

Учреждение образования  
«БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНОЛОГИЧЕСКИЙ  
УНИВЕРСИТЕТ»

# АНГЛИЙСКИЙ ЯЗЫК

*Рекомендовано  
учебно-методическим объединением высших учебных заведений  
Республики Беларусь по химико-технологическому образованию  
в качестве учебно-методического пособия для студентов  
высших учебных заведений, обучающихся по химико-технологическим  
специальностям*

Минск 2008

## ПРЕДИСЛОВИЕ

Данное учебно-методическое пособие представляет собой комплекс текстов, соответствующих требованиям действующей программы по английскому языку для неязыковых вузов.

Цель пособия – развить и совершенствовать у студентов навыки различных видов чтения литературы на английском языке с выходом в устную речь.

Пособие, условно состоящее из двух частей, предназначено для студентов химико-технологических специальностей.

В первой части представлен материал по темам общеобразовательного характера: «Республика Беларусь», «Наш университет», «Великобритания», «Наука и технология», «Ученые и их изобретения».

Во второй части особое внимание уделяется дополнительному чтению текстов по той же тематике и стратегиям формирования навыков самостоятельной работы.

В пособии представлена полезная новейшая и актуальная информация по перечисленным темам, которая композиционно хорошо продумана и представляет собой четкое, ясное и логичное изложение.

Упражнения, предназначенные для работы с текстами, подобраны таким образом, чтобы основное внимание акцентировать на развитии у студентов умений читать и понимать литературу на английском языке, дифференцировать более и менее важную информацию и развить у них навыки монологической и диалогической речи.

В разделы пособия помещены также упражнения, направленные на развитие навыков самостоятельного продуцирования письменного текста.

При подборе заданий для текстов реализованы такие принципы, как языковая и содержательная доступность, а также принципы нарастания сложности материала.

Работа с материалом данного пособия поможет студентам приобрести соответствующий необходимый лексический минимум и сформировать языковые и речевые навыки и умения.

Пособие может быть использовано для работы со студентами I курса всех специальностей университета.

## UNIT I. BELARUS

### Part 1. The Place on Earth: General Description of the Republic of Belarus

**Ex. 1. Make sure you know the following words and expressions:**

terrain n., combine v., inhabitant n., swath n., sloping ridges, glacial debris, swampy plain, stream n., floating timber, tributary n., tract of forest, conifer n., deciduous trees, proximity n., precipitation n., excessive a., suffer v., spoil v., poison v., affect v., range n.

**Ex. 2. Practice the pronunciation of the following words and geographical names:**

Europe, Greece, Belgium, Denmark, Russia, Latvia, Lithuania, Poland, the Ukraine, Belarusian Range, the Belarusian Woodland, the Baltic Sea, the Dnieper, the Nieman, catastrophe, fauna, swath, percentage, association.

**Ex. 3. Answer the following questions:**

1. Why is Belarus called “blue-eyed”? 2. What are the country’s main regions? 3. Which nationality groups make up the largest percentage of the total population? 4. In what part of Belarus does the vast majority of the population live? 5. Why was Belarus changed from a rural nation to an urban nation?

**Ex. 4. Speak about the places of interest in the Republic of Belarus that you have visited.**

**Ex. 5. Read and translate the following text:**

Belarus, a generally flat country situated practically in the center of Europe, occupies an area of 207,600 square kilometers. Its area is more than the combined size of Greece, Belgium and Denmark. Its neighbors are Russia to the east and northeast, Latvia to the north, Lithuania to the northwest, Poland to the west, and Ukraine to the south. The population is more than 10 million inhabitants.

Belarus’ mostly level terrain is broken up by the Belarusian Range, a swath of elevated territory, composed of individual highlands, that runs diagonally through the country from west-southwest to east-northeast. Its highest point is the 346-meter Mount Dzerzhynskaya, named for Felix Dzerzhinskiy, head of Russia's security apparatus under Stalin. Northern Belarus has a picturesque, hilly landscape with many lakes and gently sloping ridges created by glacial debris. In the south, about one-third of the republic’s territory around the Pripyat River is taken up by the low-lying swampy plain of the Belarusian Woodland (Polesye).

Belarus' 3,000 streams and 10,000 lakes are major features of the landscape and are used for floating timber, shipping, and power generation. Major rivers are the west-flowing Zapadnaya Dvina and Nieman, and the south-flowing Dnieper with its tributaries, the Berezina, the Sozh, and the Prypyat. The largest lakes are the Naroch, the Osweyskoye and the Drisvyaty. Nearly one-third of the country is covered with puschas, large unpopulated tracts of forests. In the north, conifers predominate in forests that also include birch and alder; farther south, other deciduous trees grow. The Belavezhskaya Puscha in the far west is the oldest and most magnificent of the forests; a reservation here shelters animals and birds that became extinct elsewhere long ago. The pride of the reservation is the aurochs – a rare animal that has survived since the glacial times.

Because of the proximity of the Baltic Sea (257 kilometers at the closest point), the country's climate is moderately continental. Winters last between 105 and 145 days, and summers last up to 150 days. The average temperature in January is  $-6^{\circ}\text{C}$ , and the average temperature for July is about  $+18^{\circ}\text{C}$ , with high humidity. Average annual precipitation ranges from 550 to 700 millimeters and is sometimes excessive.

The nature of Belarus has suffered much from the nuclear catastrophe that took place in Chernobyl in 1986. The radiation has spoiled our soil and air, rivers and lakes; it has poisoned our flora and fauna. Besides it has badly affected the health of people and the climate.

***Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets:***

1. The Republic of Belarus occupies an ... geopolitical position in the centre of Europe (advantage). 2. The territory of Belarus is crossed by the shortest ways of ... from central and ... regions of Russia to West European countries, as well as between the Baltic and Black Seas (to communicate, east). 3. The distance from the state capital, Minsk, to capitals of the ... states are: to Vilnius 215 km, to Riga 470 km, to Warsaw 550 km, to Kiev 580 km, and to Moscow 700 km (neighbor). 4. The ... of Belarus' territory is 560 km from north to south and 650 km from west to east (long). 5. As for 1.01.2002, the ... of the Republic of Belarus constituted about 9.99 million people with more than 100 ethnic groups (to populate). 6. Thirty ... types of minerals have been found in the territory of the country and more than 4 thousand mineral deposits, of which 600 are under ... (differ, to exploit). 7. The climate ... features are conditioned by the breath of the Atlantic Ocean (to specify). 8. The number of ... at enterprises and ... is 4.34 million people; of them, 1.14 million persons are employed in industries, and 0.51 million people in agriculture (to employ, to organize). 9. The Republic of Belarus consists of 6

regions which include 118 administrative districts and the City of Minsk. There are 110 towns and 108 ... with the status of a town (to settle).

**Ex. 7. Match the words to their definitions:**

- |                  |   |
|------------------|---|
| 1) deciduous     | a) area of soft wet land;   |
| 2) reservation   | b) rain, snow, sleet, dew, etc., formed by condensation of water vapor in the atmosphere;                         |
| 3) contaminate   | c) visually pleasing, especially in being striking or vivid;  |
| 4) varied        | d) person or animal that is a permanent resident of a particular place or region;                                 |
| 5) alternate     | e) ground or a piece of ground, especially with reference to its physical character;                              |
| 6) swamp         | f) shedding all leaves annually at the end of the growing season and then having a dormant period without leaves; |
| 7) precipitation | g) sanctuary, area where by law it is forbidden to kill birds and animals;  |
| 8) inhabitant    | h) of different sorts, diverse;   |
| 9) terrain       | i) come one after the other, by turns;  |
| 10) picturesque  | j) make dirty, impure or diseased.  |

**Ex. 8. Insert prepositions where necessary:**

Minsk Region is located ... the middle of the republic. Its area is 39.9 thousand km<sup>2</sup>. The center ... the Region is Minsk. The Region comprises 22 Districts, 24 towns, and 19 urban-type settlements. This is the only Region in Belarus not directly bordering ... other states, but important transport corridors running ... it offer good opportunities ... maintaining beneficial economic relations ... CIS and foreign countries. Machine-building and chemical industries account for the largest share ... the output in the Regional industrial structure. In addition, agricultural processors are highly developed ... the Region. The Region ranks first in the republic ... food, flour-milling, and cereal and mixed feed output. Mineral resources have been prospected and are being exploited in the Region. The most important ... them are potassium and rock salts, and also peat, construction materials, chalk, slate coal, iron ores, mineral water, etc. The dairy and beef husbandry, pig husbandry, potato growing supplemented ... flax growing and sugar beet growing in the southwest of the Region are developed.

**Ex. 9. Substitute the words in italics by their synonyms:**

The Republic of Belarus (Belarus) is *located* in the eastern part of Europe. The *territory* of Belarus is 207.6 thousand square kilometers. It is a *compact* country. The longest distance, 650 km, is from West to East, and 560 km from North to South. By the size of its territory, the Republic occupies the 13<sup>th</sup> place among the European countries and the 6<sup>th</sup> among the

CIS countries (following Russia, Kazakhstan, Ukraine, Uzbekistan and Turkmenistan). The Belarusian territory in Europe is *slightly* smaller than that of Great Britain and Romania, and more than 2.2 times *bigger* than Portugal and Hungary. On 01.01.2005, the *population* of Belarus constituted 9.9 million people. Representatives of more than 100 nationalities live in Belarus. The *majority* of the population is Belarusian, *significant* numbers of Russians, Poles, Ukrainians and other nationalities live in Belarus.

The highest *point* in Belarus is 346 meters. Averaging only 200 meters above sea level, the country is predominately *gently* rolling fields in the north and *marshy* lowlands in the south. More than half the land is used for *agriculture*. Some one-third is densely *forested* with large stands of spruce, pine, oak, and beech.

**Ex. 10. Read the information below and think of the word, which best fits each space. Use only one word in each space:**

In Belarus, about 30 types of mineral ... have been found (over 4,000 mineral fields and deposits). Of special significance ... they are potassium salts: by their industrial reserves the country is among the ... countries in Europe. The Republic ... rich in non-ore minerals like granite, dolomite, marl and chalk, low-melting and ...-melting clay, loams, sand and gravel materials, raw ... for manufacture of natural paints (boggy iron ore, ochre, glauconite, etc.) and possesses a rather powerful raw material base for manufacture of construction materials. Peat reserves ... widely spread in Belarus.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. Belarus is situated in Asia. 2. It borders on France. 3. Our native land is remarkably beautiful. 4. Most of the Belarusian territory is covered with mountains. 5. The aurochs live in the Belarusian Polesye. 6. The climate of Belarus is continental. 7. The nature of our country has suffered greatly from the nuclear catastrophe that took place in Chernobyl in 1976. 8. Belarus has always been considered a poor land with no other resources except peat. 9. All rivers of the republic belong to three sea basins of the Black, Baltic, and North Seas. 10. Belavezhskaya Puscha is a large province.

**Ex. 12. Complete the statements below. Give extended answers:**

1. The text is devoted to ... . 2. The text gives (presents, provides) information regarding ... . 3. At the beginning of the text special attention is paid to ... . 4. The text goes on saying that ... . 5. Further the text contains a detailed description of ... . 6. Besides some factual information is given concerning ... . 7. In conclusion the text reads that ... . 8. On reading the text we realise the fact that ... . 9. Moreover we clearly understand that ... .

**Ex. 13. Work in groups. Find out from your partners:**

- where Belarus is situated and what its area is;
- what countries Belarus borders on;
- what consequences of the Chernobyl catastrophe are.

**Ex. 14. Prove that:**

- Belarus is remarkably beautiful;
- our country has many lakes and rivers;
- the nature of Belarus has suffered much.

**Ex. 15. Explain why:**

– after the Chernobyl catastrophe people had to leave their places and move to other villages and towns.

**Ex. 16. Imagine that:**

– a new pupil has come to your group from Russia. He knows very little about Belarus. Tell him what you know about your native country;

– you are preparing a report about your native country but you haven't enough information about Belarus. Ask your friend to help you.

Role-play the dialogue with your partner.

**Ex. 17. Write a short essay on one of the following topics:**

- advantages and disadvantages of the geographical position of Belarus;
- your favorite place of visit in Belarus.

## **Part 2. The Political System, Constitution and State Symbols of the Republic of Belarus**

**Ex. 1. Make sure you know the meaning of the following words and expressions:**

anthem n., submit v., adopt v., personify v., issue v., edict n., stipulate v., guideline n., appoint v., enactment n., flagstaff n., guarantee v., binding force, provide v., run v., the National Assembly, the Council of the Republic, the Deputies, voter n., Supreme Court, Economic Court.

**Ex. 2. Practice the pronunciation of the following words and proper names:**

collapse, decree, the Procurator-General, precise, legislative, executive, judicial, contour, sovereignty, wreath, rectangular, longitudinal, decorative.

**Ex. 3. Answer the following questions:**

1. When is the state called presidential? 2. Who is the current President of the republic? 3. Who is the Prime minister of the republic? On what term is the President elected?

**Ex. 4. Have you ever studied the main law of our country? If so, say what articles concern the youth policy.**

***Ex. 5. Read and translate the following text:***

Like any country, Belarus has its own constitution, anthem, and state symbols. Constitution is the main document in the state. When Belarus was a member of the former Soviet Union it submitted to the Constitution of the USSR. But after the collapse of the USSR in 1991, the new Constitution of the Republic of Belarus was adopted by the Supreme Soviet on March 15, 1994. The new Constitution consists of a preamble and nine chapters: 1. Principles of the Constitutional System. 2. The Individual, Society, and the State. 3. Electoral System. Referendum. 4. The President, Parliament, Government, the Courts. 5. Local government and self-government. 6. The Procurator's office. The State Supervisory Committee. 7. Financial and Credit System of the Republic of Belarus. 8. The application of the Constitution of the Republic of Belarus and the procedure for amending the Constitution. 9. Final and transitional clauses.

According to the new Constitution, Belarus is a presidential republic where the role of the President is quite strong. He is the head of the state and the executive power, guarantor of the Constitution and civil rights. According to the Constitution, president personifies unity of the people, guarantees realization of internal and external policy of the state, and represents the Republic of Belarus in relations with other states and international organizations. President issues edicts and decrees that have the binding force overall territory of the Republic of Belarus. In cases stipulated by the Constitution, president issues decrees having force of laws. Directly or through special bodies provides the execution of decrees and edicts. The President, however, does not run the economy of the country but sets the guidelines and controls the work of the Government.

The Government (Council of Ministers and a number of Ministries and Committees) is working with current issues of a day-to-day basis, thus exercising executive powers.

The Parliament, i.d. the National Assembly comprises two houses – the House of Representatives (110 deputies and Supreme House) and the Council of the Republic (64 deputies).

The Council of the Republic is the house of territorial representation. Eight members of the Council are appointed by the President of the Republic of Belarus, while the rest are elected at the sittings of the Deputies of the local Soviets of Deputies of the basic level: 8 from each of the six regions of the Republic and of the city of Minsk. The deputies to the House of Representatives are elected directly by the voters.

Judicial power is exercised by General Courts (Supreme Court, plus regional, district, and town courts) and by Economic Courts (Supreme



Economic, plus regional, district, and town economic courts). A Constitutional Court controls correspondence of the laws with the Constitution. The Procurator-General supervises the precise and uniform execution of laws, decrees, and other regulatory enactments by all state government bodies, local Soviets and other judicial and physical persons.

The National Emblem of the Republic of Belarus, which is a symbol of state sovereignty of the Republic of Belarus, represents a green-colored contour of the Republic of Belarus in golden rays radiated by the sun over the globe. On top of the contour is a five-pointed red star. The emblem is set in a frame of wreath of golden wheat-ears interlaced with clover flowers on the right and flax flowers on the left. Wheat-ears are interlaced with a red-green ribbon carrying a golden inscription “The Republic of Belarus” at the bottom.

The National Flag of the Republic of Belarus, which is a symbol of state sovereignty of the Republic of Belarus, is a rectangular cloth consisting of two longitudinal stripes: red upper stripe and green lower stripe that are two-thirds and one-third of the flag width respectively. A vertical red-on-white Belarusian decorative pattern.

The red color of the flag signifies the past history of Belarus, as the color used by the Belarusian forces at the Battle of Grunwald, and of the Red Army when they were fighting Nazi Germany during World War II. Green stands for the bright future ahead of Belarus, and also represents the many forests located in the country. While the colors of the flag are red, green, and white, the exact shades have not been determined by either law or decree.

The decorative pattern designed in 1917 by Matrena Markevich is commonly used in Belarus to show local plants and flowers. These patterns are also woven into outfits, and also used for a traditional woven craft called rushniks. Rushniks are traditional towels decorated with the ornamental pattern that are used for ceremonial events. An example of their use would be a host offering his guests bread and salt, which would then be served on a rushnik. Rushniks are also used at religious services, funerals, and other social functions. On the current flag, the ornamentation is used to symbolize the cultural past, and the unity of the Belarusian people.

***Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets:***

1. The Belarusian scientists reached a ... progress in the different spheres of fundamental research (to signify). 2. ... of scientific schools in the sphere of mathematics, theoretical physics, material science, etc. are known worldwide and have been highly appraised in Belarus and enjoyed an international ... (to achieve, to recognize). 3. Findings of some researches have the highest rank of significance and are registered as ... discoveries

(science). 4. Applied research and ... are mainly conducted within the framework of 32 state scientific and technical programs designed to solve most important economic, ... and social problems for 2001–2005, and also within the framework of sectoral and ... scientific and technical programs and ... projects (to develop, environment, region, to innovate). 5. The research and developments of the Belarusian scientists are aimed at addressing problems in the priority spheres of scientific and ... activity (engineer). 6. All types of ... in the ... , social and administrative spheres are scientifically supported to greater or lesser extent (active, to produce).

***Ex. 7. Match the words to their definitions:***

- |                 |   |
|-----------------|---|
| 1) sovereignty  | a) to represent in words; describe;   |
| 2) guarantor    | b) to watch over so as to maintain order, etc.;   |
| 3) edict        | c) serving to decorate or adorn; ornamental;  |
| 4) guideline    | d) the fundamental political principles on which a state is governed, especially when considered as embodying the rights of the subjects of that state; |
| 5) government   | e) something that represents or stands for something else, usually by convention or association;  |
| 6) court        | f) an authority having power to adjudicate in civil, criminal, military, or ecclesiastical matters;   |
| 7) symbol       | g) the executive policy-making body of a political unit, community, etc.; ministry or administration;   |
| 8) constitution | h) a principle put forward to set standards or determine a course of action;  |
| 9) decorative   | i) a decree, order, or ordinance issued by a sovereign, state, or any other holder of authority;  |
| 10) supervise   | j) a person who gives or is bound by a guarantee or guaranty; surety;   |
| 11) depict      | k) supreme and unrestricted power, as of a state.   |

***Ex. 8. Insert prepositions where necessary:***

The Constitution provides ... the freedom ... religion, with all denominations equal. More than 30 religious societies are registered and receive tax-exempt status. The Belarusian Orthodox Church is by far the largest ... the country, followed ... the Roman Catholic Church. Various Protestant denominations (including Evangelical Baptist, Seventh-day Adventist, Calvinists, Lutherans, Apostolic Christian, and others) Judaism and Islam are represented ... smaller communities ... the country. Missionary groups, such as Campus Crusades, Mormons, Jehovah's Witnesses, and the International Christian Fellowship have a growing number ... followers. The Jewish community has not fully recovered ... the

devastation of WWII. It remains small, but there are active Synagogues. Services are ... Russian, Belarusian, or Polish.

**Ex. 9. Substitute the words in italics by their synonyms:**

On the 1<sup>st</sup> of January 1919, the Byelorussian Soviet Socialistic Republic (the BSSR) was *formed*, in which political and economic *life* was under *control* of the *central* authority. Non-communist parties and organizations were *banned*, and the *administrative* functions were performed by the party machinery. At the *same* time, the Constitution of the BSSR *declared* that all the *power* was vested in the Soviets of Workers', Peasants' and Soldiers' deputies.

On the 27<sup>th</sup> of July 1990, the "Declaration of State Sovereignty" was adopted. According to the Constitution, the Republic of Belarus is a presidential republic. The President is the *head* of the state. The National Assembly is the country's supreme legislative *authority*, and the Constitutional Court is the country's *supreme* judicial authority.

**Ex. 10. Read the information below and think of the word, which best fits each space. Use only one word in each space:**

Today, ... Belarusian and Russian are considered ... languages of the country. Street names and many signs ... in Belarusian, as are some broadcast and print media, official documents, and many official meetings. In ... of efforts to revive Belarusian, Russian is spoken ... the primary language of communication, except perhaps in the very rural countryside. Belarusian is ... related to Russian and Polish, all with Slavic origins. It is written using the Cyrillic ... , with two letters different from the Russian alphabet.

The national referendum ... on 14<sup>th</sup> May 1995 resulted in ... the Russian language was given the ... status alongside Belarusian. The Law on National Minorities in the Republic of Belarus guarantees the right of each of the ethnic minority living in the Republic to learn and ... its native language.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. The Republic of Belarus has no Constitution.
2. Belarus is a constitutional monarchy.
3. The President of the Republic exercises the judicial branch of power.
4. The Parliament, i.d. the National Assembly comprises two houses.
5. The National Emblem of the Republic of Belarus represents a purple-colored contour of the Republic of Belarus in golden rays radiated by the sun over the sea.
6. The National Flag of the Republic of Belarus is a triangular cloth.
7. The red color of the flag signifies the past history of Belarus.
8. There is a decorative pattern displayed on the hoist of the flag.
9. Rushniks are traditional bedsheets decorated with the ornamental pattern that are used for ceremonial events.

**Ex. 12. Complete the statements below. Give extended answers:**

1. The text is devoted to ... . 2. The text gives (presents, provides) information regarding ... . 3. At the beginning of the text special attention is paid to ... . 4. The text goes on saying that ... . 5. Further the text contains a detailed description of ... . 6. Besides some factual information is given concerning ... . 7. In conclusion the text reads that ... . 8. On reading the text we realise the fact that ... . 9. Moreover we clearly understand that ... .

**Ex. 13. Work in groups. Find out from your partners:**

– if they have studied the main law of our country – the Constitution and what they think about it;  
– what changes they would like to introduce into the constitution.

**Ex. 14. Imagine that:**

– you and your English friend are discussing the Constitutions of your native countries. Role-play a dialogue with your partner;  
– you are a governmental official. You want to introduce some amendments to the Constitution. Give your arguments.

**Ex. 15. Write a short essay on the advantages and disadvantages of the political system of Belarus.**

### **Part 3. National Economy: Present and Future**

**Ex. 1. Make sure you know the meaning of the following words and expressions:**

heavy machinery, heavy-duty truck, hog n., in short supply, incentive n., instrument-making, joint-stock company, large-capacity dump truck, limited-liability company, livestock breeding, livestock farming, marsh, merchandise, metal-cutting tool, oil refining, peat n., petrochemicals n., plywood n., potassium n., rolled a., securities n., stock exchange, synthetic resin, timber processing.

**Ex. 2. Practice the pronunciation of the following words and proper names:**

miscellaneous, pursuit, textile, yield, moderate, swampy, lowlands, livestock, emphasis, meadows, flourish, supermarket, kiosk, merchandise, booth, sidewalk, company, stock, cease, eventual, monetary, dairy, metal, expenditure, extensive, route, canal, crowd, satellite, restaurant.

**Ex. 3. Answer these questions before you read the text below:**

1. Where is Belarus situated? 2. How does Belarus rank among the countries of the world in population and area? 3. In what part of Belarus does the vast majority of the population live? 4. What are the two official

languages of Belarus? 5. When did Belarus proclaim its independence? 6. What is the official name of the Belarusian Parliament? 7. Who is the country's president at the moment? 8. Who is the head of the government in Belarus nowadays? 9. What is the most highly developed sector of the Belarusian economy? 10. What are some of the leading agricultural products in Belarus? 11. What nations are main trading partners of Belarus? 12. What are the major problems facing Belarus today?

***Ex. 4. Read and translate the following text:***

Belarus has a well-developed economy. Approximately 5.3 million people contribute to the economy of Belarus. Of this total, 42% are employed in industry; 21% in agriculture and forestry; 17% in culture, education, and health services; 17% in trade; 7% in transportation, and 6% in miscellaneous pursuits.

*Natural Resources.* Belarus is relatively poor in terms of natural resources. It does not have vast amounts of most of the minerals used in modern industrial production. The country has small reserves of petroleum and natural gas.

In the south-west there are small reserves of hard coal, brown coal, and petroleum, but they are not easily accessible and remain undeveloped. The country has large forest reserves. About one-third of the republic is covered in forest.

Belarus does possess, however, one of the world's largest reserves of potassium salts. The country also is a world leader in the production of peat, which is especially abundant in the Pripyat Marshes. Peat is used as a mulching material in agriculture.

Among the other minerals recovered are salt, building materials chiefly limestone, quartz sands and small deposits of gold and diamonds.

Belarus is heavily reliant on oil and gas supplies from Russia. The government is attempting to accelerate the development of its raw-material base, but Belarus remains dependent on Russia for most of its energy and fossil-fuel requirements.

*Energy.* Belarus generated only about 12% of its own energy needs. Nearly all electricity is generated at thermal power stations, using piped oil and natural gas; however, there is some local use of peat, and there are a number of low-capacity hydroelectric power plants.

*Industry.* Belarus is a highly developed industrial country. The main industries include machine building, instrument making, chemicals, timber processing, textile and clothing manufacture, and food processing.

The country is known for its heavy-duty trucks, transport vehicles, and tractors. Belarus also manufactures computers, engineering equipment,

metal-cutting tools, and such consumer goods as clocks and watches, motorcycles, bicycles, refrigerators, radios, television sets and others. Forests yield many wood products, including furniture, matches, plywood, and paper goods.

Heavy industry is the most highly developed sector of the economy. Machine-building industry makes various types of tractors, heavy-duty trucks, other heavy machinery and electrical equipment.

Chemical industry produces chemical fibers, mineral fertilizers, petrochemicals, plastics, soda ash, and synthetic resins. The chief chemical product is potassium fertilizer.

*Agriculture.* Belarus has a large amount of farmland. But a short growing season and a lack of fertile soil make farming difficult. Most of Belarus has soils of only moderate fertility.

Most of the country has mixed crop and livestock farming, with a strong emphasis on flax growing. The country's principal crops are potatoes, grains (especially wheat, barley, oats and rye), flax, fruits, sunflowers, vegetables, and sugar beets. Nearly 60% of the country's total land area is cultivated.

*Services.* Service industries are industries that produce services, not goods. In the recent past, these industries were underdeveloped in Belarus. Most service-industry workers were poorly trained and underpaid. They had little incentive to satisfy their customers, who competed for services that were in short supply. Today, private economic activity in the service sector is flourishing. Many individuals and families are starting small businesses such as restaurants, barbershops, dry cleaners, and taxi services.

*Finance.* Independent Belarus restructured its banking system into a system consisting of the National Bank of Belarus and a number of commercial banks, most of which are either joint-stock or limited-liability companies. A securities market and stock exchange were also established. The republic introduced its own currency, the Belarusian ruble, in 1994. It has been the official national currency since January 1995, when circulation of Russian rubles ceased. In 1994 Belarus and Russia agreed to the eventual merger of their monetary systems, but Russia has delayed the merger because of the high inflation and other economic problems in Belarus. The central bank is the National Bank of Belarus in Minsk.

*Foreign Trade.* Belarus proper consumes only 13% of the goods produced. A great amount of goods produced by Belarusian industries and agriculture is oriented towards the CIS countries' markets. Russia, Poland, and Ukraine remain the republic's main trading partners, with trade

increasing with Germany and Italy. Belarus also conducts trade with Austria, China, Great Britain, Lithuania, Switzerland, the United States and other countries.

Belarus exports transport equipment (mainly tractors and trucks), machinery, refrigerators, television sets, chemicals, potassium fertilizers, energy products, wood and paper products, and meat and dairy products. About 60% of Belarus' exports go to former Soviet republics. The major exports include tractors to Australia, Canada, New Zealand, the United States and many other countries.

The nation's major imports include petroleum, natural gas, industrial raw materials, textiles, rolled metal, rubber, paint, sugar, and some consumer goods. Fuel is Belarus' largest import expenditure. Russia, which supplies most of the country's fuel imports, is the most important trading partner.

In 1992 Belarus became a member of the International Bank for Reconstruction and Development, the International Monetary Fund, and the European Bank for Reconstruction and Development.

***Ex. 5. Complete each sentence using a word derivationally related to the word given in brackets:***

1. Belarus is ... poor in terms of natural resources (relative). 2. The country also is a world leader in the ... of peat (to produce). 3. Belarus remains ... on Russia for most of its energy and fossil-fuel requirements (to depend). 4. Belarus is a highly developed ... country (industry). 5. Chemical industry produces ... fibers and mineral fertilizers (chemistry). 6. Today, private activity in the service sector is flourishing (economy). 7. Belarus has an extensive ... system, including railroad and highway networks (transport). 8. The government is attempting to accelerate the ... of its raw-material base (to develop).

***Ex. 6. Insert prepositions where necessary:***

The social orientation ... an economic system is determined ... the predominant ownership type, which affects the nature of production and the interests ... the owners. All digressions from a classical economic development model require additional involvement, especially ... the sphere ... distribution. However, state and societal regulation has some limits, which depend ... the nature and state ... the economy. Therefore, the social orientation ... the economy has to do ... ownership, methods and approaches ... management and the role of the state. A socially oriented market economy should combine the socio-economic development of a society with an adequate development of the legal and political system. It should allow ... a combination of private and government ownership, the sectors that are regulated ... the market and those that are not.

**Ex. 7. Match the words to their definitions:**

- |                |   |
|----------------|---|
| 1) supermarket | a) the produce of cultivated plants, esp. cereals, vegetables, and fruit;   |
| 2) expenditure | b) a metal or paper medium of exchange that is in current use in a particular country;  |
| 3) workforce   | c) something expended, such as time or money;   |
| 4) farmland    | d) goods (visible exports) or services (invisible exports) sold to a foreign country or countries;  |
| 5) livestock   | e) land used or suitable for farming;   |
| 6) currency    | f) goods (visible imports) or services (invisible imports) that are bought from foreign countries;  |
| 7) inflation   | g) organized economic activity concerned with manufacture, extraction and processing of raw materials, or construction;                                   |
| 8) meadow      | h) a progressive increase in the general level of prices brought about by an expansion in demand or the money supply or by autonomous increases in costs; |
| 9) industry    | i) cattle, horses, poultry, and similar animals kept for domestic use but not as pets, esp. on a farm or ranch;   |
| 10) security   | j) an area of grassland, often used for hay or for grazing of animals;  |
| 11) imports    | k) the act of production or manufacture;  |
| 12) exports    | l) an ally or companion;  |
| 13) partner    | m) land covered with grass or herbage and grazed by or suitable for grazing by livestock;   |
| 14) pasture    | n) a certificate of creditorship or property carrying the right to receive interest or dividend, such as shares or bonds;                                 |
| 15) upland     | o) the top layer of the land surface of the earth that is composed of disintegrated rock particles, humus, water, and air;                                |
| 16) output     | p) a large self-service store retailing food and household supplies;  |
| 17) crop       | q) an area of high or relatively high ground;   |
| 18) soil       | r) the total number of workers employed by a company on a specific job, project, etc.   |

**Ex. 8. Substitute the words in italics by their synonyms:**

1. *Approximately* 5.3 million people contribute to the economy of Belarus.
2. Belarus does not have *vast* amounts of most of the minerals.
3. The country has small reserves of *petroleum* and natural gas.
4. The main industries *include* machine building, instrument making.
5. Belarus also *manufactures* computers



and engineering equipment. 6. The country's *principal* crops are potatoes, grains, flax, and fruits. 7. They had little *incentive* to satisfy their customers.

**Ex. 9. Read the information below and think of the word, which best fits each space. Use only one word in each space:**

The Republic of ... has a significant intellectual and scientific-technical potential, which is an essential ... for sustainable social and economic ... of the country, higher competitiveness of the national ... , and implementation of technical update of the real economic sector on the basis of innovative and high technologies.

The country ... more than 300 scientific organisations, of which over 90% are ...-owned. The ... Academy of Sciences of Belarus includes over 90 scientific ... and developments organisations. A broad range of scientific research facilitates a rapid ... of domestic production and winning of global markets. Advanced developments by Belarusian ... in the field of laser and plasma technologies, new materials ... specific properties, microelectronics, informatics, etc., have ... widely recognised in ... countries.

**Ex. 10. Prove whether the following statements are true or false using the information from the text:**

1. The national economy of Belarus is well-developed. 2. Belarus has vast amounts of most of the minerals used in modern industrial production. 3. The country has large reserves of petroleum and natural gas. 4. The country is a world leader in the production of peat. 5. Belarus is heavily reliant on oil and gas supplies from Russia. 6. Belarus satisfies all its energy needs. 7. Heavy industry is the least developed sector of the economy. 8. The chief chemical product is potassium fertilizer. 9. Agriculture accounts for about a half of Belarus' economic output. 10. Belarus has a large amount of farmland. 11. The agricultural sector in Belarus is dominated by private farms. 12. The transition to private farms proved to be slow and difficult. 13. Service industries are well developed in Belarus. 14. Belarus proper consumes most of the goods produced. 15. Belarus has an extensive transportation system.

**Ex. 11. Complete the following sentences with the appropriate terms from the list below:**

agriculture

CIS countries' markets

energy needs

farming

farmland

forest reserves

heavy industry

industrial output

industrial production

International Monetary Fund

livestock

monetary systems

potassium salts

service industries

small businesses

trading partner

1. Minerals are used in modern ... . 2. The country has large ... . 3. Belarus possesses one of the world's largest reserves of ... . 4. Belarus generates only about 12% of its own ... . 5. Manufacturing contributes most of the country's ... . 6. ... is the most highly developed sector of the economy. 7. ... accounts for about a seventh of Belarus' economic output. 8. Belarus has a large amount of ... . 9. A short growing season and a lack of fertile soil make ... difficult. 10. ... are industries that produce services, not goods. 11. Many individuals and families are starting ... . 12. In 1994 Belarus and Russia agreed to the eventual merger of their ... . 13. A great amount of goods produced by Belarusian industries and agriculture is oriented towards the ... . 14. Russia, which supplies most of the country's fuel imports, is the most important ... . 15. In 1992 Belarus became a member of the ... .

***Ex. 12. Choose the best variant to complete the sentences:***

1. Belarus has vast amounts of (most of the minerals used in modern industrial production; petroleum and natural gas; potassium salts; coal). 2. The country is a world leader in the production of (peat; petroleum; gold; coal). 3. The most highly developed sector of the economy is (chemical industry; heavy industry; food industry; textile industry). 4. The agricultural sector is dominated by (state and private farms; collective and private farms; state and collective farms; private farms). 5. The 1986 explosion at the Chernobyl nuclear power station contaminated much of the soil in (northern Belarus; southern Belarus; eastern Belarus; western Belarus). 7. The transition to private farms proved to be (quick; easy; efficient; none of the above). 8. The National Bank of Belarus is (commercial bank; joint-stock company; a state-controlled bank; a limited-liability company). 9. A great amount of goods produced by Belarusian industries and agriculture is oriented towards (the CIS countries' markets; China and Poland; Germany and Italy; Great Britain and the United States). 10. Belarus is a member of (the International Bank for Reconstruction and Development; the International Monetary Fund; the European Bank for Reconstruction and Development; all of the above). 11. Belarus' most important means of long-distance travel are (airplanes; trains; buses; automobiles). 12. Public transportation in Belarus is (inefficient; expensive; out-of-date; none of the above).

***Ex. 13. Role-play a situation:***

– a group of British businessmen are burning with the idea to open a division of their company in Belarus. They realize that this business might be very risky because they know very little about that country that once used to be a part of the Soviet Union. However, the proverb says: Nothing venture, nothing gain. That is why they visit Belarus to find out if this idea

brings them some profit and advantages;

– you are young British businessmen planning to open a division of your company in Belarus. The problem is your lack of knowledge about this country. You visit the Belarusian capital in order to learn more about it and to see if your idea is worth realizing;

– you are a historian. You talk about some facts of Belarusian history and its development to an independent state;

– you are a politician. You talk about the political system of Belarus;

– you are a geographer. You talk about the geographical position of the Republic of Belarus pointing out that it is very favorable. Mention some facts about Belarusian Nature and climate and say that there are certain possibilities for the development of tourism here;

– you are an economist. You make the British guests familiar with the development of Belarusian industry and economy;

– you are a guide. You show the British guests the city of Minsk telling them some facts about its history and present.

***Ex. 14. In 10–15 sentences express the main idea of the text.***

## **UNIT 2. OUR UNIVERSITY**

## Part 1. Brief Historical Survey

### ***Ex. 1. Make sure you know the meaning of the following words:***

date back v., forestry n., faculty n., found v., opening n., hold v., wood n., mechanization n., logging n., land n., transportation n., name v., name n., engineering n., evacuate v., liberation n., invader n., transfer v., train v., reformation n., inspire v., intensive a., develop v., development n., chemical a., educational a., scientific a., further adv., glass n., biotechnology n., ceramics n., refractory n., binding a., form v., award v., jubilee n., qualify v., field n., skill n., skilled a., contribution n., choose v., career n., design n., composite a., environmental a., protection n., utilization n., resource n., production n., substance n., list n., enlarge v., council n., economic a., total a., continue v., print v., publish v., state a., certify v., institution n., grant v.

### ***Ex. 2. Practice the pronunciation of the following words:***

basis, faculty, specialist, evacuate, period, industry, mechanization, chemical, chemistry, transfer, further, biotechnology, science, scientific, ceramics, design, career, environmental, resources, substance.

### ***Ex. 3. Answer the following questions:***

1. When was the Forestry Institute founded? 2. When was the official opening held? 3. How many faculties were there at the Institute in 1930? 4. When was the Institute transferred to Minsk? 5. How many students did it train then? 6. What caused its reformation in 1961? 7. What was the result of this reformation? 8. What specialists did the Institute begin to train? 9. In what connection was the Institute awarded the Order of Red Labour Banner? 10. When was the Institute reorganized once more? 11. How is it called now? 12. What new faculties were organized in the 21<sup>st</sup> century? 13. What status was the University granted in 2005?

### ***Ex. 4. Read and translate the following text:***

The history of the BSTU dates back to 1919 and 1920 when on the basis of Gory-Goretsky Agricultural Institute and of the Byelorussian Polytechnic forestry faculties were organized. Our University was founded in 1930 in Gomel on the basis of these faculties of the Byelorussian State Agricultural Academy. The official opening of the Forestry Institute was held on October 1, 1930 in Gomel. At first, there were only 3 faculties at the Institute: Wood Technology Faculty, Mechanization of Logging and Land Transportation Faculty, and Forestry Faculty.

In 1934 the Forestry Institute was renamed into the Byelorussian Forestry Engineering Institute.

In 1941 at the beginning of the Great Patriotic War the Institute was evacuated to the city of Sverdlovsk. After liberation of Gomel from German fascist invaders the Institute was reevacuated to Gomel. In August 1946 the Institute was transferred to Minsk, it trained 416 students then.

Its reformation in 1961 into the Byelorussian Technological Institute was inspired by an intensive development of the Republic's chemical industry. By the end of the 60s the Chemical and Technological Faculty was founded. In the 70s the Institute educational and scientific potential developed further: it began to train specialists in biotechnology, glass and glass-ceramics, ceramics and refractories, binding materials; a number of large scientific schools were formed.

On October 20, 1980 the Institute was awarded the Order of Red Labour Banner, with its 50<sup>th</sup> jubilee and for training highly-qualified specialists. At that time the Institute trained 6,000 students in 19 specialities at 6 faculties.

In 1989 the Institute began to train industrial engineers in construction and design of composite material articles, in environmental protection and rational utilization of natural resources, in chemical technology of materials and electronic engineering production and in chemical technology of organic substances.

Later on the material and technical facilities developed and the list of specialities for training engineers enlarged. In 1993 the Institute was reorganized once more and now it is called the Byelorussian State University of Technology (Belarusian State Technological University).

In December 2000 the BSTU was awarded the Honored Diploma of the Council of Ministers of the Republic of Belarus and the National Assembly of the Republic of Belarus.

By 2000 the University had founded two new faculties: Economic Engineering Faculty and Faculty of Retraining and Qualification Upgrade, and had opened 14 specialities with about 50% of the total number of students.

In the 21<sup>st</sup> century the BSTU continues its development. Faculty of Printing and Publishing and Faculty of Pre-University Training were founded.

In December 2004 the State Inspection Commission of the Ministry of Education of the Republic of Belarus certified the status of the University as a higher educational institution of a university type. In October 2005 the University was granted the status of a leading higher educational institution in the field of forestry, chemical and printing industries.

At present the University meets the needs of modern industry in well-educated and highly-skilled specialists, who can make an immediate and effective contribution in their chosen career field.

**Ex. 5. Complete each sentence using a word derivationally related to the word given in brackets:**

1. The ... of the Forestry Institute into the Byelorussian Technological Institute was organized in 1961 (reform). 2. It was inspired by an intensive ... of the Republic's chemical industry (develop). 3. In the 70s the Institute ... potential developed further (education). 4. To increase the level of ... researches the University constantly develops the material and technical basis (science). 5. The University purchases and applies modern ... (equip). 6. In 1966 the Institute was granted the status of the basic higher school on the following problems: ... and ... of activities of Republican higher technical training institutions (organize, coordinate). 7. The University trains highly ... specialists for forestry and ... technologies (compete, chemistry). 8. Taking into ... requirements of the state in economic and social spheres, the structure of the University is under ... (consider, improve). 9. The ... to organize two new faculties was taken in 2000 year (decide). 10. In 1955 Negoreloe forestry ... station was organized (experiment).

**Ex. 6. Match the words to their definitions:**

- |                  |   |
|------------------|---|
| 1) faculty       | a) growth or formation of smth.;  |
| 2) biotechnology | b) natural world that exists around us;   |
| 3) invader       | c) special anniversary of an event;   |
| 4) reformation   | d) knowledge and ability that enables you to do smth.;  |
| 5) development   | e) keeping someone or smth. safe from unpleasant effect;  |
| 6) jubilee       | f) a set of things written in a particular order;   |
| 7) list          | g) a group of related departments;  |
| 8) skill         | h) the way in which smth. has been planned and made;  |
| 9) design        | i) the process of manufacturing smth.;  |
| 10) protection   | j) soldiers who are invading a country;   |
| 11) production   | k) improvement by making changes;   |
| 12) environment  | l) the use of living parts (cells or bacteria) for benefit in industry and technology (a technical term). |

**Ex. 7. Insert prepositions where necessary:**

1. Our University was founded ... 1930 ... the basis ... two forestry faculties. 2. The official opening was held ... October, 1930. 3. There were only three faculties ... the Institute. 4. The Institute was renamed ... the Byelorussian Forestry Engineering Institute. 5. ... the beginning ... the Great Patriotic War the Institute was evacuated ... Sverdlovsk. 6. The

reformation of the Institute was inspired ... the development ... chemical industry. 7. In 1980 the Institute was awarded ... the Order of Red Labour Banner. 8. The list ... specialities ... training engineers enlarged in 1993. 9. The University trains specialists ... the fields ... environmental protection and rational utilization ... natural resources. 10. In 2005 the University was granted ... the status ... a leading high educational institution.

**Ex. 8. Substitute the words in italics by their synonyms:**

On June 1, 1930 the Forestry Institute was *formed*. By the end of 1944 the number of students has become 168, the research and teaching staff *comprising* 40 workers. Its reformation in 1961 into the Byelorussian Technological Institute *was inspired* by an intensive development of the Republic's chemical industry. In the 70s the Institute educational and scientific potential developed further: it *began* to train specialists in biotechnology. In 1991 the Republic of Belarus became a sovereign state that required creation of a national system of education. In 1998 the production and education basis of the University *was updated*. In XXI century the BSTU *continues* its development. The computerization of the University has been *completed*. Now it *possesses* more than 1,200 modern computers *with access to* Internet.

**Ex. 9. Read the information below and think of the word which best fits each space. Use only one word in each space:**

In 1922 the Polytechnic was ... into the Institute of Agriculture and Forestry. In 1924 after joining two agricultural high educational ... the Byelorussian State Agricultural Academy was ... in Gorky. On its ... the Forestry Institute was formed. The newly-born Institute faced the task of ... engineers for forestry, forest and wood working industries. In 1934 the Forestry Institute was ... into the Byelorussian Forestry Engineering Institute. By the end of 1944 the ... of students had become 168. In 1980 the Institute ... 6,000 students. Material and technical ... developed. By 2000 the University had ... two faculties: Economic Engineering faculty and Faculty of Retraining and Qualification Upgrade. In October 2005 the University was ... the status of a leading higher educational institution in the field of forestry, chemical and printing ... (institutions, basis, transform, number, train, rename, facilities, train, grant, found, industry, form).

**Ex. 10. Prove whether the following statements are true or false using the information from the text:**

1. In 1930 our University was called Belarusian State Technological University. 2. The University was founded on May 1, 1930. 3. At first there were only 4 faculties at the Institute. 4. In 1934 the Forestry Institute was renamed into the Byelorussian Forestry Engineering Institute. 5. The Institute was evacuated to Novosibirsk. 6. The Institute began to train specialists in biotechnology in the 70s. 7. In 1980 the Institute trained 10,000 students. 8. The reorganization of the Institute into the University took place in 1999. 9. The Economic Engineering Faculty had been founded by 2000. 10. The University was granted the status of a leading higher educational institution in September 2005.

***Ex. 11. Work in groups. Find out from your partners:***

- whether they have ever known that our University was formed on the basis of Agricultural Academy;
- when and why the Institute was evacuated to Sverdlovsk;
- whether they know the number of students at the Institute in 1946, 1980 and now.

***Ex. 12. Explain why:***

- the Forestry Engineering Institute was reformed into the Byelorussian Technological Institute in 1961;
- the university was granted the status of a leading higher educational institution in the field of forestry, chemical and printing industries.

***Ex. 13. Imagine that you are on the eve of the 80<sup>th</sup> anniversary of the University. Be ready to make a short report on the topic “Brief Historical Survey”.***

## **Part 2. BSTU – Today. Scientific Researches and Educational Work**

***Ex. 1. Make sure you know the meaning of the following words:***

enter v., unique a., aim v., scope n., activity v., competitive a., domain n., forestry n., utilize v., equipment n., metrology n., standardization n., certification n., determine v., trend n., develop v., sphere n., ecology n., head n., head v., Vice-Rector n., contain v., direct v., department n., total a., post-graduate n., Academician n., quality n., improve v., integrate v., research n., general a., background n., law n., include v., conduct v., branch n., stream a., stock n., number v., constantly adv., require v., participate v., carry out v., executive a., fibre n., increase v., renew v., purchase v., apply v., essential a., comprise v., complete v., connect v., success n., achieve v., prominence n., creative a., effort n., staff n., technician n.

***Ex. 2. Practice the pronunciation of the following words and names:***

technological, scientific, dynamically, multi-profile, specialist, resources, automated, determine, Forestry Faculty, Forestry Engineering and



Wood Technology Faculty, Chemical Technology and Engineering Faculty, Economic Engineering Faculty, Faculty of Printing and Publishing, Organic Substances Technology Faculty, Correspondence Faculty, competitive, mathematics, physics, chemistry, mechanics, discipline.

***Ex. 3. Answer the following questions:***

1. What is the main aim of the University? 2. What fields of industry does the University train specialists for? 3. What main trends in the development of education does the University determine? 4. How many faculties are there at the University? What are they? 5. What faculty do you study at? 6. What is the total number of students at the University? 7. Who directs the activities of each faculty? 8. What is the name of your Dean? 9. What are the common subjects for all the students of our University? 10. What scientific and technical programs does the University develop? 11. How many research and development laboratories are there at the University? 12. Why does the University constantly develop and renew the material and technical basis? 13. How can you characterize the level of computerization at the University? 14. What is the aim of holding conferences and exhibitions at the University? 15. How many foreign specialists has the University trained? 16. Who co-operates to achieve success in the process of education? 17. What are in your opinion the advantages of studying at our University?

***Ex. 4. Read and translate the following text:***

The Republic of Belarus entered the 21<sup>st</sup> century having a well-developed educational system. The Belarusian State Technological University as a unique scientific and educational complex and an oldest higher technical school of the country has always been aimed at training highly-competent specialists.

Now the University is a large dynamically developing multi-profile educational and scientific centre in the Republic of Belarus with a wide scope of activities, training highly competitive specialists for the following domains: forestry and utilization of forest resources; chemical technologies and biotechnologies; special-purpose machines and equipment; automated control systems; engineering industry; metrology; standardization and certification; printing and publishing; economics; power engineering; professional training. As a basic educational institution in Belarus, the University determines the main trends in the development of education in the spheres of forestry, chemical technology and ecology.

The head of the University is the Rector and 5 Vice-Rectors.

The University contains 10 faculties: (1) Forestry Faculty; (2) Forestry Engineering Faculty; (3) Organic Substances Technology Faculty; (4) Chemical Technology and Engineering Faculty; (5) Economic

Engineering Faculty; (6) Faculty of Printing and Publishing; (7) Correspondence Faculty; (8) Faculty of Retraining and Qualification Upgrade; (9) Faculty of Social Professions; (10) Faculty of Pre-University Training. There is a Dean's Office for Foreign Students. Each faculty is headed by a dean who directs the activities of the faculty.

There are 47 departments at the University. They train engineers for 27 specialities and 54 specializations. More than 13,000 people – the total number of people who are taught and work at the University every year. Among them there are 11,000 students, 650 teachers, 185 doctorates and post-graduates, 40 Academicians and Corresponding Members of the National Academy of Sciences of Belarus and other Academies, 70 Doctors of Science, professors.

The teaching process at the University is organized in the following way. The academic year is divided into 2 terms. During the terms students attend lectures and carry out laboratory and practical work. At the end of each term students pass credit tests and sit exams. The course of studies for engineers lasts 5 years (Accounting, Analysis and Audit – 4 years). The professional training course includes 18 weeks. At the end of the course of studies at the University the students sit the State Examination on their speciality (specialization) and defend diploma papers (projects).

The quality of fundamental training at the University is constantly improving and the teaching process integrates with scientific research. Mathematics, physics, chemistry, mechanics, computer engineering, machine graphics are an integral part of general engineering and special disciplines. As would-be engineers require some background in ecology, economics, law, marketing, basic management skills, certification, foreign and Belarusian languages, the University course includes these disciplines.

Classes are conducted in 7 academic buildings, Negoreloe forestry experimental station, at the branches of the University departments under Production Association “Belgosles”, in Minsk Research Institute of Building Materials, Production Association “Minsk Tractor Plant”.

The BSTU is not only one of the leading educational institutions of the Republic of Belarus, but it is one of the main scientific and research centers. The University participates in carrying out scientific and technical programs at different levels. As a leading executive organization, the University develops state scientific and technical programs “Wood Resources”, “Forest-Ecology and Resources”, “Forests of Belarus and their Rational Utilization”, “Forest Management and Rational Forest Utilization”, “Chemical Fibres and Polymer”. Students and post-graduates are also involved in all scientific researches.

To increase the level of scientific researches, the University constantly develops and renews the material and technical basis, purchases and applies modern equipment. Computers are an essential part of all courses. The University computer center comprises 1,300 personal computers and 38 equipped study rooms, with one computer per 5 students. In 2003 the services on connecting 400 computer working places to the Internet were completed.

There are 22 research and development laboratories and 14 scientific schools of international level at the University.

To adopt and to share experience, the University organizes national and international conferences and exhibitions devoted to the problems of science, engineering and education. The University traditionally performs scientific and educational activities, i.e. student olympiads, conferences, helps other higher educational institutions in elaborating educational standards.

International cooperation is of paramount importance for teaching and research processes at the University. Training specialists for foreign countries is one of its forms and it dates back to the 60s. The University has already trained about 500 engineers and 18 Ph. Ds for 38 countries of the world.

The success achieved by the University and its prominence are the results of creative and motivated efforts of the teaching staff, scientists, technicians and students.

***Ex. 5. Complete each sentence using a word derivationally related to the word given in brackets:***

1. The professional training course developed at the University includes ... , industrial and pre-diploma practices at the leading field-specific enterprises of the Republic (education). 2. The unique equipment for ... and ... analysis concentrated in the research centers helps to obtain information of fundamental scientific value (physics, chemistry). 3. The University began a mass ... of monographs, tutorials and textbooks on its own printing base (publish). 4. As a basic educational institution in Belarus the University determines the main trends in the ... of education in the spheres of forestry, chemical technology and ecology (develop). 5. The Forestry Faculty develops international ... with the Research Institute of Forest in Finland (cooperate). 6. Chemical, petrochemical and microbiological branches of industry are characterized by a high ... of technological processes (complex). 7. Training of ... engineers, mechanics engineers and ... ecology engineers is carried out at the Chemical Technology and Engineering Faculty (industry). 8. Scientific researches on problems of developing information management and ... of nature

resources in chemistry-forestry complex are carried out at the Economic Engineering Faculty (value). 9. The students engaged in research take part in different international, ... and University scientific conferences (republic). 10. At present the printing and publishing complex uses all the ... of the scientific and technological progress (achieve).

**Ex. 6. Match the words to their definitions:**

- |                |   |
|----------------|---|
| 1) equipment   | a) general development of events (tendency);                                    |
| 2) trend       | b) one of the periods of time that college or                                   |
| 3) research    | university divides the year into;   |
| 4) institution | c) achievement of smth. that you have been trying to do;                        |
| 5) conference  | d) things which are used for a particular purpose;                              |
| 6) term        | e) a series of questions that you must answer;                                  |
| 7) test        | f) large important organization of a particular type;                           |
| 8) success     | g) detailed study of a subject;   |
| 9) effort      | h) meeting at which formal discussions take place;                              |
| 10) technician | i) situation in which a lot of things are being done;                           |
| 11) activity   | j) energy in the form of effort, action;  |
|                | k) someone whose job involves skilled practical work with scientific equipment. |

**Ex. 7. Insert prepositions where necessary:**

The Correspondence faculty has been ... operation ... 1949. Over the years ... its work the faculty has trained over 800 highly-skilled specialists ... forestry, chemistry, building materials and printing enterprises. The academic process ... the faculty is conducted ... highly-qualified lecturers ... the departments. The term ... study is 6 years. The second high education can be received ... 3–4 years. The graduates ... the faculty are employed ... various fields of science and engineering and they make their contribution ... economic and social reforms the Republic of Belarus. ... present over 3800 students are trained ... the faculty.

**Ex. 8. Substitute the words in italics by their synonyms:**

The University *contains* 10 faculties, 47 departments, 5 affiliates of departments. Over 400 specialists of *various branches* of industry are annually provided with retraining at the University. 14 scientific schools have been established at the University. Fundamental science and applied investigations are an *indispensable* part of a *modern* university. We are proud that the achievements of our scientists are *acknowledged* in our country and abroad. Taking into consideration *requirements* of the *state* in economic and social spheres, the structure of the University is under improvement: new faculties, departments, laboratories are *designed*. The

University traditionally *performs* scientific and educational activities. Many of the University graduates are *outstanding* scientists and managers.

**Ex. 9. Read the information below and think of the word which best fits each space. Use only one word in each space:**

The Dean's Office for Foreign Students was opened on September 9, 1981 ... qualified engineers for ... countries. First 17 foreign specialists ... from the University in 1984. Over the years of its work the ... has trained more than 500 specialists. Residents of Central and South America, Africa, Iran, Iraq, China and other countries ... at the Byelorussian State Technological University. The University offers foreign students opportunities ... fundamental training, to specialize in areas which interest them most. (Faculty, study, train, obtain, foreign, graduate).

**Ex. 10. Prove whether the following statements are true or false using the information from the text:**

1. The Byelorussian State Technological University is the youngest higher technical school of the country. 2. The University trains specialists only for the following branches of industry: chemical technologies and construction. 3. The University determines the main trends in the development of education in the spheres of forestry, chemical technology and ecology. 4. There are four faculties at the University. 5. The University participates in carrying out scientific and technical programs at different levels. 6. The University organizes exhibitions devoted to the problems of science, engineering and education. 7. Training specialists for foreign countries dates back to the 30s. 8. The University has already trained about 100 engineers for 20 countries of the world. 9. The academic year at the University is divided into 3 terms. 10. At the end of the course of studies the students pass only credit tests. 11. Classes are conducted in 7 academic buildings. 12. The University computer center comprises 2,000 computers.

**Ex. 11. Complete the sentences below. Give extended answers:**

1. The text is devoted to ... . 2. The text gives (presents, provides) information regarding ... . 3. At the beginning of the text special attention is paid to ... . 4. The text contains a detailed description of ... . 5. Besides some factual information is given concerning ... . 6. The text contains ... . 7. In conclusion the text reads that ... . 8. Moreover we clearly understand that ... .

**Ex. 12. Comment on:**

- the role of the University in the 21<sup>st</sup> century;
- fundamental training;
- the University is one of the main scientific and research centers.

**Ex. 13. Prove that:**

– the Belarusian State Technological University is a large dynamically developing multi-profile educational center in the Republic of Belarus.

***Ex. 14. Imagine that:***

– you are a guide around the University. Role-play an excursion;  
– you have met your friend who entered the Medical University. He asks you to tell about BSTU and compare these two universities. Role-play the situation.

***Ex. 15. Write a short essay on one of the following topics:***

– a teaching process at the University;  
– faculties of the BSTU;  
– international cooperation;  
– read a short information about the main faculties of the BSTU at the end of the book. Mind your own faculty, add some more information.

### **Part 3. Student Life**

***Ex. 1. Make sure you know the meaning of the following words:***

house v., facility n., contest n., party n., discotheque n., competition n., arrange v., hostel n., opportunity n., improve v., health n., canteen n., café n., cater v., provide v., artistic a., creative a., skill n., amateur n., winner n., art n., enjoy v., topical a., prominent a., personality n., show n., folk a., performance n., team n., compete v., recreation n., aspiring a., athlete n., annually adv., perfection n., achievement n., wrestling n., bow-shooting n., races n., hold v.

***Ex. 2. Practice the pronunciation of the following words:***

theatrical, performance, discotheque, folk, instrumental, orchestra, prominent, personality, athlete, qualification, perfection, arm-wrestling, weight lifting, unarmed combat, judo, tourism, championship, free-style wrestling, Greco-Roman wrestling, bow-shooting, rock-climber.

***Ex. 3. Answer the following questions:***

1. What are the characteristics of a campus university? 2. How can students spend their free time in hostels after classes? 3. What famous amateur groups are there at the University? 4. Are you fond of singing or dancing? 5. Do you want to take part in performances? 6. Do you participate in theatrical shows, concerts, folk performances? 7. Are you fond of sports? 8. How can you characterize the University opportunities for sport, recreation, fitness? 9. What groups of sport perfection are organized at the University? 10. Are you a member of one of them? 11. What is your favorite kind of sport? 12. Do you know the winners of Republican student games? 13. Are you going to take part in some interfaculty competitions?

***Ex. 4. Read and translate the following text:***

The University is a modern campus university with all its academic buildings, most of its student housing (five hostels) and all student support facilities (Internet Club, computer classes, branches of the library, a billiard playing room) of the campus itself. Various kinds of contests, parties, round tables, discotheques, sport competitions and games are arranged in hostels after classes. Students have an opportunity to improve their health in the medical centre of the University. A canteen, a bar and a café also cater for the needs of students.

The University provides talented students with facilities to develop their artistic and creative skills. Such amateur groups as Prize winner of international art festival “Roon”, professor vocal group “Akavita”, winner of republican festivals folk student theater “Kolokol”, vocal-instrumental group “Faculty”, folk instrumental orchestra, dance group enjoy great popularity. Students in the campus housing also organize lively social activities and the teaching staff joins with students in planning programs of these activities. They organize topical parties, round tables with prominent personalities of the state, theatrical shows, concerts, folk performances, contests, festivals. The performance of the club of witty youth has become an annual event of note. The University team competes with teams of other Belarusian Universities.

The University opportunities for sport, recreation, fitness and health are great for both aspiring athletes and average students, depending on their health, physical abilities and sport qualifications. The students are provided with facilities for 16 kinds of sport.

Annually about 350 students study in groups of sport perfection in 16 kinds of sport: football, volleyball, basketball, arm-wrestling, weight lifting, unarmed combat, judo, Greco-Roman wrestling, chess, Chinese Gymnastics (Ushu), tourism, swimming and table tennis.

The students of the BSTU enjoy great popularity for their sport achievements both in our Republic and abroad. Our University has trained winners and prize-winners of international competitions, world and European championships. The University teams in free-style wrestling, Greco-Roman wrestling, mini-football, bow-shooting, chess, hockey, skiing races, basketball, handball, arm-wrestling and weight lifting were winners of Republican student games.

Interfaculty competitions in various kinds of sport are held at the University annually. Tourist trips, football fan clubs, a rock-climber circle and P. T. groups are organized at the University.

**Ex. 5. Complete each sentence using a word derivationally related to the word given in brackets:**

Sport is probably as old as the humanity itself. It has been developing with the developing and ... of the mankind (grow). All over the world people of ... ages are very fond of sports and games (differ). Sport not only helps people to become strong and to develop physically but also makes them more organized and better disciplined in their ... activities (day). We all need to exercise. The best exercise is one which involves in repeated ... (move). It's so nice to go to the skating-rink on a ... sunny day (frost). ... sports and games are popular with my friends (differ). We have fine teams at our University and different kinds of ... take place here (compete). And now a few words about our physical training lessons: in winter our physical ... lessons are held out-of-doors (train).

**Ex. 6. Match the words to their definitions:**

- |                |   |
|----------------|---|
| 1) campus      | a) part of a place of work (or study) where people go to eat;                           |
| 2) library     | b) famous person especially in entertainment or sport;                                  |
| 3) canteen     | c) area of land that contains the main buildings of a university;                       |
| 4) personality | d) situation in which a lot of things are being done;                                   |
| 5) activity    | e) institution that keeps books, newspapers, records for people to read, study, or use; |
| 6) team        | f) smth. which someone did or caused to happen after a lot of effort;                   |
| 7) achievement | g) a group of people who play a particular sport of game together.                      |

**Ex. 7. Insert prepositions where necessary:**

Faculty ... Social Professions began working ... 1968. There are four departments ... this faculty: amateur performances, sports, foreign languages, computer and information technology. The graduates ... these departments become managers ... social work, coaches ... some kinds of sports, reviewer-translators of scientific and technical literature. Apart ... this, students get skills and knowledge ... computer modeling, programming and Internet.

**Ex. 8. Substitute the words in italics by their synonyms:**

A multilevel system of training specialists (in accordance with international standards) has been developed and led to the *decrease* of state expenditures on education and the increase of payable enrollment of students to the University. The educational process *aims* are:



– to meet *needs* of *modern* industry in well-educated and *highly-skilled* specialists, who can make an *immediate* and effective contribution in their chosen career field;

– to train efficient and resolute managers;

– to educate personalities with a high level of patriotic, intellectual, moral and cultural views.

The educational programs are *spread* along the lines of student interests in four directions: human and social studies, fundamental and professional disciplines, special subjects, specialized projects.

**Ex. 9. Prove whether the following statements are true or false using the information from the text:**

1. The University opportunities for sport, recreation, fitness and health are great only for aspiring athletes. 2. The University provides talented students with facilities to develop their artistic and creative skills. 3. Annually about 1,000 students study in groups of sport perfection. 4. The University team never competes with teams of other Belarusian universities. 5. The students are provided with facilities for 20 kinds of sport. 6. The students of BSTU enjoy great popularity for their sport achievement both in our Republic and abroad. 7. The University teams in figure skating and gymnastics were the winners of Republican student games. 8. Various kinds of contests, parties, round tables, sport competitions and games, discotheques are arranged at hostels after classes. 9. “Akavita” is a student vocal group. 10. Tourist trips, football fan clubs, a rock climber circle are also organized at the University.

**Ex. 10. Work in groups. Give a brief survey of the topic “Our University” (the key words are given):**

1930 – to found; 1934 – to rename; 1941 – to evacuate; 1946 – to transfer; 1946 – to train; 1961 – to be inspired; 1968 – to organize; 1980 – to award; 1993 – to grant; 1997 – to certify; 2000 – to found; 21 century – to continue; 2004 – to grant; 2004 – to certify; 2005 – to celebrate.

**Ex. 11. Work in pairs. Speak on the topic “Our University” according to the following plan:**

1. History of the University development. 2. Structure of the University. 3. Organization of the educational process. 4. Scientific work at the University. 5. International contacts. 6. Student life.

**Ex. 12. Work in groups. Find out from your partners what they would like to change at the University.**

**Ex. 13. Write a composition on one of the following topics:**

– I am a student of the Belarusian State Technological University and I'm proud of this;

– the University I would like;

– higher school of the future.

**Ex. 14. Write a letter to your friend who is going to enter the BSTU next year about your first impressions of student's life in Minsk.**

### **UNIT 3. THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND**

#### **Part 1. Geographical Outline of Great Britain**

**Ex. 1. Make sure you know the meaning of the following words:**

consist v., make up v., rocky a., resemble v., coast n., evidence n., shallow a., separate v., separate a., melt v., level n., rise v., drown v., shelf n., surround v., wide a., narrow a., profitable a., regular a., shape v., shape n., indent v., numerous a., gulf n., bay n., harbour n., peninsula n., cape n., submerge v., surface n., develop v., hill n., mountain n., route n., link v., advantage n., create v., favour n., determine v., fast a., remain v., scenery n., spoil v.

**Ex. 2. Practice the pronunciation of the following words and proper names:**

Europe, the United Kingdom of Great Britain and Northern Ireland, England, Wales, Scotland, Ireland, London, Cardiff, Edinburgh, Belfast, an isle, an island, North – Northern, Norway – Norwegian, the English Channel, the Strait of Dover, mountain – mountainous, the Thames, the Severn, the Trent, Cumbria, Lake District, Birmingham, Glasgow, Liverpool, Manchester, Sheffield.

**Ex. 3. Answer the following questions:**

1. In what part of the world is Great Britain situated? 2. What are in your opinion the advantages and disadvantages of the geographical position of Great Britain? 3. What does the abbreviation "UK" mean? 4. What is the capital of England (Wales, Scotland, Northern Ireland)? 5. Why are the isles where Great Britain is situated called British? 6. Why is it annoying for many British people when foreigners call them the English? 7. What educational centres of Great Britain do you know?

**Ex. 4. Have you ever visited Great Britain or read interesting information about its places of interest? If so, tell your friends about these places and convince them to visit these places too.**

**Ex. 5. Read and translate the following text:**

England, Britain, Great Britain, the British Isles, the United

Kingdom of Great Britain and Northern Ireland (UK for short) – these different names are sometimes used to mean the same thing and they are frequently used wrongly. Strictly speaking, England, Britain and the British Isles ought to be used as geographical names. And the official name of the state situated on the British Isles is the United Kingdom of Great Britain and Northern Ireland (it comprises England, Wales, Scotland and Northern Ireland).

The British Isles lie to the north-west of the continent of Europe and consist of two main islands: the larger of which is Great Britain, the smaller is Ireland. Great Britain is made up of England, Wales and Scotland; Ireland comprises Northern Ireland and the Irish Republic. These two and over 500 small islands are known collectively as the state – the United Kingdom of Great Britain and Northern Ireland. The total land area of the UK is 244.1 square km, it is the 75<sup>th</sup> place among other countries of the world.

Many years ago the British Isles formed a part of the continent. The rocky highlands of Scotland, for example, resemble the Norwegian coast. Another evidence that the islands were the part of the continent is the shallowness of the water between them and the mainland. The main separation took place thousands of years ago, after the last Ice Age, when the ice melted, the level of the oceans rose and drowned the low-lying coastlands.

The north-west and the west of Great Britain is surrounded by the Atlantic Ocean. In the west the country is washed by the Irish Sea. The eastern coast is open to the waters of the North Sea. The south-eastern part of Great Britain is separated from France by the English Channel which is in its widest part 220 km wide, and in the narrowest, what is called the Strait of Dover, – only 32 km. So, the islands have always had easy and mainly profitable contacts with mainland Europe.

Great Britain is very irregularly shaped; being deeply indented by the numerous gulfs of the sea, no part of the country is more than 120 km from the sea. So the British Isles are known for their greatly indented coastline. Therefore there are many bays and harbours, peninsulas and capes on the coast, which were formed as a result of the raising and submerging of the land surface in the process of the geological development of the island. The island of Great Britain is quite distinctly divided into two parts; the mountainous Highlands (north and west) and the Lowlands, sometimes hilly (south and east).

The most important sea routes pass through the English Channel and the North Sea linking Europe with America and other continents. The advantageous geographical position of Great Britain created favourable conditions for the development of shipping, trade and the economy as a whole.

The rivers of Great Britain are short and of no great importance as waterways, their direction and character are determined by the position of the mountains. The busiest of them is “the Farther of London”, the Thames, the longest is the Severn which is a little over 200 miles. The Trent is the fastest. The rivers seldom freeze in winter, most of them remain ice-free but they are not navigable for ocean ships.

England has no large lakes. But the Lake District in the north-western part of the country is known for its beauty. The Lake District is the central mountainous area of Cumbria in the Northwest and has some of England's most beautiful scenery. Several other names are used to describe this area, for example Lakeland, and the English Lakes. Since the Lake District is a National Park, there is special control over building there to make sure that the beauty of the countryside is not spoiled. There are 16 lakes there.

**Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets.**

1. The islands of Great Britain, Ireland and over 500 small ones are known ... as one state (collective). 2. The ... mountains of Scotland are located in the northern part of the island and are called the Highlands (rock). 3. The rocky highlands of Scotland bear some ... to the Norwegian coast (resemble). 4. Another evidence that the islands were a part of the continent is the ... of the water between them and the mainland (shallow). 5. The ... of the mainland and the islands took place after the last Ice Age (separate). 6. Over 500 islands in the system of the British Isles lie on the ... shelf (continent). 7. The islands have many ... contacts with mainland Europe (profit). 8. The coasts of Great Britain are very ... shaped (irregular). 9. Many bays and harbours were formed in the process of the geological ... of the island (develop). 10. The ... part of Great Britain is called the Highlands (mountain).

**Ex. 7. Match the words to their definitions:**

- |               |  |
|---------------|--|
| 1) bay        | a) piece of land surrounded by water;                        |
| 2) cape       | b) natural elevation on the earth's surface;                 |
| 3) channel    | c) part of the sea or of a large lake, enclosed by a wide    |
| 4) continent  | curve of the shore;  |
| 5) harbour    | d) large body of salt water, more or less enclosed by land;  |
| 6) hill       | e) narrow passage of water connecting two seas or two        |
| 7) island     | large bodies of water;                                       |
| 8) lake       | f) natural stream of water flowing to a sea or to a lake;    |
| 9) mountain   | g) great body of water that surrounds the land masses of the |
| 10) ocean     | earth;   |
| 11) peninsula | h) mass of very high land going on to a peak;                |
| 12) river     | i) one of the main land masses;                              |
| 13) sea       | j) high point of land going out into the sea;                |

- 14) strait            k) stretch of water joining two seas;  
                          l) place of shelter for ships;  
                          m) area of land almost surrounded by water and projecting  
                          far into the sea;  
                          n) rather a large area of water enclosed by land.

**Ex. 8. Insert prepositions where necessary:**

The four parts ... the UK represent four nations which are distinct ... each other ... almost every aspect ... life. They were different racially. The people ... Ireland, Wales and highland Scotland belonged ... the Celtic race, those ... England and lowland Scotland were mainly ... Germanic origin. This difference was reflected ... the languages they spoke, ... their different economic, social and legal systems. The long centuries ... contact ... the people ... the four nations ... the British Isles have limited their significant differences. But they have not completely disappeared, and the Welsh, Scottish and Irish people feel their identity very strongly.

England has always played the most powerful role ... the history ... the British Isles. That is why foreigners usually call all British people "English". But this irritates the people who live ... Scotland, Wales and Northern Ireland who are not English and who still feel different ... the English.

**Ex. 9. Substitute the words in italics by their synonyms:**

London *draws* people from all over the world. Some *come* on business, some come to *study*, to work or on holiday. London is *naturally* a very English city, yet it is the least typical of Britain as it is very cosmopolitan, *containing goods*, food, entertainment, as well as people, from *many countries* of the world.

There is much in London which *fascinates* visitors: the *splendour* of the royal palaces and the Houses of Parliament, the dignity of St. Paul's Cathedral and *numerous* monuments, historic buildings, and parks.

**Ex. 10. Read the information below and think of the word which best fits each space. Use only one word in each space:**

All ... of the United Kingdom have a temperate ... , with plentiful rainfall all year .... The temperature varies with the seasons but seldom ... below  $-10^{\circ}\text{C}$  or ... above  $+35^{\circ}\text{C}$ . The prevailing wind is from the south-west, bearing frequent spells of mild and wet ... from the Atlantic Ocean. Eastern parts are most sheltered from this wind and are therefore the ... . Atlantic currents, warmed by the Gulf Stream, bring ... winters, especially in the west, where winters are also ... , especially over high ground. Summers are warmest in the south east of England, being ... to the European mainland, and ... in the north. Snow can ... in winter and early spring, though it rarely settles to any great ... away from high ground.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. The word England is often used when people want to name the state situated on the British Isles and they are right. 2. The British Isles comprise only two large islands. 3. The UK is situated on the continent of Europe. 4. There is much evidence that the British Isles were the part of the continent. 5. The geographical situation of Great Britain is very advantageous. 6. The British Isles are known for their greatly indented coastline. 7. There is a fairly wide network of rivers in the British Isles. 8. The Lake District is situated in the South of England. 9. The British climate is very severe.

**Ex. 12. Complete the sentences below. Give extended answers:**

1. The text is devoted to ... . 2. The text gives (presents, provides) information regarding ... . 3. At the beginning of the text special attention is paid to ... . 4. The text goes on saying that ... . 5. Further the text contains a detailed description of ... . 6. Besides some factual information is given concerning ... . 7. In conclusion the text reads that ... . 8. On reading the text we realise the fact that ... . 9. Moreover we clearly understand that ... .

**Ex. 13. Work in groups. Find out from your partners:**

- why the state is called the United Kingdom of Great Britain and Northern Ireland,
- why people say that Great Britain was a part of the continent,
- what they know about the landscape of Great Britain,
- what they know about the climate of the country.

**Ex. 14. Explain why:**

- the name of the state situated on the British Isles is often wrongly used;
- the coasts of Great Britain are very irregularly shaped.

**Ex. 15. Prove that:**

- the geographical situation of Great Britain is advantageous.

**Ex. 16. Imagine that:**

- your friend has just returned from Great Britain. He knows much about its geographical situation. Ask your friend to give you the information about the country because you are to write an essay on this topic;

- your friend has returned from Great Britain and boasts about its beauty. Convince him that our country isn't less beautiful than Britain.

**Ex. 17. Write a short essay on one of the following topics:**

- advantages and disadvantages of the geographical situation of

Great Britain;

- Great Britain – a remarkably beautiful country;
- I want to visit Great Britain because ... .

## **Part 2. Economy of Great Britain**

***Ex. 1. Make sure you know the meaning of the following words and expressions:***

correspond v., market exchange rate n., industrialise v., concentrate v., create v., trade n., labour n., dry up v., couple v., decline v., gross domestic product n., insurance n., site v., headquarters n., rank v., destination n., diminish v., account for v., share n., pharmaceutical a., private a., aim at v., employ v., efficiency n., productivity n., be engaged in, arable a., crop n., cereals n., wheat n., barley n., oats n., increase v., sugar beet n., contribute v., deposit n., ore n.

***Ex. 2. Practice the pronunciation of the following words and proper names:***

Anglo-Saxon, Europe, Germany, industry – industrial, produce – production – productivity, textile, efficiency, private, headquarters, pharmaceutical, insurance, arable, increase v., increase n., contribute – contribution, deposit v., deposit n.

***Ex. 3. Answer the following questions:***

1. Why is Britain considered an industrialised country? 2. What are the main branches of industry in the country? 3. What do you know about the development of manufacture in Great Britain? 4. What industrial centres of Great Britain do you know? 4. Is great Britain rich in mineral resources? If so, prove your statement. 5. Is agriculture developed in the country?

***Ex. 4. Tell your friends some words about the reason why Great Britain has to import some mineral resources and what products it exports.***

***Ex. 5. Read and translate the following text:***

For many years, the British economy has corresponded with what has been described by some scientists (since the 1980s) as the Anglo-Saxon model, focusing on the principles of liberalisation, the free market, and low taxation and regulation. Based on market exchange rates, the United Kingdom is the fifth largest economy in the world, and the second largest – in Europe after Germany.

The British started the Industrial Revolution, and, like most industrialising countries at the time, initially concentrated on heavy industries such as shipbuilding, coal mining, steel production, and textiles.

The empire created an overseas market for British products, allowing the United Kingdom to dominate international trade in the 19<sup>th</sup> century. However, as other nations industrialised and surplus labour from agriculture began to dry up, coupled with economic decline after two world wars, the United Kingdom began to lose its economic advantage. As a result, heavy industry declined, by degrees, throughout the 20<sup>th</sup> century. The British service sector, however, has grown substantially.

Today Britain is no longer the leading industrial nation of the world, which it was during the last century. Britain today is the fifth in the size of its gross domestic product (GDP). Britain's share in the world trade is about 6 per cent, which means that it is also the fifth largest trading nation in the world.

The manufacturing and service industries, together with construction, account for about 93% of Britain's GDP, the rest is shared by energy production and agriculture. As in other developed countries, rising living standards have led to a growth of the role of services. The service industries include business services, trade, travel and tourism. The service sectors also include education, public health, administration.

The service sector of the United Kingdom is dominated by financial services, especially in banking and insurance. London is the world's largest financial centre with the London Stock Exchange, the London International Financial Futures and Options Exchange, and the Lloyd's of London insurance market all based in the City. It also has the largest concentration of foreign bank branches in the world. In the past decade many multinational companies, that were not primarily UK-based, have chosen to site their European or rest-of-world headquarters in London.

Tourism is very important to the British economy. With over 27 million tourists a year, the United Kingdom is ranked as the sixth major tourist destination in the world.

The British manufacturing sector, however, has greatly diminished, relative to the economy as a whole, since World War II. It is still a significant part of the economy, but only accounts for about one-sixth of the national output. The British motor industry is a significant part of this sector, although it has diminished with the collapse of MG Rover and most of the industry is foreign owned. Civil and defence aircraft production is led by the United Kingdom's largest aerospace firm, BAE Systems. The chemical and pharmaceutical industries are also strong in the UK, with the world's second and sixth largest pharmaceutical firms being based in the UK.

In recent years new industries have made serious progress such as aerospace, chemicals, oil, gas, electronics, biotechnology. At the same time the traditional old industries such as steel, coal production, shipbuilding,



production of textiles have met serious difficulties and declined.

The British economy is mainly based on private enterprises. Today the policy of the government is aimed at encouraging and expanding the private sector. As a result of this policy 75% of the economy is controlled by the private sector which employs three-quarters of the labour force.

The general location of industry has changed little in recent years. As before, 80% of industrial and agricultural production is concentrated in England.

Over three-quarters of the land area is used for agriculture. Britain's agriculture is famous for its high level of efficiency and productivity. In spite of the fact that the agricultural area of the country is fairly large, only about 2.5% of the working population is engaged in agriculture. It produces nearly two-thirds of Britain's food.

The most widespread arable crops grown in Britain together with other minor cereals and root crops are wheat, barley and oats. In recent years exports of wheat and barley have increased considerably, accounting for about a quarter of the total production. Of root crops cultivated in Britain, most important are potatoes and sugar beet.

The most important natural resources of England are coal and iron. Coal is the mineral that contributes much to the development of many industries in Britain. By the absolute deposits of coal Great Britain claims the sixth place in the world and is one of the most world important coal basins. Among other mineral resources, iron ores are of primary importance, but the iron content of most of the ores is very low.

Great Britain imports such high-grade raw materials as iron ore, manganese, chrome, nickel and many other rare metals. Great Britain has no large-scale sources of non-ferrous metals. Nearly all of them – tin, copper, zinc – are imported too.

***Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets:***

1. The ... situation of any country much depends on the development of its industry (economy). 2. The main ... crops grown in Great Britain are wheat, barley and oats (agriculture). 3. Oxford and Cambridge are the most famous ... institutions of Britain (education). 4. Power is required for all ... plants, transport and communication (industry). 5. Scientists usually make great ... to the development of the national economy (contribute). 6. The British ... sector of economy has recently grown substantially (serve). 7. The major part of ... (industry) and ... (agriculture) ... (produce) of Great Britain is concentrated in England. 8. Britain's agriculture is famous for its high level of ... (efficient) and ... (product).

**Ex. 7. Match the words to their definitions:**

- |                   |  |
|-------------------|--|
| 1) to advance     | a) make ready, do what is necessary for;                         |
| 2) to create      | b) make (goods etc.) on a large scale by machinery;              |
| 3) to develop     | c) move or put forward;  |
| 4) to discover    | d) put or bring forward to be looked at;                         |
| 5) to invent      | e) cause something to exist;                                     |
| 6) to manufacture | f) find out, bring to view something existing but not yet known; |
| 7) to produce     | g) cause to grow larger or more mature;                          |
| 8) to provide     | h) create or design something not existing before.               |

**Ex. 8. Insert prepositions where necessary:**

The British Isles ... general, but especially England, form one ... the most populated areas ... the world. The present-day inhabitants ... Britain and Ireland are largely the descendants ... settlers and traders ... western Europe, who came ... these islands ... a series ... invasions, ... about 2500 B.C. down ... the Norman Conquest ... 1066. The growth ... population ... Britain reflects, ... a large extent, the economic changes. The basic population distribution ... the 20<sup>th</sup> century had been established ... the Industrial Revolution and the increase ... population ... the 19<sup>th</sup> century.

Hardly has anything been more important ... British history than the fact that Great Britain is an island. Living ... islands, and therefore ... the sea, the inhabitants naturally grew ... a nation ... sailors.

**Ex. 9. Substitute the words in italics by their synonyms:**

The currency of the UK is the pound sterling, *represented* by the symbol £. The Bank of England is the *central* bank, responsible for issuing *currency*. Banks in Scotland and Northern Ireland *retain* the right to issue their own *notes*, subject to retaining enough the Bank of England notes in reserve to cover the issue. The UK chose not *to join* the Euro at the currency's launch, and British Prime Minister Gordon Brown has ruled out membership for the *foreseeable* future, saying that the decision not to join had been right for Britain and for Europe. In 2005, more than half (55%) of the UK *were against* adopting the currency, whilst 30% *were in favour*.

**Ex. 10. Read the information below and think of the word which best fits each space. Use only one word in each space:**

The modern scientific method ... by the English philosopher Francis Bacon in the early seventeenth century. The laws of motion and illumination of gravity ... by Sir Isaac Newton in the late 17<sup>th</sup> century. Hydrogen ... by Henry Cavendish. James Clerk Maxwell ... the law of unification of

electromagnetism. The telephone ... by Alexander Graham Bell. The idea of evolution by natural selection ... by Charles Darwin. The structure of DNA ... by Francis Crick and others. Other advances pioneered in the UK ... the marine chronometer, television, the jet engine, the modern bicycle, electric lighting, the electric motor, the screw propeller, the internal combustion engine, military radar, the electronic computer, vaccination, antibiotics, etc. (to promote, to discover, to develop to create, to advance, to open, to include).

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. The British started the Industrial Revolution and initially concentrated on light industry. 2. The industrial sector of the British economy preserved its high level after the war. 3. Tourism has always been important to the British economy. 4. London is a world-known financial centre. 5. The British economy is mainly based on private enterprises. 6. Great Britain is rich in mineral resources. 7. Energy production and agriculture account for about 93% of Britain's gross domestic product. 8. Potatoes are cultivated in all parts of Great Britain. 9. Great Britain has to import various raw materials. 10. Today Britain is no longer the leading industrial nation of the world.

**Ex. 12. Complete the sentences below. Give extended answers:**

1. The text is devoted to ... . 2. The text gives (presents, provides) information regarding ... . 3. At the beginning of the text special attention is paid to ... . 4. The text goes on saying that ... . 5. Further the text contains a detailed description of ... . 6. Besides some factual information is given concerning ... . 7. In conclusion the text reads that ... . 8. On reading the text we realise the fact that ... . 9. Moreover we clearly understand that ... .

**Ex. 13. Work in groups. Find out from your partners:**

- why Great Britain is considered to be a highly-developed industrial country;
- what allowed the country to dominate international trade in the 19<sup>th</sup> century;
- what position Britain occupies among other industrialised countries at present;
- whether its agriculture plays any role in the economic development of the country.

**Ex. 14. Explain why:**

- Great Britain has to import various raw materials;

– the role of service industries has substantially grown.

**Ex. 15. Prove that:**

– Great Britain is one of the leading industrial states in the world.

**Ex. 16. Imagine that:**

– you are to make a report on the economic development of Great Britain. Your friend from London has arrived and is ready to help you. Ask him questions and get all the information you need;

– you and your friend from Great Britain are discussing the economic situation of your states.

**Ex. 17. Write a short essay on one of the following topics:**

– Great Britain – a leading industrial state;

– Agricultural sector of the British economy.

### **Part 3. Political System of Great Britain**

**Ex. 1. Make sure you know the meaning of the following words and expressions:**

constitution n., monarchy n., legal a., executive a., legislative a., bill n., law n., convention n., agreement n., contain v., create v., alter v., revise v., abolish v., adapt v., flexible a., identity n., purpose n., issue n., current a., elect v., propose v., proposal n., inherit v., affair n., responsible a., govern v., government n., appoint v., hold v., under the chairmanship of.

**Ex. 2. Practice the pronunciation of the following words and proper names:**

monarch – monarchy, law – legal, legislative, executive, Parliament, Government, the House of Commons, the House of Lords, the Sovereign, Prime Minister, the Lord Chancellor, the Conservative Party, the Labour Party, the Liberal Democratic Party.

**Ex. 3. Answer the following questions:**

1. When is a state called “monarchy”? 2. Who is the Queen of Great Britain? 3. Who is the Prime Minister of Great Britain? 4. What party is the leading party of Great Britain at present? 5. What parts does the British Parliament consist of?

**Ex. 4. Read and translate the following text:**

The United Kingdom of Great Britain and Northern Ireland is a constitutional monarchy. It has either a king or a queen, but the power of the monarch is limited by the country’s constitution. In practice, the monarch does not rule. The legal authority (the passing of acts) is given to Parliament, and the executive authority (the carrying of laws) to the Government. All real power lies with Parliament and the existing

government.

The British form of government, that of a “Constitutional Monarchy”, is difficult to understand because Britain does not actually have a written constitution. The set of rules for governing the country is not contained in any single document. Formed partly by common law and partly by convention, it can be altered by Act of Parliament, or by general agreement to create, vary or abolish a convention. The constitution is thus very flexible and adapts readily to changing political conditions and ideas.

Many of the British people still regard the monarchy as a very useful and desirable institution. It is a symbol of national identity. The Monarch personifies the State.

Parliament is the most important law-making body consisting of the House of Commons, the House of Lords and the Sovereign (i.e., king or queen).

The House of Commons, the lower House of the British Parliament, consists of 650 elected MPs. The main purpose of the House of Commons is to make laws of the land by passing various Acts (of Parliament), as well as to discuss current political issues. The House sits for five days each week. The House sits for about 175 days in the year, and has a maximum term of five years. All speeches in the House of Commons are addressed to the Speaker who is elected at the beginning of each new Parliament. His chief function is to preside over the House in its debate. When elected the Speaker must not belong to any party.

The strength of the House of Commons is that it possesses the right to argue for or against any proposal, the right to question, to debate and to speak out.

The House of Lords, the upper house of the British Parliament, consists of over 1,000 non-elected members (All peers and peeresses who have inherited their titles, and distinguished men and women who have been made peers and peeresses for their life-time and whose titles cannot be inherited). The work of the House of Lords includes examining and revising bills from the Commons, and discussing important matters which the Commons cannot find time to debate. The House of Lords does not have the same power as the House of Commons.

The UK is governed by the Government – a body of ministers who are responsible for the administration of national affairs. The ministers are the leading members of the political party which wins the majority of seats in Parliament. The party which wins the second largest number of seats in Parliament becomes the official Opposition.

The Prime Minister, the leader of the party with the majority, is appointed by the Queen. (The Queen appoints, but does not select the Prime Minister. She has no choice.) All other Ministers are appointed by the Queen on the recommendation of the Prime Minister. The majority of ministers are members of the Commons, although the Government is also fully represented by ministers in the Lords. The Lord Chancellor is always a member of the House of Lords.

The Cabinet. The most senior Ministers (usually about 20 in number) compose the Cabinet, which meets regularly (once or twice a week) under the chairmanship of the Prime Minister to decide government policy on major issues, exercise supreme control of government and co-ordinate government departments.

Ministers are responsible collectively to Parliament for all Cabinet decisions; individual ministers are responsible to Parliament for the work of their departments.

The “Shadow Cabinet”. The Opposition party, which is not currently in power, under the direction of its leader forms a “Shadow Cabinet”. The ministers in the Shadow Cabinet deal with the same matters as the Cabinet of Ministers in the current government, debating with the actual Cabinet ministers from the Government side.

For the last 160 years a predominantly two-party system has operated and since 1945 either the Conservative Party (which can trace its origin to the eighteenth century) or the Labour Party (which emerged in the last decade of the nineteenth century) has held power. A new party – the Social and Liberal Democrats (now known as Liberal Democrats) – was formed in 1988 when members of the Liberal Party (which can trace its origins to the eighteenth century) merged with members of the Social Democratic Party, which was itself formed in 1981.

***Ex. 5. Complete each sentence using a word derivationally related to the word given in brackets.***

1. All ministers are appointed by the Queen on the ... of the Prime Minister (recommend). 2. As head of the executive branch of power the President must carry out the ... programmes (govern). 3. The strength of the House of Commons is that it possesses the right to argue for or against any ... (propose). 4. Ministers are responsible ... (collective) to Parliament for all Cabinet ... (decide). 5. Many British people consider the monarchy as a useful and ... institution (desire). 6. The monarchy is a symbol of ... identity (national). 7. Many ... with other countries have been made by our Government lately (agree). 8. The Cabinet meets ... under the chairmanship of the Prime Minister (regular).

**Ex. 6. Match the words to their definitions:**

- |                 |   |
|-----------------|---|
| 1) agreement    | a) woman ruler in her own right;  |
| 2) bill         | b) supreme law-making council or assembly;  |
| 3) constitution | c) supreme ruler of a state;  |
| 4) convention   | d) member of the Cabinet;   |
| 5) government   | e) arrangement or understanding (spoken or written) made by two or more persons, groups etc.; |
| 6) king         | f) laws and principles according to which a state is governed;                                |
| 7) law          | g) proposed law to be discussed by a parliament;  |
| 8) minister     | h) agreement between states, rulers;  |
| 9) monarch      | i) body of persons governing a state;   |
| 10) parliament  | j) male sovereign ruler;  |
| 11) queen       | k) rule made by authority for the proper regulation of a community or society.                |

**Ex. 7. Insert prepositions where necessary:**

The position ... Prime Minister, the UK's head ... government, belongs ... the current leader ... the political party that can obtain the confidence ... a plurality ... the House ... Commons. The Prime Minister and their Cabinet are formally appointed ... the Monarch to form Her Majesty's Government. However, the Prime Minister chooses the Cabinet, and ... convention, the Queen respects the Prime Minister's choices. The Cabinet is traditionally drawn ... members ... the Prime Minister's party ... both legislative houses, and mostly ... the House ... Commons, ... which they are responsible. Executive power is exercised ... the Prime Minister and Cabinet, all ... whom are sworn ... Her Majesty's Most Honourable Privy Council, and become Ministers ... the Crown. Gordon Brown, leader ... the Labour Party, has been Prime Minister, First Lord ... the Treasury and Minister ... the Civil Service ... 27 June 2007.

**Ex. 8. Read the information below and think of the word which best fits each space. Use only one word in each space:**

Great Britain is a constitutional ... , and the Crown is a permanent and continuous institution. ... to the Constitution, the powers of the Crown are very ... . Every action of the government is ... out in its name. But the Queen cannot act .... She may exercise these powers only on the ... of other ministers, who are responsible politically to .... The Parliament consists of the House of ... and the House of ... and is the centre of British politics.

In Britain they look to the Queen not only as their head of ..., but also as the "symbol of their nation's unity".

**Ex. 9. Prove whether the following statements are true or false using the information from the text:**

1. The legal authority in Great Britain is given to the Queen. 2. Great Britain is called a constitutional monarchy because this is written in their Constitution. 3. The British Parliament is the main legislative body of power in the state. 4. The main purpose of the House of Commons is to make laws. 5. All peers and peeresses are given their places in the House of Lords at general elections. 6. The Prime Minister is usually the leader of the Opposition. 7. The executive authority in the state is given to the Queen. 8. The aim of the Cabinet is to decide the government policy on major issues. 9. A predominantly multi-party system has always operated in Great Britain. 10. Anthony Blair has still been the Prime Minister of Great Britain.

**Ex. 10. Work in groups. Find out from your partners:**

- about the main bodies of power in Great Britain;
- about the functions of both the Houses of the British Parliament;
- about the role of the Prime Minister and the Cabinet in the life of the state;

- about the party system of the state.

**Ex. 11. Explain why:**

- Great Britain is called a constitutional monarchy and what role the Queen plays in the life of the state.

**Ex. 12. Imagine that:**

- you have just returned from Great Britain where you participated in the work of Parliament. Answer your friends' questions concerning the political life of the state;

- you are the speaker of a conference on the problems of the structure of the main bodies of power and their functions. Discuss advantages of different systems.

**Ex. 13. Read the following texts and give your comments on the problems discussed in them:**

a) Foreign relations. The United Kingdom is a permanent member of the United Nations Security Council, a member of the G8 (Group of Eight) and NATO, and a member state of the European Union. The UK has a “Special Relationship” with the United States. Apart from the US and Europe, Britain's close allies include the Commonwealth nations and other English speaking countries. Britain’s global presence and influence is further amplified through its trading relations and its armed forces, which maintain approximately eighty military installations and other deployments around the globe.



b) Stereotypes are certainly not reliable descriptions of individual people but they still exist. The Irish are supposed to be great talkers. The Scots have a reputation for being careful with money. The Welsh are renowned for their singing ability. The English are individualists. The British have a reputation for being conservative, who have established values without questioning their validity.

***Ex. 14. Write a short essay on the advantages or disadvantages of the political system of Great Britain.***

## **UNIT IV. INVENTIONS, SCIENCE AND TECHNOLOGY**

### **Part 1. Invention**

***Ex. 1. Make sure you know the meaning of the following words and expressions:***

invention n., productivity n., ease burdens, novelty n., awareness n., concept n., breakthrough n., extend boundaries, accomplish tasks, realize a purpose, objective n., inspire v., competitive a., secure v., launch a product, countless a., place an emphasis (on), result (in, from) v., brand name n., trademark n., catch on v., customer n., eventually adv., catchy a.

***Ex. 2. Practice the pronunciation of the following words:***

technique, require, modify, radical, technology, efficient, altruism, commercial, commercialization, reward, design, innumerable, prototyping, quality, patent, encourage, desirable.

***Ex. 3. Answer the following questions:***

1. What is an invention?
2. In what way does it affect people's life?
3. What can inspire a person to make an invention?

***Ex. 4. Choose a thing (an object, a device or a mechanism) and say how it helps people and if it can be considered an invention.***

***Ex. 5. Read and translate the following text:***

Throughout the history, inventions have helped people discover new worlds, build communities, develop resources, increase productivity, cure diseases, ease burdens, and enjoy life to the fullest.

An invention is an object, process, or technique which displays an element of novelty. An invention may sometimes be based on earlier developments, collaborations or ideas, and the process of invention requires at least the awareness that an existing concept or method can be modified or transformed into an invention. However, some inventions also represent a radical breakthrough in science or technology which extends the boundaries of human knowledge.

Over time, humanity has invented objects and methods for accomplishing tasks which fulfil some purpose in a new or different manner. Inventors may be inspired to invent through a desire to create something new or better, simple altruism, or for competitive or commercial reasons. An invention may also result from a combination of these motivating factors. Although many inventors may have in mind the commercialization of their product, very few will secure the funding and support often needed to develop and launch a product in the marketplace, and fewer still will experience lasting commercial success or the economic reward they may have expected.

Most great inventors developed countless prototypes, changing their designs innumerable times. Today much emphasis is placed on research and development, prototyping and finding solutions.

New inventions lead to new technologies, create new jobs, and improve our quality of life. A patent helps an inventor to make money from his or her invention by allowing only the inventor or those who get his or her permission to make and sell the invention. Patents encourage investing in research since research results in new inventions. If an invention is new and unfamiliar, it is important for inventors to create a good brand name to call their invention. An interesting brand name or trademark can attract customers. Sometimes it takes a while for a trademark to catch on, and the fact that the invention is desirable makes the trademark for the invention popular. A really catchy trademark can make the invention even more successful.

***Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets:***

1. Though he had worked very hard, his ... didn't prove to be successful (invent). 2. The history of inventions is full of ... examples of altruism and ... (count, inspire). 3. The introduction of new machines and techniques has lead to increasing ... (productive). 4. The great ... of our engineers are used in all fields of industry and economy (accomplish). 5. An inventor should be ... of the fact that his idea can be transformed into an invention (awareness). 6. New inventions result in the ... of our quality of life (improve). 7. A fierce ... on the market encouraged the company to

invest in research and development (competitive).

**Ex. 7. Match the words to their definitions:**

- |                 |   |
|-----------------|---|
| 1) invention    | a) the quality of unselfish concern for the welfare of others;                            |
| 2) breakthrough | b) a name given to a product or service;  |
| 3) humanity     | c) a new creation resulting from study and experimentation;                               |
| 4) altruism     | d) a formally registered symbol identifying the manufacturer or distributor of a product; |
| 5) prototype    | e) making an important discovery;   |
| 6) patent       | f) a standard or typical example;   |
| 7) brand        | g) all of the inhabitants of the earth;   |
| 8) trademark    | h) a document granting an inventor sole rights to an invention.                           |

**Ex. 8. Insert prepositions where necessary:**

1. The invention of this device resulted ... the work of all researchers at the institute. 2. Although he didn't have ... mind the commercialization of his product it had a great success ... the market. 3. Using revolutionary inventions does not always lead ... improvements ... production. 4. Nowadays much emphasis is placed ... efficient ways of harnessing energy sources ... the production of electricity. 5. The invention of the wheel may have been based ... the use of logs for rollers. 6. Developing earlier ideas may result ... a new creation. 7. He was sure his invention represented some breakthrough, but the patent office turned it down ... no obvious reason. 8. Junior students have little experience ... handling laboratory equipment.

**Ex. 9. Substitute the words in italics by their synonyms:**

1. Successful *cooperation* of the two departments *led to* an increase in sales. 2. Work can be *converted* into heat. 3. The invention of a steam engine represented a major *achievement* in technology. 4. He developed *countless* prototypes trying to attain perfection. 5. A stable demand for the product will *ultimately* make it popular with the customers. 6. Few inventors can *ensure* the funding and support to promote their product. 7. Many inventors are often *encouraged* by the idea of making people's life better and easier.

**Ex. 10. Read the information below and think of the word which best fits each space. Use only one word in each space:**

Inventions are easy to define ... can be difficult to recognize. An invention is "the discovery or creation of a new material, a new process, a new use ... an existing material, or any improvements of any of ...". An inventor is someone ... thinks of new ways to solve problems in the home, community, or ... the world. These solutions are called inventions. Most of the time, inventions happen ... someone works to solve a problem. ...

inventions are the result of accidents. No ... how an invention is created it is important to keep careful records and document the invention process.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. All inventors are inspired by the economic reward they will get from their work. 2. The design of an invention may be changed several times. 3. A patent gives the right to invent new things. 4. A trademark is fairly unimportant for a new product.

**Ex. 12. Complete the statements below. Give extended answers:**

1. The text entitled... centers on ... . 2. It emphasizes the idea that ... . 3. Furthermore the text reveals some reasons ... . 4. It also gives the information about ... and points out the importance of ... .

**Ex. 13. Choose the best variant to complete the sentences:**

1. Inventions help people (understand the value of things; sell products; improve their quality of life). 2. The process of invention (earns money for the inventor; is often based on familiar concepts and ideas; is a breakthrough to the community). 3. Inventors are motivated (by eventual commercial success; by the competition with other inventors; by different factors including those mentioned above). 4. Trademarks and brand names (contribute to the popularity of inventions; are given to the product with the patent; do not matter at all).

**Ex. 14. Give your viewpoint on the following questions and statements:**

1. The process of invention requires the awareness that an existing concept or method can be transformed into an invention. 2. The process of invention is very complex. What does it include? 3. A good trademark can enhance the success of the product.

**Ex. 15. Discuss with your partner the importance of inventions to the progress of humanity.**

**Ex. 16. In 10 sentences express the main ideas of the text.**

**Ex. 17. Write a short essay on one of the following topics:**

- top 10 inventions in history;
- future inventions – what they will be;
- not all inventions are good.

## **Part 2. Famous Scientists and Inventors**

**Ex. 1. Make sure you know the meaning of the following words and expressions:**

introspective a., expressive a., intensely adv., primarily adv.,

marketable a., exhibit v., curiosity n., measurement n., division n., clear-cut a., leap n., contribution n., regard v., gravitational a., gravity n., blend v., split v., rejoin v., refraction n., focus (on) v., relativity n., lay out v., exclude v., promote v., height n., productive a., improvement n., employee n., electric light bulb, incandescent light, from scratch, throw a switch, electrical power distribution system, household n., grant v., transmit v., precursor n., fibre optic system, tetrahedral kite, hydrofoil watercraft, appoint v., naturalized a., instructor n., eventually adv., compound n., refine v., uranium ore, substance n., push for v., treatment n., tube n., purify v., cause v., exposure n., frame v., state v., property n., relative a., arrange v., related a., predict v., similar a., rebellion n., support v., retire v., convince v., ascent n., observe v., eclipse n.

***Ex. 2. Practice the pronunciation of the following words:***

theoretician, data, experimentalist, primitive, gigantic, Isaac Newton, astronomer, mathematician, philosopher, theorize, spectrum, Lincolnshire, Albert Einstein, photoelectric effect, formula, electrodynamics, electromagnetism, Thomas Edison, unique, correct, phonograph, industrial, Manhattan, Milan, Ohio, Alexander Graham Bell, millionaire, metal detector, Marie Curie, radioactivity, radium, Warsaw, La Sorbonne, Paris, Pierre Curie, polonium, radiography, radon, leukemia, chemistry, chemist, periodic law, atomic mass, gallium, scandium, germanium, Siberia, St. Petersburg, Heidelberg, Bureau for Weights and Measures.

***Ex. 3. Answer the following questions:***

1. What do you think the inventors and scientists do? 2. Does their work differ? In what way? 3. What famous scientists and inventors do you know? 4. What was their contribution to the progress of humanity?

***Ex. 4. What famous Belarusian scientists do you know? Find some information on the Internet and report to your groupmates.***

***Ex. 5. Read and translate the following text:***

An inventor is a person who creates or discovers new methods, means, or devices for performing a task. The word “inventor” comes from the Latin verb “invenire” to find. Inventors are introspective, pragmatic, informative, and expressive. They can become highly skilled in functional engineering and invention. Inventors are intensely curious, are always looking for new projects to work on. Inventors are filled with many ideas but they are primarily interested with ideas that can be used to make products or actions. They see product design as a means to an end, the goal being a marketable prototype.

A scientist is a person who uses the scientific method to do research. Scientists are generally motivated, often from childhood, by a desire to understand why the world is as we see it and how it came to be. They

exhibit a strong curiosity of today is widely recognised.

Scientists include theoreticians who mainly develop new models to explain existing data, and experimentalists who mainly test models by making measurements – though in practice the division between these activities is not clear-cut, and many scientists perform both.

For thousands of years people's mode of life was primitive. In a short period of time a gigantic leap was made by people in science and technology to reach the present state of human development. The world knows the names of many great scientists and inventors who made the great contribution to the development of world science.

*Isaac Newton.* Sir Isaac Newton is generally regarded as one of the greatest and most famous scientists in history. Newton was an astronomer, physicist, mathematician and philosopher who is known for theorizing and reporting on gravitational force and the three laws of motion.

Isaac Newton discovered that white light is made up of a spectrum of colours, that when blended together produce the white light. He showed by use of a prism that white light can be split into a spectrum of colours and then used a second prism to show this spectrum can then be rejoined to produce white light. Newton also theorized that light was composed of particles but had to associate the property of light with waves in order to explain refraction of light.

Isaac Newton focused much of his work on the theory of gravitation force and its effect on the orbit of the planets. In his work known as "Principia", he also presented the speed of sound.

Sir Isaac Newton was born in Lincolnshire, England, on January 4, 1642. Newton died on March 31, 1727 in London, England.

*Albert Einstein.* Albert Einstein is one of the most famous scientists of the 20<sup>th</sup> century. Einstein was born on March 14, 1879 in Ulm, Germany. Winner of the 1921 Nobel Peace Prize for his work on the photoelectric effect, Albert Einstein was best known for his Theory of Relativity and especially the formula  $E = mc^2$ .

In 1905, Albert Einstein wrote a paper entitled, "On the Electrodynamics of Moving Bodies" that lay out his special theory of relativity. The Theory of Relativity included time, distance, energy and mass and included electromagnetism, excluding gravity.

For his time, Albert Einstein was a social activist, giving speeches promoting pacifism and liberalism. Albert Einstein died April 18, 1955 in Princeton, New Jersey.

*Thomas Edison.* At the height of his most productive years, Thomas

Edison held 1,097 U. S. patents in his name. He also held many patents in France, Germany and the United Kingdom.

Not all of Thomas Edison's inventions, however, were unique to him as many were improvements and modifications of earlier inventions. In addition, some of the inventions credited to Edison were created by numerous employees under his direction.

To correct a popular belief, Thomas Edison did not invent the first electric light bulb. He invented the first commercially marketable incandescent light. One invention that Thomas Edison did invent from scratch and was the first to do so, was the phonograph.

Inside Edison's industrial research lab were many different employees working on many different projects and products such as the light bulb, phonograph, telephone, telegraph and electric railway. In 1878, Edison formed the Edison Electric Light Company in New York City and a year later was able to first publicly demonstrate the light bulb. In 1882, Thomas Edison threw the switch to the world's first electrical power distribution system to 59 households in Manhattan.

Thomas Alva Edison was born on February 11, 1847 in Milan, Ohio. He died on October 18, 1931 in West Orange, New Jersey.

*Alexander Graham Bell.* Alexander Graham Bell is generally credited in the U. S. with being the inventor of the telephone. Alexander Graham Bell was born in Edinburgh, Scotland on March 3, 1847.

Alexander Graham Bell invented the telephone in 1875, and on March 7, 1876 the U. S. Patent Office granted Bell Patent Number 174,465 regarding the telephone. By 1886, Bell had sold 150,000 telephones in the U. S. Alexander Graham Bell continued to invent even when becoming a millionaire off the sales from telephones. He invented a device that would transmit sound using light, which was a precursor to today's fibre optic systems and called the device the photophone.

Alexander Graham Bell also invented the metal detector. Bell also went on to work on various inventions for sky and sea such as tetrahedral kites and hydrofoil watercraft.

*Marie Curie.* Marie Curie (Maria Sklodowska-Curie) was the first person in history to obtain two Nobel Prizes in different areas of science (physics and chemistry). Marie Curie is known for her work with radioactivity and her discovery of radium. Born in Warsaw, Poland, Marie Curie was the first woman appointed to teach at La Sorbonne (University of Paris) and the first woman in France to achieve her doctoral degree.

Curie was born on November 7, 1867 and moved to Paris when she

was 24 to study science and become a naturalized French citizen. At the university, she met another instructor to whom she would eventually marry named Pierre Curie. The two worked together studying radioactive compounds and refining uranium ore. Besides radium, Marie Curie also discovered a new substance polonium, which she named after her native homeland of Poland.

In 1903, Marie and Pierre Curie received the Nobel Prize in physics for their research on radiation. Marie Curie was the first woman to ever receive the Nobel Prize. In 1911, Marie Curie received her second Nobel Prize, this time in chemistry for the discovery of radium and polonium.

During World War I, Marie Curie pushed for the use of radiography field units for the treatment of wounded soldiers. The units included tubes of radon gas that Curie purified herself. On July 4, 1934, Marie Curie died of leukemia, which may have been caused by her exposure to radiation.

*Dmitri Mendeleev.* Russian chemist who framed the periodic law in chemistry 1869, which states that the chemical properties of the elements depend on their relative atomic masses. This law is the basis of the periodic table of the elements, in which the elements are arranged by atomic number and organized by their related groups.

Mendeleev was the first chemist to understand that all elements are related members of a single ordered system. From his table he predicted the properties of elements then unknown, of which three (gallium, scandium, and germanium) were discovered in his lifetime.

Mendeleev was born in Tobolsk, Siberia, and studied at St. Petersburg and in Germany at Heidelberg. He became professor at the Technical Institute in St. Petersburg 1864. But in 1890, for supporting a student rebellion, he was retired from the university and became controller of the Bureau for Weights and Measures.

In addition to his periodic table, Mendeleev also did practical work to help develop Russian agriculture and the Russian oil industry.

Mendeleev was convinced that the future held great possibilities for human flight, and in 1887 he made an ascent in a balloon to observe an eclipse of the Sun.

His textbook “Principles of Chemistry” (1868–1870) was widely adopted.

***Ex. 6. Match the words to their definitions:***



- |                  |   |
|------------------|---|
| 1) gravity       | a) the change in direction of a wave (light or sound);  |
| 2) radioactivity | b) emitting light as a result of being heated;  |
| 3) instructor    | c) machine in which rotating records cause a stylus to vibrate and the vibrations are amplified acoustically or electronically; |
| 4) relativity    | d) an instrumentality invented for a particular purpose;  |
| 5) phonograph    | e) the spontaneous emission of a stream of particles or electromagnetic rays in nuclear decay;                                  |
| 6) spectrum      | f) the theory that space and time are relative concepts rather than absolute concepts;  |
| 7) refraction    | g) the force of attraction between all masses in the universe;  |
| 8) eclipse       | h) an ordered array of the components of an emission or wave;   |
| 9) incandescent  | i) a person whose occupation is teaching;   |
| 10) device       | j) one celestial body obscures another.   |

**Ex. 7. Complete each sentence using a word derivationally related to the word given in brackets:**

1. His patented discovery was an ... over the prior art (improve).
2. The chief engineer pushed for the construction of a ... plant at the meeting yesterday (purify).
3. In spite of all efforts he failed to design and build a good ... prototype (market).
4. Children are intensely ... (curiosity).
5. People ... to high levels of radiation are likely to develop cancer which is often an ... disease (exposure, treatment).
6. To increase the sales volume a company decided to organize a ... campaign (promote).
7. Many theories are based on empirical ... of natural phenomena (observe).
8. The news reported a fight between ... and government forces (rebellion).
9. It is hard to ... the importance of the scientific ... made by Russian scientists (measurement, contribute).
10. In a nuclear reaction the ... of protons and neutrons changes (arrange).

**Ex. 8. Insert prepositions where necessary:**

Rutherford was a New Zealand born physicist, who won the Nobel Prize ... his pioneering work in nuclear physics.

Ernest Rutherford was born ... 30 August 1871 in Nelson, New Zealand. In 1894 he won a scholarship ... Cambridge University and worked as a research student ... Sir Joseph Thomson. In 1898 he became Professor of Physics at McGill University ... Montreal, Canada. There he investigated the newly-discovered phenomenon of radioactivity.

In 1908, he was awarded ... the Nobel Prize in Chemistry. In 1917 he returned ... physics and a long series of experiments ... which he

discovered that the nuclei of certain light elements, such as nitrogen, could be disintegrated ... the impact of energetic alpha particles coming ... some radioactive source, and that ... this process fast protons were emitted. This was the first artificially induced nuclear reaction. Rutherford had virtually created a new discipline, that ... nuclear physics.

In 1919 Rutherford became professor ... experimental physics and director of the Cavendish Laboratory at Cambridge, succeeding Thomson. From 1925 ... 1930 he was president of the Royal Society. In 1931 he was awarded a life peerage and died on 19 October 1937. He was buried ... Westminster Abbey. In 1997, the rutherford, a unit ... radioactivity, was named ... his honour.

**Ex. 9. Substitute the words in italics by their synonyms:**

1. *In the end* he succeeded in giving a *detailed* description of his *investigation*. 2. Mendeleev's first Periodic Table was *compiled* on the basis of *organizing* the elements in ascending order of atomic weight and grouping them by *likeness* of properties. 3. The sun is *extremely* hot. 4. In 1896 an American named Henry Ford *displayed* a 4-cycle, 2-cylinder, 4-wheeled cart in Detroit's Bagley Avenue. 5. Scientific discoveries and inventions made in different years *caused* a *gigantic leap* in human development. 6. None of the investigations has *addressed* the problem of organizing a web site automatically *from the ground up*. 7. Penicillin was discovered *by accident* by the British scientist Sir Alexander Fleming in 1928. 8. The idea of creating an artificial intelligence was *brought about* by the development of computer engineering.

**Ex. 10. Read the information below and think of the word which best fits each space. Use only one word in each space:**

Coming ... a poor family, Faraday was apprenticed at the ... of fourteen to a bookbinder. ... six years of bookbinding, to his ... good fortune, Faraday, at the age of 21, was introduced ... Sir Humphrey Davy; he went and joined Davy at the Royal Institution ... Davy's personal assistant. At ... rate, Faraday led a very ... career as a scientist. ... there developed quite a dispute over the point, Faraday is ... credited with the discovery of electromagnetic induction (1821), and described certain elements and chemical compounds ... as chlorine and benzene.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. Inventors are theoreticians who use scientific method to make things. 2. Isaac Newton derived three laws of motion. 3. Albert Einstein is well-known for the elaboration of the quantum theory. 4. Thomas Edison

invented the photophone. 5. Marie and Pierre Curie discovered new elements predicted by Mendeleev.

**Ex. 12. Complete the statements below. Give extended answers:**

1. The text under discussion deals with ... . 2. Scientists differ from inventors ... . 3. Isaac Newton's contribution to science is ... . 4. Among the most famous scientists of the 20<sup>th</sup> century we may notice ... . 5. The periodic law of chemistry was developed by ... .

**Ex. 13. Choose the best variant to complete the sentences:**

1. Inventors (are interested in developing a new theory; seek to produce a new thing which would be used by people, test models by making measurements). 2. Newton theorized (the principles of simple machines; the chemical and physical properties of radioactive elements; that the light was composed of particles). 3. Thomas Edison (created many useful inventions working on his own; made a great number of inventions all of them being unique; held many patents in different countries). 4. Alexander Graham Bell became a millionaire (due to the commercial success of the telephone invented by him; because he inherited a vast sum of money from his parents; only after he made other inventions such as photophone, metal detector, etc). 5. Marie Curie was the first woman (who became a naturalized French citizen; who achieved a doctoral degree in France and two Nobel prizes; who was engaged in scientific investigation). 6. Dmitri Mendeleev (discovered the first radioactive elements; made the first human flight; ordered all known chemical elements into a system).

**Ex. 14. Give your viewpoint on the following questions and statements:**

1. The work of scientists and inventors is essential for human development. 2. Achievements of great scientists are widely used in modern science and technology. 3. What famous scientists and inventors of present can you name? What is their contribution?

**Ex. 15. Choose a field of science (physics, chemistry, biology, computer engineering, etc.) and think of any great people within this field. Discuss their achievements and discoveries with your partner.**

**Ex. 16. In 15–20 sentences express the main ideas of the text.**

**Ex. 17. Write a short essay on one of the following topics:**

- Belarusian science;
- how to be a successful inventor;
- ancient scientists and their discoveries.

### Part 3. Science

**Ex. 1. Make sure you know the meaning of the following words and expressions:**

refer to v., restrict v., acquire v., applied science, term v., differentiate from v., application n., reproducible a., prediction n., contention n., rule out v., self-consistent a., framework n., bind v., underlying a., benefit v., attempt v., determine v., profound a., impact n., establish v., owe v., existence n., liquid a., evaporate v., latent heat, advance n., high-voltage spark, emerge v., simultaneous a., preserve v., flavour v., edible a., vast a., kidney dialysis machine, fatal a., artificial valve, coronary heart disease, affair n., contaminate v., vehicle exhaust, fossil fuels, greenhouse gas, alter v., entire a., in vitro fertilization, unprecedented a., deliberately adv., warfare n., destructive weapon.

**Ex. 2. Practice the pronunciation of the following words:**

science, systematic, method, to classify, phenomenon, discipline, category, specialized, expertise, specific, event, objective, process, technological, hypothesis, model, theory, to analyze, individual, automobile, electronics, plastics, synthetic, biochemical, antibiotics, vaccination, infectious, environment, carbon dioxide, atmosphere, ethical, genetic, cloning.

**Ex. 3. Answer the following questions:**

1. What is science? 2. In what way does science affect human life?  
3. What important scientific discoveries can you think about?

**Ex. 4. What do you think is the least developed field of science nowadays? Find some information on the Internet and tell your group about it.**

**Ex. 5. Read and translate the following text:**

Science (from the Latin *scientia*, “knowledge”), in the broadest sense, refers to any systematic knowledge or practice. In a more restricted sense, science refers to a system of acquiring knowledge based on the scientific method.

*Fields of science.* Fields of science are commonly classified along two major lines:

- natural sciences, which study natural phenomena (including biological life);
- social sciences, which study human behaviour and societies.

There are also related disciplines that are grouped into interdisciplinary and applied sciences, such as engineering and health science. Within these categories are specialized scientific fields that can include elements of other scientific disciplines but often possess their own

terminology and body of expertise.

Science is sometimes termed experimental science to differentiate it from applied science, which is the application of scientific research to specific human needs, though the two are often interconnected.

*Scientific method.* The scientific method seeks to explain the events of nature in a reproducible way, and to use these reproductions to make useful predictions. It is done through observation of natural phenomena, and/or through experimentation that tries to simulate natural events under controlled conditions. It provides an objective process to find solutions to problems in a number of scientific and technological fields.

Scientists use models to refer to a description of something, specifically one which can be used to make predictions that can be tested by experiment or observation. A hypothesis is a contention that has been neither well supported nor yet ruled out by experiment. A theory, in the context of science, is a logically self-consistent model or framework for describing the behaviour of certain natural phenomena. A theory typically describes the behaviour of much broader sets of phenomena than a hypothesis – commonly, a large number of hypotheses may be logically bound together by a single theory.

*Goals of science.* The underlying goal or purpose of science is to produce useful models of reality. To achieve this, one can form hypotheses based on observations. By analyzing a number of related hypotheses, scientists can form general theories. These theories benefit society or human individuals who make use of them.

In short, science produces models with useful predictions. Science attempts to describe what is, but avoids trying to determine what is. Science is a useful tool. Today, science has a profound effect on the way humans interact with and act upon nature, largely through its applications in new technology.

*Impacts of science.* Some forms of technology have become so well established that it is easy to forget the great scientific achievements that they represent. The refrigerator, for example, owes its existence to a discovery that liquids take in energy when they evaporate, a phenomenon known as latent heat. The first automobile, dating from the 1880s, made use of many advances in physics and engineering, including reliable ways of generating high-voltage sparks, while the first computers emerged in the 1940s from simultaneous advances in electronics and mathematics.

Other fields of science also play an important role in the things the developed world use or consume every day. Research in food technology has created new ways of preserving and flavouring of edible products. Research in industrial chemistry has created a vast range of plastics and other synthetic materials, which have thousands of uses in the home and in industry.

Alongside these achievements, science has also brought about technology that helps save human and non-human life. The kidney dialysis machine enables many people to survive kidney diseases that would once have proved fatal, and artificial valves allow sufferers of coronary heart disease to return to active living. Biochemical research is responsible for the antibiotics and vaccinations that protect living things from infectious diseases.

However, scientific discoveries can also have a negative impact in human affairs. Industrial and agricultural chemicals pollute the global environment and the air in many cities is contaminated by toxic gases from vehicle exhausts. The burning of fossil fuels such as coal, oil, and natural gas releases into the atmosphere carbon dioxide and other substances known as greenhouse gases. These gases have altered the composition of the entire atmosphere, producing global warming.

Science has also been used to develop technology that raises complex ethical questions. This is particularly true in the fields of biology and medicine. Research involving genetic engineering, cloning, and in vitro fertilization gives scientists the unprecedented power to bring about new life. At the other extreme, science can also generate technology that is designed to deliberately hurt or to kill. The fruits of this research include chemical and biological warfare, and also nuclear weapons, by far the most destructive weapons that the world has ever known.

***Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets:***

1. Scientists ... phenomena and prove hypotheses (observation). 2. The government should put ... on use of nuclear weapons (restrict). 3. ... of new techniques has been made possible due to ... research in the field of electric power (apply, extension). 4. The ... and introduction of computers played an important role in the development of ... research (emerge, science). 5. By means of experiments and observation scientists can ... reality (description). 6. Technological advances are ... to our society (benefit). 7. The Chernobyl disaster caused ... of farmland and livestock (contaminate). 8. Sometimes science generates technology that can ... the world (destructive).

***Ex. 7. Match the words to their definitions:***

- |                    |  |
|--------------------|--|
| 1) model           | a) systematic investigation to establish facts;  |
| 2) method          | b) an organized system of accepted knowledge;  |
| 3) hypothesis      | c) the act of conducting a controlled test or investigation;                                     |
| 4) theory          | d) a simplified description of a complex entity or process;                                      |
| 5) advance         | e) a statement made about the future;  |
| 6) research        | f) a way of doing something, especially a systematic way;  |
| 7) prediction      | g) a change for the better; progress in development;   |
| 8) experimentation | h) a concept that is not yet verified but that if true would explain certain facts or phenomena. |

**Ex. 8. Insert prepositions where necessary:**

1. The development of science and technology often has a negative impact ... our environment. 2. We must differentiate hypotheses ... the facts that have been proved. 3. Engineering science refers to the field dealing with the art of applying scientific knowledge ... practical problems. 4. This new theory owes much ... Einstein's Relativity Theory. 5. The humanity can benefit ... the achievements brought about ... all fields of science. 6. The burning of fossil fuels has a harmful effect ... the atmosphere by destroying ... ozone layer. 7. It is impossible to make any exact predictions ... the development of genetic engineering. 8. Due to research ... chemistry we can make use ... many synthetic materials both in the home and in industry.

**Ex. 9. Substitute the words in italics by their synonyms:**

1. His discovery can have only a *limited* application in aeronautics and space exploration. 2. It is necessary to *distinguish* between experimental science and applied science. 3. The practical application of science to commerce or industry is *called* technology. 4. They *depicted* the situation to us in great detail. 5. Children *gain* language skills at an amazing rate. 6. The advent of the automobile may have *changed* the growth pattern of the city. 7. He *intentionally* avoided speaking about the harmful effect of the technological advances.

**Ex. 10. Read the information below and think of the word which best fits each space. Use only one word in each space:**

Science is important to ... people living in the modern world ... a number of reasons. ... particular, science is important ... world peace and understanding, to the understanding of technology, and to our understanding of the world.

... are learning to predict earthquakes, to study many ... natural events such ... storms. Scientists are ... studying various aspects of human biology and the origin and developments of the ... race. The study of the natural world may help improve life ... many people all ... the world.

A ... knowledge of science is essential ... everyone. It helps people to find their ... in the changing world.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. The concept of science is purely theoretical and has no practical application. 2. Using the scientific method one has to observe phenomena and simulate natural events. 3. A hypothesis is a theory that has been proved through thorough investigation and experimentation. 4. Science allows us to determine what our world is and how it should develop. 5. Sometimes we forget what scientific discoveries underlie well-established forms of technology. 6. The technological advances make people's lives only better and more enjoyable.

**Ex. 12. Complete the statements below. Give extended answers:**

1. The text under discussion draws our attention to ... . 2. We can classify ... . 3. The text also informs us about some science-related concepts ... . 4. If we speak about the impacts of science ... . 5. Some ethical questions may be touched upon when ... .

**Ex. 13. Choose the best variant to complete the sentences:**

1. Nowadays we can see (divergence of different fields of science; convergence of many scientific disciplines; all scientific fields grouped into two categories). 2. The scientific method explains natural phenomena in a reproducible way (to develop scientific terminology; to make useful predictions; to satisfy specific human needs). 3. A theory refers to (a model to describe the behaviour of certain natural phenomena; a model of reality; a controversial hypothesis requiring proof and support). 4. Many forms of technology (were developed by a single field of science; were based on hypotheses; emerged together with advances in different scientific fields). 5. Science also influences our life in a negative way (because scientific research is very expensive; because it generates very few technologies which can help us; because many advances have unwanted and often unexpected effects).

**Ex. 14. Give your viewpoint on the following questions and statements:**

1. We cannot draw a clear distinction between scientific disciplines. Why? 2. Scientists produce models of reality. What are these models used for? 3. Science is a useful tool. 4. Science has a many-sided impact on the way we live.



**Ex. 15. Think of as many scientific discoveries as you can. Discuss with your partner whether they have a positive or negative effect on our environment.**

**Ex. 16. In 15–20 sentences express the main ideas of the text.**

**Ex. 17. Write a short essay on one of the following topics:**

- science as a human achievement;
- history of science;
- science is indispensable to our life.

## **Part 4. Technology**

**Ex. 1. Make sure you know the meaning of the following words and expressions:**

hardware n., utensil n., encompass v., state-of-the-art technology, conversion n., printing press n., lessen v., craft n., extent n., imply v., define v., definition n., entity n., far-reaching term, crowbar n., particle accelerator n., respective a., distinction n., enduring a., employ v., formal technique, exclusively adv., satisfy requirements, utility n., usability n., safety n., goal-oriented, draw upon v., consequence n., precede v., electrical conductor, semiconductor n., consider v.

**Ex. 2. Practice the pronunciation of the following words:**

technology, origin, theme, technique, prehistorical, environment, barrier, to progress, throughout, effort, complex, machine, virtual, software, technical, principle, element, exclusively, result, mathematical, linguistic, consequence, technologist.

**Ex. 3. Answer the following questions:**

1. What does the term “technology” imply? 2. What are the results of technology? 3. What does the development of technology depend on?

**Ex. 4. Tell your group about the most recent technological developments you know.**

**Ex. 5. Read and translate the following text:**

Technology is a term with origins in the Greek “technologia”, “τεχνολογία” – “techne”, “τέχνη” (“craft”) and “logia”, “λογία” (“saying”). Technology can refer to material objects of use to humanity, such as machines, hardware or utensils, but can also encompass broader themes, including systems, methods of organization, and techniques. The term can either be applied generally or to specific areas: examples include construction technology, medical technology, or state-of-the-art technology.

The human race’s use of technology began with the conversion of

natural resources into simple tools. The prehistorical discovery of the ability to control fire increased the available sources of food and the invention of the wheel helped humans in travelling in and controlling their environment. Recent technological developments, including the printing press, the telephone, and the Internet, have lessened physical barriers to communication and allowed humans to interact on a global scale. However, not all technology has been used for peaceful purposes; the development of weapons of ever-increasing destructive power has progressed throughout history.

In general, “technology” is the relationship that society has with its tools and crafts, and to what extent society can control its environment. The term is often used to imply a specific field of technology, or to refer to high technology, rather than technology as a whole. However, the term is mostly used in three different contexts: when referring to a tool (or machine), a technique, the cultural force or a combination of the three.

Technology can be most broadly defined as the entities, both material and immaterial, created by the application of mental and physical effort in order to achieve some value. In this usage, technology refers to tools and machines that may be used to solve real-world problems. It is a far-reaching term that may include simple tools, such as a crowbar or wooden spoon, or more complex machines, such as a space station or particle accelerator. Tools and machines need not be material; virtual technology, such as computer software and business methods, fall under this definition of technology.

The word “technology” can also be used to refer to a collection of techniques. In this context, it is the current state of humanity's knowledge of how to combine resources to produce desired products, to solve problems, fulfil needs, or satisfy wants; it includes technical methods, skills, processes, techniques, tools and raw materials. When combined with another term, such as “medical technology” or “space technology”, it refers to the state of the respective field’s knowledge and tools. “State-of-the-art technology” refers to the high technology available to humanity in any field.

*Science, engineering and technology.* The distinction between science, engineering and technology is not always clear. Science is the investigation or study of phenomena, aimed at discovering enduring principles among elements of the phenomenal world by employing formal techniques such as the scientific method. Technologies are not usually exclusively products of science, because they have to satisfy requirements such as utility, usability and safety.

Engineering is the goal-oriented process of designing and building tools and systems to exploit natural phenomena for practical human means, using results and techniques from science. The development of technology may draw upon many fields of knowledge, including scientific, engineering, mathematical, linguistic, and historical knowledge, to achieve some practical result.

Technology is often a consequence of science and engineering – although technology as a human activity precedes the two fields. For example, science might study the flow of electrons in electrical conductors, by using already-existing tools and knowledge. This new-found knowledge may then be used by engineers to create new tools and machines, such as semiconductors, computers, and other forms of advanced technology. In this sense, scientists and engineers may both be considered technologists.

**Ex. 6. Complete each sentence using a word derivationally related to the word given in brackets:**

1. It is difficult to give a simple and unique ... of technology (define). 2. People should give a careful ... to the generation of new military technologies (consider). 3. Most metals can ... heat well (conductor). 4. His words seemed to have a negative ... (imply). 5. Ancient people learned to ... natural resources into simple tools (conversion). 6. You may not find a job that brings you personal ... at the beginning of your career (satisfy). 7. In his report he underlined the ... of the technique under development (exclusively). 8. Today people prefer not to think about the cost of ... because it is practically unlimited (electrical).

**Ex. 7. Match the words to their definitions:**

- |                     |  |
|---------------------|--|
| 1) crowbar          | a) instrumentalities (tools or implements) made of metal;                            |
| 2) state of the art | b) a practical method or art applied to some particular task;                        |
| 3) society          | c) the quality of being of practical use;  |
| 4) space station    | d) a heavy iron lever with one end forged into a wedge;                              |
| 5) hardware         | e) an implement used in the practice of a vocation;                                  |
| 6) utility          | f) a manned artificial satellite in a fixed orbit;                                   |
| 7) tool             | g) an extended social group having a distinctive cultural and economic organization; |
| 8) technique        | h) the highest degree of development of an art or technique at a particular time.    |

**Ex. 8. Insert prepositions where necessary:**

Technology and society or technology and culture refer ... the never-ending cyclical co-dependence and co-influence ... technology and society ... the other. This synergistic relationship occurred ... the dawn of humankind, with the invention ... the simple tools and continues ... modern technologies such ... the printing press.

Technology, ... history, has allowed people to complete more tasks ... less time and with less energy. Many herald this as a way ... making life easier. However, work has continued to be proportional ... the amount ... energy expended, rather than the quantitative amount of information or material processed. Technology has had profound effects ... lifestyle throughout human history, and as the rate ... progress increases, society must deal ... both the good and bad implications.

**Ex. 9. Substitute the words in italics by their synonyms:**

1. Most *modern* technological *processes* produce unwanted by-products in addition to the desired products. 2. The *effect* of technology on the environment is both *evident* and subtle. 3. No mechanism exists for the *removal* of technological wastes. 4. The *implementation* of technology *influences* the values of a society by changing expectations and realities. 5. One of the greatest problems with technology is that its *detrimental* effects are often small, but cumulative. 6. Tools *include* both simple machines (such as the lever, the screw, and the pulley), and more complex machines (such as the clock, the engine, the electric generator, the computer, and the Space Station). 7. Entire industries have *arisen* to support and develop succeeding generations of *increasingly* more complex tools.

**Ex. 10. Read the information below and think of the word which best fits each space. Use only one word in each space:**

There are a ... number of examples of co-production that can ... seen in society today. One great ... is the mobile phone. Ever ... the invention of the telephone society was ... need of a more portable device that they could ... to talk to people. This high demand ... a new product led ... the invention of the ... phone, which did, and still does, greatly influence society and the ... people live their lives. Now ... people are accessible to talk to no ... where they are. This keeps people accountable and relied ... no matter where they are because they ... no excuses for not ... in touch.

**Ex. 11. Prove whether the following statements are true or false using the information from the text:**

1. The use of technology by people began with the invention of the wheel. 2. The term technology is used to describe high technology.

3. Technology implies not only material objects but also immaterial tools.  
4. The current state of knowledge influences the development of technology and society.  
5. Science and engineering are not connected with technology.  
6. Technology investigates natural phenomena and discovers enduring principles among them.

**Ex. 12. Complete the statements below. Give extended answers:**

1. The text entitled... centers on ... .  
2. The term technology is defined as follows ... .  
3. Besides technology refers to ... .  
4. There are some facts from the history of technology such as ... .  
5. The text also draws a distinction ... .

**Ex. 13. Choose the best variant to complete the sentences:**

1. The term technology encompasses (tools and utensils; material objects and immaterial concepts; only to specific areas).  
2. Recent technological advances (facilitate the global communication; prevent further development of society; create physical barriers to communication).  
3. Technology determines (the current state of the humanity's knowledge; the way people control their environment; both).  
4. In a broader sense, technology comprises (goods and services; tools, techniques and cultural forces; people and their needs).  
5. Science (studies the phenomenal world; always produces new technologies; uses the same tools and techniques as technology).  
6. Engineers (never use scientific results to create something; are pure theoreticians; can be considered technologists because they aim at some practical result).

**Ex. 14. Give your viewpoint on the following questions and statements:**

1. Technology dates back to prehistorical times.  
2. The term technology does not have a single meaning.  
3. The use of technology has a great many effects; these may be separated into intended effects and unintended effects.  
4. Technology both simplifies and complicates our life.  
5. In what way are science, engineering and technology interconnected?

**Ex. 15. Discuss with your partner (or in small groups) how technology impacts the life of people. Give examples of some technological advances. Say whether they have a positive or negative influence on the human environment.**

**Ex. 16. In 10–15 sentences express the main ideas of the text.**

**Ex. 17. Write a short essay on one of the following topics:**

- economic and technological development;
- ethical problems of technological development;
- technology and globalization.

## **ADDITIONAL READING**

### **GENERAL INFORMATION**

*The Forestry Faculty.* The Forestry faculty is the oldest one of the University. Today there are 4 departments at the faculty: silviculture; forest inventory; forest cultures and soil science; forest protection and landscape architecture. The total number of students at the faculty is over 800.

During the latest years the main task of the faculty staff is to develop and improve a multi-level system for training forestry specialists of the world standard.

Professional training and some classes are held at Negoreloe forestry experimental station.

Scientific researches at the faculty are aimed at developing and implementing new technologies of reproduction cultivation of trees and forest inventory by application of new information systems using space satellite data to provide stable functioning of forestry, to increase forest productivity, rational forest exploitation.

The faculty develops international cooperation with such institutions as Swedish Agricultural University, Research Institute of Forest in Finland, Freiburg Technical University, Forest Ecology Institute of Agricultural University in Slovakia, Higher Forestry Engineering Institute, in Sofia, Moscow State University of Forest, St. Petersburg Forestry Engineering Academy, Ukrainian National Agrarian University (Kiev), Ukrainian State-Forestry Engineering University (Lvov) and others.

Some of the graduates of the faculty are outstanding scientists and managers of ministries, institutions, departments.

*Forestry Engineering and Wood Technology Faculty.* Modern technology of logging, wood working and processing is so diverse and complicated, that it can be performed successfully only by highly-qualified engineers. The teaching process at the faculty is exercised by lecturers and professors.

The faculty includes departments of general education, specialized departments and pre-graduation departments: of forestry machinery and forest exploitation technology; forest transportation; wood working technology; glued board technology; wood working machines; hydraulics and heat engineering; energy-effective technologies: machine elements, hoisting and conveying equipment; material and construction mechanics; material science and metal technology; engineering drawing.

The scientists of the faculty are managers and executives of Republican, academic, international research programs: “Forests of Belarus”, “Forestry Engineering Industry”, “Materials”, “Energy”, “Biological Resources” with students contributing to it.

The departments of the faculty cooperate with Warsaw Agricultural Academy, Research Institute of Bridges and Roads (Warsaw), Institute of Fiber-Composite Materials (Kaizerslautern, Germany), Department of Engineering Sciences and Technologies of UNESCO.

The faculty trains more than 1,000 students.

*Organic Substances Technology Faculty.* The Faculty of Technology of Organic Substances was founded in 1968 after division of former Chemical Technological Faculty.

Chemical, petrochemical and microbiological branches of industry are characterized by a high complexity of technological processes, facilities applied, methods of control and management of production. The knowledge of occupational safety and environmental protection is also required here. Only engineers of high qualification can provide practical solutions of real problems at enterprises of this profile. A necessary attribute in fulfilling this role is a sound theoretical background and profound professional skills of specialists.

The faculty has 9 departments: technology of petrochemical synthesis and polymer materials processing; chemical processing of wood; bio-ecology and bio-technology; physical-chemical methods of products certification; organic chemistry; analytical chemistry; physics; occupational safety; foreign languages and also scientific research laboratory of plastics, rubbers and fibers stabilization and scientific research laboratory of chemical processing of vegetation raw materials.

The scholars of the faculty carry out important research programs: “Chemical Reagents”, “Low-Tonnage Chemistry”, “Resources Saving”, “New Materials and Surface Engineering” and others. They participate in joint researches with some foreign research centers. Students, masters of engineering and post-graduate students actively contribute to all researches.

The faculty trains over 1,400 students in 5 specialities and 13 specializations. Masters of Engineering are also trained here. About 7,000 engineers graduated from the faculty during the years of its work.

Many enterprises of chemical, petrochemical, cellulose paper, hydrolysis, forestry-chemical and microbiological industries are headed by faculty graduates. A number of graduates work as lecturers and researchers at our University and other higher educational institutions in our country and abroad. The majority of them defended their theses and became Doctors of Science and Ph. Ds.

*Chemical Technology and Engineering Faculty.* The faculty was organized in 1968. It trains highly-qualified industrial engineers for enterprises of the Republic of Belarus. At present there are 1,500 students at the faculty. Here they acquire knowledge in fundamental and special subjects, learn up-to-date technologies which enables them to work successfully on the development of chemistry one of the leading industries in our Republic.



11 departments make up the faculty: machines and apparatus for chemical and silicate production; automation of production processes and electrical engineering; inorganic materials technology and general chemical technology; glass and ceramics technologies; chemical technology of binding materials; chemistry, technology of electrochemical production and electronic technology materials; industrial ecology; general and inorganic chemistry: physical and colloidal chemistry; processes and equipment of chemical engineering; theoretical mechanics.

Joint researches with similar educational institutions of the CIS and foreign countries are carried out at the faculty.

Training of industrial engineers, chemical industrial engineers, mechanics engineers and industrial ecology engineers is carried out at the faculty by highly-qualified lecturers.

Among the graduates of the faculty there are scientists, leading engineers, managers of enterprises, organizations, institutions of our republic. 7,100 engineers graduated from this faculty during the time of its work.

*Economic Engineering Faculty.* The Economic Engineering faculty was founded in 1997 to train specialists in economic specialties for forestry complex enterprises, chemical, building materials and printing industries.

The faculty includes six departments: economics and plant management in forestry-chemical complex; economic theory and marketing; nature management; statistics, accounting, analysis and audit; higher mathematics; physical training and sport.

The faculty is intensively developing. At present above 1,000 students are trained here. 55% of the lecturers working at the faculty have degrees and ranks. Training of young specialists at the faculty is carried out by highly-qualified and experienced professors, Doctors of Science.

Scientific researches on problems of developing structural transformations to the industries, formation of corporative-integration structures, information management, sustainable nature utilization and valuation of nature resources in chemistry-forestry complex are carried out at the departments. The scholars of the faculty participate in important international and republican programs, take part in scientific symposiums, including those held in foreign countries. Student research work is an integral part of training specialists at the faculty. The students engaged in research take part in different international, republican and university contests and scientific conferences.

*Faculty of Printing and Publishing.* When the Republic of Belarus became an independent state many branches of Belarusian economy and industry felt a need for qualified specialists which previously had not been

trained in the country. Printing and publishing were among those branches and so in 1993 by the Decree of the Belarusian government training of the skilled specialists for printing field was started at the Belarusian State Technological University.

At present the printing and publishing complex uses all the achievements of the scientific and technological progress. New electronic information technologies used in automated publishing houses are introduced along with the conventional printed mass media. All the advantages of digital information technologies: prompt information transfer to different countries, high quality of the printed output, ergonomics are introduced into the printing field very quickly. For this reason specialists in this field should possess profound knowledge in both fundamental and technical disciplines.

The Faculty of Printing and Publishing was founded at the BSTU in 2000. It includes the following departments: editing and publishing technologies; printing productions; printing equipment and information processing systems; information systems and technologies; Belarusian language.

Training of young specialists at the faculty is carried out by highly-qualified teachers.

Many well-known specialists of the printing field are involved in the teaching process, some of the field-specific classes being carried out at the enterprises of printing and publishing complex.

At present over 850 students are trained at the faculty. Annually the faculty distinguishes the best students to be given an individual scholarship, including those granted with the Scholarship of the President of the Republic of Belarus.

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