or a stylist.

IV. Make up your own sentences using the word combination: sooner or later, to play an important role, to be fond of, a number of, I'd like to, to make a choice, to be free from, to be in a hurry, to do our best, a number of, according to, suitable, to face, to be forced.

V. Answer the following questions: 1. Have you already thought about your future career? What makes the profession chosen so attractive for you? 2. Do your parents give you a piece of advice about your future profession? 3. What are your parents? 4. Have you got any job traditions in your family? 5. Try to take a realistic view of your strengths and weaknesses. Which of your qualities are worth improving? 6. What occupations are popular nowadays in your country? Why? 7. What is the best way of preparing for your future profession? 8. Is it easy to choose a career? 9. Do you agree with the quotation: «It doesn't matter what job you do. It's how you do it»? 10. In what spheres of economy can you work after the graduation? 11. Why did you choose that faculty? 12. What diploma will you get after the graduation? 13. What specialty will you get in four years? 14. What jobs will you be able to apply for? 15. Do you know how much will you be paid for your work? Is it enough for you? 16. Do you have the job of your dream? What should you do to get it? 17. What subject do you have to study to become the good specialist? 18. What qualities should you have to become successful? Do you possess them? 19. Do you try to develop yourself to be become successful? In what way? 20. How do you think can you become the leader? Why? 21. Have you ever thought about working abroad? Why? 22. Is it difficult for you to study at the University? Why? 23. Can you say that career is the main aim of your life? Why?

PART X

I. Read and translate the following information in Russian.

1. One of the earliest attempts to propel a vehicle by mechanical power was suggested by Isaac Newton. But the first self-propelled vehicle was constructed by the French military engineer Cugnot in 1763. He built a steam-driven engine which had three wheels, carried two passengers and run at maximum speed of four miles. The supply of steam lasted only 15 minutes and the carriage had to stop every 100 yards to make more steam.

2. In 1825 a steam engine was built in Great Britain. The vehicle carried 18 passengers and covered 8 miles in 45 minutes. However, the progress of motor cars met with great opposition in Great Britain.

3. In Russia there were cities where motor cars were outlawed altogether. When the editor of the local newspaper in the city of Uralsk bought a car, the governor issued these instructions to the police: «When the vehicle appears in the streets, it is to be stopped and escorted to the police station, where its driver is to be prosecuted».

4. From 1860 to 1900 was a period of the application of gasoline engines to motor cars in many countries. The first to perfect gasoline engine was N. Otto who introduced the four-stroke cycle of operation. By the time motor cars got a standard shape and appearance.

In 1896 a procession of motor cars took place from London to Brighton to show how reliable the new vehicles were.

The cars of that time were very small, two-seated cars with no roof, driven by an engine placed under the seat. Motorist had to carry large cans of fuel and separate spare tyres, for there were no repair or filling stations to serve them.

After World War 1 it became possible to achieve greater reliability of motor cars, brakes became more efficient. Multi-cylinder engines came into use; most commonly used are four-cylinder engines.

5. Gradually the development of vehicles driven by international combustion engine – cars, as they had come to be known, led to the abolition of earlier restrictions. Huge capital began to flow into the automobile industry.

From 1908 to 1924 the number of cars in the world rose from 200 thousand to 20 million; by 1960 it had reached 60 million!

6. There are about 3,000 Americans who like to collect antique cars. They have several clubs such as Antique Automobile Club. Collectors can also advertise in the magazine published by their clubs. The best collection-100 old cars of great rarity – is in possession of William Harrah. He is very influential in his field. The value of his collection is not only historical but also practical: photographs of his cars are used for films and advertisements.

II. Translate the following words and word combinations: vehicle, mechanical power, self-propelled, was constructed, a steam-driven engine, wheels, passengers, motor cars, issued, prosecuted, of gasoline engines, introduced the four-stroke cycle of operation, two-seated cars, efficient, international combustion engine, abolition, automobile industry, collect antique cars, advertisements.

III. Complete the sentences: 1. In a steam engine was built in Great Britain. 2. From 1860 to 1900 was a period of the application... 3. The cars of that time were very small... 4. Multi-cylinder engines came into use, most commonly used are... 5. The best collection – 100 old cars of great rarity –...

IV. Read and translate the following information in Russian.

In Washington the story is told of the Patent Office who in the early thirties of the last century suggested that the Office be closed because «everything that could possibly be invented had been invented». People experienced a similar feeling after the invention of the steam engine.

But there was a great need for a more efficient engine than the steam engine, for one without a huge boiler, an engine that could quickly be started and stopped. This problem was solved by the invention of the internal combustion engine.

The first practical internal combustion engine was introduced in the form of a gas engine by the German engineer N. Otto in 1876.

Since then motor transport began to spread in Europe very rapidly. But the person who was the first to make it really popular was Henry Ford, an American manufacturer who introduced the first cheap motor car, the famous Ford Model «T».

The rapid development of the internal combustion engine led to its use in the farm tractors, thereby creating a revolution in agriculture. The use of motor vehicles for carrying heavy loads developed more slowly until the 1930s when diesel-engined Lorries became general.

The motor cycle steadily increased in popularity as engines and tyres became more reliable and roads improved. Motor cycles were found well suited for competition races and sporting events and were also recognized as the cheapest form of fast transport.

V. Answer the following questions: What was the reaction of the people after the invention of the steam engine? Who introduced the first cheap motor car? When did diesel-engine Lorries become general?

PART XI

I. Read and translate the following information in Russian.

Specialists in automobile industry deal with designing and manufacturing cars, so they should know that the production of the automobile comprises the following phases: Designing, Working out the technology of manufacturing processes, Laboratory tests, Road tests, Mass production.

Why is it necessary to know all these facts?

It is important to know them as before the automobile (car or truck) is put into mass production, it should be properly designed and the automobile must meet-up-to-date requirements.

What are these requirements?

The automobile must have high efficiency, long service life, driving safety, ease of maintenance and pleasant appearance.

In order to obtain all these qualities engineers should develop up-to-date methods of designing cars, using new types of resistant to corrosion light materials. Also it is important to know computer science because it is intended to shorten the

time between designing and manufacturing. Computers offer quick and optimal solutions of problems.

But before the car is put into mass production all its units and mechanisms are subjected to tests, first in the plant's laboratory, then the car undergoes a rigid quality control in road tests. Only then the car is put into mass production. Why are these tests required? What qualities are required of the automobile? The modern automobile must be rapid in acceleration, must have smooth acting clutch, silent gearbox, dependable brakes and steering system, as well as pleasant appearance. Also it must be comfortable and have all conveniences.

II. Find the correct translation to the following words and word-combinations.

mechanical engineer	а) долгий срок службы
to deal (with)	б) запустить в массовое производство
designing cars	в) подвергать испытаниям
to put into mass production	г) плавное сцепление
long service life	д) отвечать современным требованиям
driving safety	е) иметь дело
to meet up-to-date demands	ж) надёжные тормоза и рул. упр-я
smooth-acting clutch	и) безопасность езды
silent gearbox	к) бесшумная коробка передач
dependable brakes and steering system	л) инженер-механик
to subject to test	м) конструирование автомобилей

III. Answer the following questions: What phases does the production of the automobile comprise? What requirements must the automobile meet? Why are cars subjected to road tests? What qualities are required of the automobile? Why is it important for the specialists in automobile industry to know computing methods?

IV. Complete the sentences:

- a) The cars are subjected to road tests in order...
... to shorten the time between designing and manufacturing
... to meet up-to-date requirements
... to work out new technological processes
- b) The car must have the following units....
... high efficiency, long service life, driving safety and pleasant appearance
... smooth acting clutch, silent gearbox, dependable brakes and steering system
- c) The car must have the following qualities....
... high efficiency, long service life, driving safety and pleasant appearance
... smooth acting clutch, silent gearbox, dependable brakes and steering system

V. Read and translate the following dialogues in Russian.

Dialogue A

Nick: Hullo, Boris!

Boris: Hullo, Nick. How are things?

N.: Perfectly well, thank you. I entered the automobile construction institute.

B.: That's nice, what will you become after graduating from the institute?

N.: I'll become an engineer and deal with manufacturing new cars.

B.: Why did you choose this profession?

N.: I enjoy learning about a car. I enjoy working with metal. And most of all I enjoy being able to construct cars.

B.: Do you enjoy the course?

N.: Yes, of course.

B.: Tell me about your profession in detail, please?

N.: With great pleasure. As you know an automobile must be safe, have smooth acting clutch, silent gears, excellent brakes and steering system. And in order to achieve these qualities a lot of work must be done.

B.: Thank you very much for your information. I believe you like your profession very much.

N.: Oh, yes, very much, indeed.

Dialogue B

Anton: Where do you study?

Boris: I study at the automobile construction institute.

A: Whom does the institute train?

B: It trains specialists for the automobile industry.

A: Why did you decide to become an engineer?

B: I enjoy working with machines. I enjoy learning about a car. I understand every part of it.

A: What can you tell me about the car?

B: Well, the car of today must be rapid in acceleration; it must have dependable clutch, brakes, and steering system, be stable on the road and have pleasant appearance.

A: Do you enjoy the course?

B: Yes, very much. I have learned a lot of things. For example, I know that the production of the car comprises five phases.

A: What are they?

B: They are designing, working out the technology, laboratory tests, road tests, mass production.

A: And why are laboratory and road tests needed?

B: The cars are subjected to tests in order to meet up-to-date demands.

A: And what are these demands?

B: They are high efficiency, long service life, driving safety, ease of maintenance and so on.

A: I think you will become an expert in automobile engineering.

B: I'll try. The cooperative plan of an academic program with practice at a plant will help me to become a good specialist.

VI. Translate the following words and word combinations: учусь в автомобилестроительном институте, инженер, люблю работать с машинами, современный автомобиль, надежные тормоза, плавное сцепление, приятный внешний вид, массовое производство автомобилей, стендовые испытания, отвечать современным требованиям, долгий срок службы, легкость техобслуживания, надежность, быстро разгоняться (приёмистость), подвергаться жестким дорожным испытаниям

PART XII

I. Read and translate the following information in Russian.

The scientific and technological progress will continue in engineering along two main headlines. Firstly, it is automation, including the creation of “unmanned” industries. Secondly, raising the reliability and extending the service life of machines.

This certainly requires new technology. The machine modules on a large scale are well suited for “unmanned” industries.

Intense work is being carried out on new robots. What we need is not merely manipulators which can take up a workpiece and pass it on, but robots which can identify objects, their position in space, etc.

We also need machines that would trace the entire process of machining. Some have been designed and are manufactured. Modern engineering thinking has created new automated coal-digging complexes and machine systems, installations for the continuous casting of steel, machine-tools for electrophysical and electrochemical treatment of metals, unique welding equipment, automatic rotor transfer lines and machine-tool modules for flexible industries.

New technologies and equipment have been designed for most branches of engineering.

In the shortest time possible the engineers are to start producing new generations of machines and equipment which would allow manufacturers to increase productivity several times and to find a way for the application of advanced technologies.

Large reserves in extending service life for machines can be found in the process of designing. At present, advanced methods have been evolved for designing machines proceeding from a number of criteria. Automatic design systems allow for an optimizing of the solutions in design and technology when new machines are still in the blueprint stage.

A promising reserve in increasing the life of parts is strengthening treatment. In recent years new highly efficient methods have been found.

First and foremost of them is the vacuum plasma methods for coating components with hard alloy compounds, such as nitrides and carbides of titanium, tungsten and boron. Methods have been designed for reinforcing machine parts most vulnerable to wear and tear, such as in grain harvesters, to make them last several times longer.

Thus, it is not merely quantity engineers and scientists are after, rather it is a matter of major characteristics. In other words, this is a matter of quality, and not of the mere number of new machines, apparatuses and materials

II. Translate the following words and word combinations: module, robot, to identify, manipulator, electro physical, electrochemical, unique, rotor, line, productivity, to reserve, criteria, to optimize, vacuum, plasma, component, nitride, carbide, titanium, apparatus.

III. Translate the following words and word combinations: срок службы, передовые методы, электрофизическая обработка, модуль станка, система проектирования, составы из твердых сплавов, методы вакуумной плазмы, упрочнение деталей машин, гибкое производство, полностью автоматизированное производство

IV. Say if the following information correct? Prove your opinion. 1. There are two main trends in modern machine-building: automation and raising of the reliability of machines. 2. The creation of «unmanned» industries is included into automation. 3. Machine modules and robots are not suited for «unmanned industries». 4. Automation and raising of the reliability of machines require new technologies. 5. Advanced technologies are applied in most branches of engineering. 6. The service life of machine parts can't be increased by strengthening treatment. 7. Hard alloy compounds are employed for coating components. 8. The process of designing can also be automated. This gives the advantage of optimizing solutions in design and technology.

V. Read and translate the following information in Russian.

Many of the world's cities lie under a permanent blanket of smog. People are concerned about global warming, and fuel prices just keep going up and up. In recent years car manufacturers have been put under pressure to invent a vehicle that is both cheaper to run and better for the environment.

One of the first ideas which car manufacturers tried, was to replace engines which run on fossil fuels with electric motors. Unfortunately, these vehicles had several drawbacks and they didn't sell very well. The problems were that the batteries of these electric cars ran out very quickly and took a long time to recharge.

Car manufacturers have improved the concept so that environmentally friendly cars can now be efficient and economical as well. The hybrid car, which has both an electric motor and a traditional petrol engine, comes in. The electric motor never needs to be recharged and it is much better for the planet than a traditional car.

In a hybrid car, the engine is controlled by a computer which determines whether the car runs on petrol, electricity, or both. When the car needs maximum power, for example, if it is accelerating or climbing a steep hill, it uses all of its resources, whereas at steady speeds it runs only on petrol. When slowing down or braking, the electric motor recharges its batteries.

Hybrid cars are made using materials such as aluminium and carbon fibre, which makes them extremely light. Hybrid cars are better for the environment because they use far less petrol than normal cars, so they produce less pollution.

Of course, hybrid cars aren't perfect; they still run on fossil fuel and so pollute the environment to some extent. However, they may be the first step along the road to cleaner, 'greener' cars. Car manufacturers are already working on vehicles which run on hydrogen. The only emission from these cars is harmless water vapour. These are still some way in the future, though, as designers need to think of cheap and safe ways of producing, transporting and storing hydrogen, but at last, it looks like we might be heading in the right direction.

VI. Choose the correct translation:

- | | |
|----------------------------------|---|
| a) environmentally friendly cars | 1. водород |
| b) global warming | 2. углеродное волокно |
| c) keep going up and up | 3. никогда не требует перезарядки |
| d) have been put under pressure | 4. ископаемое топливо |
| e) fossil fuel | 5. гибридный автомобиль |
| f) electric motor | 6. продолжают подниматься |
| g) drawbacks | 7. были подвергнуты давлению |
| h) the hybrid car | 8. безвредные для окружающей среды автомобили |
| i) never needs to be recharged | 9. глобальное потепление |
| j) carbon fibre | 10. безопасный водяной пар |
| k) hydrogen | 11. недостатки |
| l) harmless water vapour | 12. электродвигатель |

VII. Find the correct translation to the following words and word-combinations.

1. работать на ископаемом топливе -
2. длительное время для перезарядки -
3. традиционный автомобиль -
4. при замедленном движении или торможении -
5. невероятно легкий -
6. гораздо меньше бензина -
7. до определенной степени -
8. первый шаг на пути к -

VIII. Complete the sentences:

1. Car manufactures are trying to invent a new vehicle because
 - a) today's cars produce too much poisonous gas;
 - b) today's cars produce too much power;
 - c) today's cars moves too fast.

2. Vehicles which ran on electric motors
 - a) moved too slowly
 - b) were not very popular;
 - c) had to have their engines replaced.

3. The electric motor in hybrid cars
 - a) doesn't need to recharge its batteries;
 - b) had its own petrol engine;
 - c) takes a long time to be recharged.

4. The computer in a hybrid car
 - a) helps the car to go up hills;
 - b) keeps the car running at a steady speed;
 - c) decided how the car should be powered in any given time.

5. Hybrid cars are better for the powered in any given time.
 - a) they use different fuels;
 - b) the electric motor is smaller than a normal engine;
 - c) they produce less harmful gases.