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Be Ready for English Exam

Практикум для подготовки к экзамену по английскому языку
для студентов 1–2-х курсов всех специальностей и направлений подготовки

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Практикум предназначен для подготовки к сдаче устной части экзамена по английскому языку студентами 1–2-х курсов всех специальностей и направлений подготовки ТвГТУ.

Предназначен для развития навыков устной речи. Охватывает устные экзаменационные темы по программе обучения бакалавров и специалистов ТвГТУ.

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EXAM TOPIC 1. I AM A STUDENT OF TVER STATE TECHNICAL UNIVERSITY

Let me introduce myself. My name is _____ (*full name*). I am _____years old. I am a first-year student of Tver State Technical University.

Tver State Technical University is one of the biggest higher schools in our country. It was established in 1922 as Moscow Peat Institute. In 1958 it was transferred to Kalinin. In 1965, it was reorganized into polytechnic. It was renamed into Tver State Technical University in 1994.

I successfully passed Russian National Examinations at school and was enrolled as a full-time student of the university. Now I am taking a *Bachelor's / Specialists'* course in *Architecture and Building Design* at the *Civil Engineering* Department (*a student's specific information*). That is my chief course.

The academic year begins in September. It lasts ten months and ends in June. There are two terms in it. Examinations take place at the end of each term. During the terms, students have to attend lectures and seminars, carry out laboratory tests, and study for exams in libraries or at home.

Education at the University is organized in three forms: full-time, part-time and correspondence (or distance). More than 5,000 students study at Tver State Technical University. Our university provides bachelor's, specialist's, and master's courses at six departments, post-graduate courses, and a preparatory course for foreign students.

The university curriculum consists of general engineering subjects and some humanities. Special subjects are taught in senior courses. The students of the first two years study various subjects: higher mathematics, physics, chemistry, English, history, computer science and others. Highly experienced lecturers, tutors, and professors deliver lectures and give practical classes.

The students usually have one or two lectures and some seminars a day. During lectures, we listen to a lecturer and take some notes. During seminars, we take part in discussions, write tests, and make reports. Besides regular studies many students carry out scientific research under the guidance of our professors.

After graduation from the university, I hope to become a highly qualified specialist in a chosen field.

Vocabulary

attend sth [ə'tend]	посещать (что-то)
Bachelor's degree ['bæʧ(ə)ləz dɪ'gri:]	степень бакалавра (первая ступень высшего образования)
be enrolled [bi: ɪn'rəuld] as a student for/in/on some course	быть зачисленным в качестве студента на курс
carry out ['kærɪ'aut]	проводить (исследования, лаб. работы)
curriculum [kə'rɪkjuləm]	учебная программа

deliver lectures [dɪ'lɪvə 'lektʃəz]	читать лекции
full-time ['ful'taɪm]	очное (образование)
highly experienced ['haɪlɪ ɪk'spɪ(ə)rɪənst]	высококвалифицированный
humanities [hju'mænətiz]	гуманитарные науки
master's degree ['mɑːstəz dɪ'griː]	степень магистра (вторая, более высокая ступень высшего образования)
post-graduate course ['pəust'grædjuɪt kɔːs]	курс учебы в аспирантуре
study ['stʌdi] for exams	готовиться к экзаменам
take notes [teɪk nəuts]	делать записи
term [tɜːm]	семестр
under sb's guidance ['gaɪd(ə)ns]	под чьим-то руководством

Answer the questions.

1. What is your full name and how old are you?
2. Did you study well at school?
3. Why did you decide to enter our university?
4. What did you know about the history of Tver State Technical University?
5. What forms of education does the University provide?
6. How long does it take to obtain a Bachelor's degree in our University?
7. What department do you study at?
8. What is your chief subject?
9. What subjects do you study at the university?
10. What kinds of learning activities are students involved in during the terms?
11. Are you going to carry out research?
12. Are you going to take a master's course in four years?

EXAM TOPIC 2. THE UNITED KINGDOM AND ITS CAPITAL

The United Kingdom of Great Britain and Northern Ireland is situated to the northwest of Europe on the British Isles. The North Sea, the Celtic Sea, and the English Channel separate them from the continent. The British Isles consist of two large islands, Great Britain and Ireland, and about five thousand small islands. Their total area is over 240,000 square kilometers.

The surface of the British Isles varies much. There are mountains on the north and west. The center and southeast is a vast plain. There are many rivers in Great Britain, but they are not very long. The Severn is the longest river, while the Thames is the deepest and most important one. The mountains, the warm waters of the Gulf Stream of the Atlantic Ocean influence the climate. It is mild the whole year round.

The United Kingdom is made up of four countries: England, Wales, Scotland, and Northern Ireland. The capital of the United Kingdom is London, its political,

economic and commercial center. It is a global city and the largest city in the UK. Its population is more than 10 million. Traditionally London is divided into the City and Greater London with 32 boroughs.

The City is a heart of London, its financial and business center. Westminster is its historical and governmental part. Trafalgar Square is an official center of London. It was named in memory of Admiral Nelson's victory (Britain over France) in the battle of Trafalgar in 1805. The West End is the richest and most beautiful part of London, while the East End is an industrial one, famous for its markets, docks and immigrant communities.

The UK is the fifth-largest economy in the world and the second largest in Europe (after Germany). The chief industries are service, manufacturing (automotive and aerospace) and pharmaceutical. One of the world's most famous securities markets is the London Stock Exchange, the largest and oldest exchange in Europe.

The United Kingdom is a unitary parliamentary constitutional monarchy. In law, the Head of State is the Queen or the King. Now it is _____. In practice, its parliamentary government with the Prime Minister at the head rules the country. The Prime Minister is _____.

The United Kingdom is a member of many international organizations and one of the most influential countries in the world.

Vocabulary

be made up of [bi: 'meɪd'ʌp ɔv]	состоять из
borough ['bʌrə]	район города
community [kə'mju:nɪtɪ]	местное сообщество
constitutional ['kɔnstɪ'tju:ʃ(ə)nəl]	конституционный
influence ['ɪnfluəns]	влиять
Isle [aɪl] = island ['aɪlənd]	остров
Greater London ['greɪtə 'lʌndən]	Большой Лондон (агломерация)
kingdom ['kɪŋdəm]	королевство
mild [maɪld]	мягкий, умеренный
monarchy ['mɔnəki]	монархия
mountain ['mauntɪn]	гора
North [nɔ:θ], South [sauθ], West [west], East [i:st]	стороны света: север, юг, запад, восток
Northern Ireland [ˌnɔ:ðən'aɪələnd]	Северная Ирландия, территория на севере Ирландии, административная область и историческая провинция Великобритании
parliamentary government ['pɑ:lə'ment(ə)rɪ 'gʌv(ə)mənt]	парламентское управление
pharmaceutical ['fɑ:mə'sju:tɪk(ə)l]	фармацевтический
Scotland ['skɒtlənd]	Шотландия административно-

	политическая часть, историческая провинция Великобритании.
securities market [sɪ'kju(ə)rɪtɪ 'mɑːkɪt]	рынок ценных бумаг
separate ['sep(ə)rɪt]	разделять
stock exchange [stɔk [ɪks'ʧeɪnʤ]	фондовая биржа
surface ['sɜːfɪs]	поверхность, рельеф
the Celtic Sea ['keltɪk 'siː]	Кельтское море (отделяет Британские острова от Европы)
the City ['sɪtɪ]	Сити (деловая часть Лондона)
the English Channel ['ɪŋglɪʃ'ʧænl]	Английский канал = Ла-Манш (между островом Великобритания и Францией)
the Gulf Stream ['gʌlf 'striːm]	морское течение Гольфстрим в Атлантическом океане
the Severn ['sevən]	река Северн (берёт своё начало в Уэльсе)
the Thames [temz]	Темза (самая большая река Великобритании, на которой стоит Лондон)
unitary state ['juːnɪt(ə)rɪ steɪt]]	унитарное государство
vary ['ve(ə)rɪ]	различаться, разниться
Wales [weɪlz]	Уэльс, административная область и историческая провинция Великобритании
Westminster [ˌwes(t)'mɪn(t)stə]	Вестминстер (район Лондона)

Answer the questions.

1. Where is the United Kingdom of Great Britain and Northern Ireland situated?
2. What is the surface of the British Isles?
3. Is the Thames the deepest or the longest river? Why is it considered to be the most important river?
4. What parts does the United Kingdom consist of?
5. What are the chief industries of the UK?
6. What is the political structure of the UK?
7. Who is the Prime Minister?
8. What is the capital of the United Kingdom?
9. What parts is London divided into?
10. What is the richest and most attractive part of London?
11. What memory was the Trafalgar Square named in?
12. What part of London is considered industrial?

EXAM TOPIC 3. THE TOWN OF TVER

The town of Tver stands on the great Russian Volga River. Tver was founded in 1135. It is one of the oldest Russian towns. The town was known as Kalinin from 1931 to 1990. Now Tver is an administrative center of Tver Region with the population of about 410 thousand.

In the 18th century Catherine the Great sent a group of architects headed by P. R. Nikitin to restore the town after two great fires. The best architects of Russia A.V. Kvasov and M. F. Kasakov worked up the town development plan with a three-rayed architectural composition. It has been preserved to our days. Many beautiful buildings designed by them are examples of Russian architecture. These buildings are the Emperor Travel Palace, a number of buildings in Octagonal Square (now Lenin Square) and on the bank of the Volga River.

Many famous Russian poets and writers came to Tver many times. Some of them lived or stayed here for a long time: A. S. Pushkin, I. A. Krylov, M. Y. Saltykov-Shchedrin, L. N. Tolstoy, I. I. Lazhechnikov. Monuments to some of them are erected in Tver. On the left bank of the Volga River, we can see a monument to Tver merchant Afanasy Nikitin who was the first to visit India. It is a symbol of the town.

In the second part of the 19th century, Tver became a large industrial town. There appeared large textile mills, a steam mill, a timber mill, and a railway carriage building plant. Now Tver is an industrial centre. There are many large enterprises of engineering, metalworking, textile, chemical, printing and publishing, and other industries.

Tver is also a cultural centre. It has several theatres, a philharmonic society, a television centre, many cinemas, clubs, and libraries. The Gorky Regional Library is the oldest and biggest one.

Tver has many schools of higher education. Among them are State University, State Technical University, State Medical University, State Agricultural Academy, Zhukov Air and Space Defence Academy, and many non-state higher schools.

The landscape around Tver is rich and picturesque. The town grows and becomes more beautiful from year to year. Its old history, geographical location between the two Russian capitals, rich nature, industrial, intellectual, scientific and cultural potential attract tourists to the Tver region.

Vocabulary

agricultural science ['ægrɪ'kʌltʃ(ə)rəl 'saɪəns]	сельскохозяйственная наука
appear [ə'pɪə]	появляться
attract [ə'trækt]	привлекать
be founded [bi: 'faundid]	быть основанным
carriage ['kærɪdʒ]	вагон

Emperor Travel Palace ['emp(ə)rə 'træv(ə)l 'pælɪs]	Императорский путевой дворец
engineering industry ['endʒɪ'nɪ(ə)rɪŋ 'ɪndəstrɪ]	машиностроительная отрасль
enterprise ['entəpraɪz]	предприятие
erect [ɪ'rekt]	воздвигать
famous ['feɪməs]	известный
geographical location [ˌdʒiː ə'græfɪkl ləu'keɪʃ(ə)n]	географическое положение
merchant ['mɜ:ʧ(ə)nt]	купец
metalworking ['mɛtlwɜ:kɪŋ]	металлообработка
non-state [nɔn'steɪt]	негосударственный
Octagonal Square [ɔk'tægən(ə)l skweə]	Восьмиугольная площадь
plant [plɑ:nt]	завод
population ['pɔpju'leɪʃ(ə)n]	население
preserve [prɪ'zɜ:v]	сохранять
printing industry ['prɪntɪŋ 'ɪndəstrɪ]	полиграфическая промышленность
railway ['reɪlweɪ]	железная дорога
restore [rɪ'stɔ:]	реставрировать
rich landscape [rɪʧ 'lændskeɪp]	красивый пейзаж
space defence [speɪs dɪ'fens]	противокосмическая оборона
steam mill [sti:m mɪl]	паровая мельница
textile mill ['tekstaɪl mɪl]	ткацкая фабрика
three-rayed [θri: reɪd]	трехлучевой
timber ['tɪmbə]	пиломатериал

Answer the questions.

1. Where does the town of Tver stand?
2. When was Tver founded?
3. What were the names of our town in different historical periods?
4. Who designed the centre of the town?
5. What buildings did these architects build?
6. What famous people lived and worked in Tver?
7. How many people live in Tver?
8. Is Tver a large industrial centre?
9. What cultural and artistic institutions are there in Tver?
10. How many higher schools are there in Tver?
11. Is our town attractive for tourists? Why?
12. What is a symbol of our town, in your opinion?

EXAM TOPIC 4. FAMOUS SCIENTISTS

Nikola Tesla (1856 – 1943)

Nikola Tesla is a Serbian-American inventor of Austrian-Hungarian origin who developed the field of electrical and mechanical engineering. At the same time, he was a great physicist and supporter of modern electricity. Contemporaries called him "the man who invented the 20th century", as his experiments led to the next level of industrial revolution.

Tesla was born into the family of an Orthodox priest in a small village of Austrian Empire in 1856. His father wanted him to be a priest, but the future scientist dreamed of being an engineer.

In 1882 he graduated from a technical university in Graz (Austria), majoring in electromechanics. By that time, he had already been invited to work for a large corporation in Paris. There he presented his first electric motor and got acquainted with Edison. Edison invited him to New York to work at Edison's Machine Works as a direct current (DC) generator engineer. Unfortunately, the two talented inventors could not work together and Tesla decided to quit. Having worked for a year at Edison's company, Tesla made a name as a successful engineer.

In 1888, he set up his own company and sold over 40 engineering patents for electrical and mechanical devices. Finally, he was financially independent and could devote time to his experiments.

He dedicated almost seven years to experimenting with the magnetic field and high frequencies. Starting from 1899, he carried out a series of power experiments to prove his ideas of wireless lighting and wireless electric power distribution. A year later, he returned to New York to build his famous tower – the first wireless telecommunications tower for commercial transatlantic telephone service, broadcasting and wireless power transmission. A rich banker Morgan donated money for his project. Later Tesla said that his dream was to create a machine capable of transmitting electricity to any corner of the planet.

The range of his discoveries was wide. He was a founder of the high voltage system, the first samples of electromechanical generators, the rotating magnetic field, etc. In 1891 during one of his public lectures, he demonstrated the working principles of radio communication. His discoveries are fundamental to modern electrical engineering. Finally, the unit of magnetic induction is named after Tesla.

The great scientist lived into old age. The monuments to him are erected in Serbia, the USA, the Czech Republic, Russia, etc.

Vocabulary

Austrian Empire ['ɔstrɪən 'empaɪə]	Австрийская империя
broadcasting ['brɔːd'kɑːsfɪŋ]	эфирное вещание

carry out ['kærɪ'aut]	проводить (эксперименты)
contemporary [kən'temp(ə)rərɪ]	современник
dedicate ['dedɪkeɪt]	посвящать
devote [dɪ'vəut]	уделять (время, внимание)
direct current [daɪˌrɛkt'kʌrənt]	постоянный ток
discovery [dɪs'kʌv(ə)rɪ]	открытие
donate [də(u)'neɪt]	дарить, жертвовать
dream [dri:m]	мечта, мечтать
electromechanics [ɪˌlektrəumɪ'kænɪks]	электромеханика
erect [ɪ'rekt]	воздвигать
get acquainted [get ə'kweɪntɪd]	познакомиться
high frequency [ˌhaɪ'fri:kwənsɪ]	высокая частота
Hungarian [hʌŋ'ge(ə)rɪən]	венгерский
independent ['ɪndɪ'pendənt]	независимый, самостоятельный
inventor [ɪn'ventə]	изобретатель
invite ['ɪnvaɪt]	приглашать
major ['meɪdʒə]	специализироваться по предмету
mechanical engineering plant [mɪ'kænɪk(ə)l 'endʒɪ'nɪ(ə)rɪŋ plɑ:nt]	машиностроительный завод
Orthodox Church priest ['ɔ:θədɔks ʧɜ:ʧ pri:st]	православный священник
power distribution ['pauə 'dɪstrɪ'bju:ʃ(ə)n]	распределение энергии
prove [pru:v]	доказывть
quit [kwɪt]	увольняться по собственному желанию
rotate [rəu'teɪt]	вращать
magnetic field [mæg'netɪk fi:ld]	магнитное поле
sample ['sɑ:mp(ə)l]	образец
Serbian ['sɜ:bɪən]	сербский
set up ['set'ʌp]	основать
support [sə'pɔ:t]	поддерживать
wireless lighting ['waɪəlɪs 'laɪtɪŋ]	беспроводное освещение

Answer the questions.

1. When and where was Tesla born?
2. What University did he graduate from?
3. What did he major in?
4. Why did the contemporaries call him "the man who invented the 20th century"?
5. What is the Tesla Tower?
6. When and where was it built?
7. What machine did he dream of?
8. What are Nikola Tesla's main discoveries?
9. How long did he work at Edison's company?

10. Why did he leave Edison?
11. Which physical unit is named after him?
12. Where are monuments to Tesla erected?

Henri Fayol (1841 – 1925)

Henri Fayol was a French mining engineer and director of mines who developed a general theory of business administration.

He was born in 1841 in a suburb of Istanbul, Ottoman Empire. His father, an engineer, was appointed a job superintendent to build a bridge. The family returned to France in 1847, where Fayol graduated from the Mining Academy.

The nineteen-year old engineer started to work at the mining company in one of the central France regions – the Commentary.

While working there he studied the causes of underground fires, mine fire prevention and fighting, how to reclaim burned mining areas, and developed his knowledge of an ore basin structure.

By 1900, the company had become one of the largest producers of iron and steel in France and was regarded as a vital industry. Later, more mines were added to his duties. Eventually, they chose Henri Fayol a new corporate managing director. Fayol became a managing director when the mine company employed over 10,000 people, and held that position until 1918. For 30 years, he had been the head of the main mining and metallurgical company in France. Upon his retirement, the financially strong enterprise became one of the largest industrial associations in Europe. During his directorship time, he made changes to improve the working conditions in mines, allowing employees to work in teams and stimulating the division of labor. In 1905, Fayol became a member of the Central Committee of Coal Owners of France.

Fayol wrote a series of articles on mining, devoted to coal heating, formation of coal beds, sedimentation of the Commentary Region, and plant fossils.

Based largely on his own management experience, he developed his concept of administration. He described his experience in the book *General and Industrial Administration*. He analyzed the role of management in organizations. Eventually he presented his theory of management in organizations known as Fayolism.

The theory of administration and management functions as well as some principles of corporate behavior developed by him are still used in practice.

He died at the age of 84 in Paris.

Vocabulary

appoint [ə'pɔɪnt]   назначать
association [ə'səʊsɪ'eɪʃ(ə)n]   корпорация
be regarded as [bi: rɪ'gɑːdɪd əs]   считаться

behavior [bɪ'heɪvjə, -jər]	поведение
cause [kɔ:z]	причина
coal bed ['kəulbed]	угольный пласт
devote [dɪ'vəut]	посвящать
division of labor [dɪ'vɪʒ(ə)n əv 'leɪbə]	разделение труда
employ [ɪm'plɔɪ]	предоставить работу
eventually [ɪ'venʧu(ə)lɪ]	впоследствии
experience [ɪk'spɪ(ə)rɪəns]	опыт
fire-fighting ['faɪə'faɪtɪŋ]	пожаротушение
improve [ɪm'pru:v]	улучшать
job superintendent [ʤɔb 's(j)u:p(ə)ɪn'tendənt]	старший прораб
mining ['maɪnɪŋ]	горное дело
ore basin [ɔ: 'beɪs(ə)n]	зд. рудная залежь
Ottoman Empire ['ɔtəmən'empaɪə]	Османская империя, монархическое государство турецкой династии Османов
owner ['əunə]	владелец
plant fossils [plɑ:nt ['fɔs(ə)ls]	растительные ископаемые
prevention [prɪ'venʃ(ə)n]	предотвращение
reclaim [rɪ'kleɪm]	мелиорировать, восстанавливать
retirement [rɪ'taɪəmənt]	выход на пенсию
sedimentation ['sedɪmən'teɪʃ(ə)n]	зд. образование осадочных пород
suburb ['sʌbɜ:b]	пригород

Answer the questions.

1. What is Fayol famous for?
2. When and where was he born?
3. What education did he get?
4. Where did the nineteen-year old engineer start his career?
5. What did Fayol study during his work at the mine?
6. When was he appointed a mining director?
7. What improvements did he introduce during his work?
8. How long did he work for one of the largest mining companies in France?
9. What did Fayol write about in his articles?
10. What book did he publish in 1916?
11. What is Fayolism?
12. Are his management views actual nowadays?

Carlo Rossi (1775 – 1849)

Carlo di Giovanni Rossi (Russian name: Karl Ivanovich Rossi) was an Italian architect who worked for Imperial Russia. He was the author of many classical buildings and architectural ensembles in Saint Petersburg, Moscow, Pavlovsk, Velikiy Novgorod, Tver, and other Russian towns.

Carlo Rossi was born in Naples in 1775 and moved to Russia in his childhood when his mother, a well-known ballerina, was invited to Saint Petersburg to perform. From his youth he was familiar with the world of the arts.

He was trained in the studio of an architect Vincenzo Brenna. In 1795, he entered the service of the Admiralty Board of Architecture. He contributed to the construction of the Mikhailovsky Palace in Saint Petersburg.

From 1802 to 1803, Rossi studied in Italy. After that, he could obtain the title of an architect and his own office. In 1808, he was sent to the Kremlin archaeological expedition to Moscow, where he built St. Catherine's Church and the theater at Arbat Square, which burned to ashes during Napoleon's invasion of Russia.

In 1815, he returned to Saint Petersburg. In 1816, he was appointed to a position in the Committee of Hydraulic Works. Among his famous works are: Alexandrine Theatre in Saint Petersburg, Arch of the General Staff Building in Palace Square, the Senate and Synod buildings, Ministry of Internal Affairs, etc. The buildings designed by are characterized by the empire style, which combines grandeur with noble simplicity.

Carlo Rossi came to Tver in his mid-thirties. At that time he served at the Kremlin Construction Department where he was to restore old buildings.

In 1809, he was sent to Tver to reconstruct the Emperor Travel Palace erected by the outstanding architects M. Kazakov and P. Nikitin. He changed the building's appearance by adding forms of Russian classicism. He rebuilt the whole palace and a park complex.

Besides the Tver Emperor Travel Palace, he designed the Christ Birth Cathedral, some dwelling houses in the following modern streets: Radischev Boulevard, Stepan Rasin Embankment, Novotorzhskaya Street, Volny Novgorod Street. Some of them have been preserved to our days.

Carlo Rossi lived in Tver till 1815. In those years, he worked much, perfecting his talent of an architect not only in the town of Tver, but also in the small towns of the Tver province (Bezhetsk, Kashin, Staritsa, Torzhok).

Carlo Rossi was awarded the Order of Vladimir for his architecture activities in Tver. In those times, he was spoken about: "This architect should construct not buildings, but cities."

Vocabulary

Admiralty Board ['ædm(ə)rəltɪ bɔ:d]	Совет Адмиралтейства
appearance [ə'pɪ(ə)rəns]	внешний вид
appoint [ə'pɔɪnt]	назначать
arch [ɑ:ʧ]	арка
award [ə'wɔ:d]	награждать
burn to ashes [bɜ:n tu 'æʃɪz]	сгореть дотла
Christ Birth Cathedral [kraɪst bɜ:θ kə'θi:drəl]	Храм Рождества Христова
contribute to [kən'trɪbju:t tu:]	участвовать, вносить вклад
dwelling house ['dwelɪŋhaus]	жилое здание, дом
empire style ['empaɪə staɪl]	стиль ампир
ensemble [ən'sɔmb(ə)l]	архитектурный ансамбль
General Staff ['ʤen(ə)rəl stɑ:f]	Генеральный штаб
grandeur ['grænʤə]	пышность, великолепие
hydraulic works [haɪ'drɔlɪk wɜ:ks]	гидротехнические работы
invasion [ɪn'veɪʒ(ə)n]	вторжение
invite ['ɪnvaɪt]	приглашать
Ministry of Internal Affairs ['mɪnɪstrɪ əv ɪn'tɜ:nl ə'feəz]	Министерство внутренних дел
noble simplicity ['nəub(ə)l sɪm'plɪsɪtɪ]	благородная простота
restore [rɪ'stɔ:]	реставрировать
title ['taɪtl]	титул
Vincenzo Brenna [vɪn'ʃensɔ 'brenə]	Винче́нцо Бре́нна, художник-декоратор и архитектор итальянского происхождения, при дворе императора Павла I

Answer the questions.

1. When and where was Rossi born?
2. What education did he get?
3. What is Carlo Rossi famous for?
4. Why did he get the new Russian name?
5. What did he do in Moscow?
6. What are his famous projects in Saint Petersburg?
7. What are the buildings of Rossi characterized by?
8. At what age did he get to Tver?
9. In what way did Carlo Rossi reconstruct the Travel Palace?
10. What else did architect Carlo Rossi build in the town of Tver?
11. What did he get for his architecture activities in Tver?
12. What other towns did he contribute to?

Antoine Laurent Lavoisier (1743 – 1794)

French scientist, regarded as the father of modern chemistry. He caused a revolution in chemistry by his description of combustion as the combination of substances with air, or more specifically oxygen.

He was born into a wealthy bank-clerk family on August 26, 1743 in Paris. In 1754, Antoine started attending College Mazarin, one of the Paris University colleges known for its advanced teaching and focus on exact and natural sciences. Here, he studied mathematics and astronomy. Young Lavoisier was also interested in botany, geology, and mineralogy, and attended chemistry courses.

In 1761, he took up Law studies at the University of Paris and obtained his Bachelor's degree.

At the age of twenty-one, although fully trained for the legal profession and admitted to the French Bar, Lavoisier decided to dedicate his life to science.

In 1770, Lavoisier began his famous studies on combustion. Two years later, he sent a report to French Academy of Science in which he recorded that sulphur and phosphorous increased in weight upon its reduction to lead.

At the age of twenty-four, he was chosen a Member of the French Academy of Science. In the following year, he worked on the first geological map of France, while still carrying out numerous chemistry experiments on the element origins and combustion. He experimented with electrical discharges, and compared various barometers. These studies made it possible for him to propose the oxygen theory.

Lavoisier's new theory led to a complete revision in the classification of elements.

In co-operation with the French scientist C. Berthollet, Lavoisier created the chemical nomenclature. Its terminology is, for the most part, still in use today, with words like sulfuric acid or sulfates.

At the age of 26, he became a tax collector. While working for the government, he developed a new system of measures that was aimed at the standardization of scales for all of France. In addition to scientific work, Lavoisier performed many other duties. In 1775, he was appointed manager of the gunpowder business, which required very great efforts. As a result, upon 13 years, the production of gunpowder in France doubled, and its quality improved significantly.

Lavoisier was an activist, and deeply convinced of the need for social reform in France. He was a member of the community striving for tax reforms and new economic strategies. During the French revolution, he published a report on the financial situation of France. For his political and economic views, he was sentenced to death.

Prior to being executed, he asked the judge for permission to complete his scientific research. However, the judge's reply was "The Republic needs neither scientists nor chemists". He was guillotined in Paris on May 8, 1794.

Vocabulary

acid ['æsɪd]   кислота
admit [əd'mɪt]   признавать
although [ɔ:l'ðəu]   хотя, несмотря на
be executed [bi: 'eksɪkju:tɪd]   быть казненным
be sentenced [bi: 'sentenst]   быть приговоренным
Berthollet [ˌbɜ:rθə'lɛ]   Бертолле, основатель учения о химическом
                                                       равновесии
combustion [kəm'bʌstʃ(ə)n]   горение
community [kə'mju:nɪtɪ]   сообщество
compare [kəm'peə]   сравнивать
complete [kəm'pli:t]   завершать
convince [kən'vɪns]   убеждать
dedicate ['dedɪkeɪt]   посвящать
discharge [dɪs'tʃɑ:dʒ]   электрический разряд
exact sciences [ɪg'zækt 'saɪənsɪz]   точные науки
French Bar [frentʃ 'bɑ:]   фр. коллегия адвокатов
guillotin ['gɪləti:n]   обезглавить
gunpowder ['gʌn'paudə]   порох
judge [dʒʌdʒ]   судья
lead [led]   свинец
legal ['li:g(ə)l]   юридический, правовой
measure ['meʒə]   мера измерения
natural ['nætʃ(ə)rəl]   естественный
nomenclature [nəu'menklətʃə]   терминология
oxygen ['ɒksɪdʒən]   кислород
permission [pə'mɪʃ(ə)n]   разрешение
phosphorous ['fɔsf(ə)rəs]   фосфорный
prior to ['praɪətu]   перед началом
propose [prə'pəuz]   предлагать
quality ['kwɔlɪtɪ]   качество
reduction [rɪ'dʌkʃ(ə)n]   зд. восстановление
research [rɪ'sɜ:tʃ]   исследование
revision [rɪ'vɪʒ(ə)n]   пересмотр, исправление
scale [skeɪl]   масштаб
specifically [spɪ'sɪfɪk(ə)lɪ]   точнее говоря
strive for ['straɪvfə]   добиваться, стремиться к (чему-то)
substance ['sʌbstəns]   вещество
sulphur ['sʌlfə]   сера
wealthy ['welθɪ]   обеспеченный, богатый
weight [weɪt]   масса

Answer the questions.

1. What fields of science was Lavoisier interested in?
2. Where was he born?
3. What education did he get?
4. What did he experiment with?
5. What made it possible for him to propose the oxygen theory?
6. He was elected a Member of the French Academy of Sciences at an advanced age, wasn't he?
7. What Lavoisier's theory led to a revision in the classification of chemical elements?
8. What responsibilities did Lavoisier perform in addition to his scientific work?
9. What terminology introduced by Lavoisier is still in use today?
10. How did he prove himself during the great French Revolution?
11. Why was he sentenced to death?
12. What was his last wish before his execution?

Douglas Murray McGregor (1906 – 1964)

Management pioneer, Douglas Murray McGregor was born in the city of Detroit (Michigan, USA) in 1906. While he was at High School, McGregor volunteered in homeless shelters – played piano and sang. At 19, he got married and earned his living as a gas station attendant in Buffalo. By 1930, McGregor had risen to the rank of regional gas station manager.

In 1932, he got a Bachelor of Mechanical Engineering from Institute of Technology (Burma, South-East Asia), a Bachelor of Arts from State University of Detroit (Michigan, USA). Then, for three years, he studied at Harvard (Massachusetts, USA) gaining a Master of Arts Degree and an Academic Doctor Degree in Psychology. For the next two years, he was staying at Harvard as a psychology lecturer.

After teaching at Harvard University and then Massachusetts Institute of Technology (MIT), a 41-year-old McGregor began his presidential term at Antioch College (Ohio, USA) in 1948. Douglas McGregor tried to put his cooperative style into practice.

Douglas McGregor contributed much to the management and motivational theory development and was best known for the *X-Y Theories* presented in his book *The Human Side of Enterprise.*

Theory *X* says that employees are lazy and work only for money, so they must be closely supervised and managed. Managers in large-scale manufacturing traditionally apply this style for factory workers. Theory *Y,* on the contrary, assumes that most people have a psychological need to work. It is based on the idea that employees can be motivated to behave as responsible members of an organization when it is clear to them that achieving the organizational goals will bring them personal rewards. Theory *Y* is more applicable to skilled professionals – managers, scientists, engineers. McGregor maintained that his *X–Y* theories were much more effective as a guide for managers.

In 1954, McGregor returned to teaching at MIT, where he taught until his death in 1964. Before he died, McGregor had been working on a new book. The manuscript was named *The Professional Manager*. In the book, McGregor outlined his ideas as Theory *Z*. Here he connected the needs and aspirations of an individual and a corporation. All his works stood the test of time.

D. McGregor died of a heart attack aged just 58.

Vocabulary

academic degree ['ækə'demɪk dɪ'gri:]	учёная степень
achieve [ə'ʧi:v]	достигать
Antioch ['æntɪɔk]	частный гуманитарный колледж имени святого Антиоха, в Йеллоу-Спрингс, штат Огайо, США
apply [ə'plaɪ]	применять
aspiration ['æspɪ'reɪʃ(ə)n]	стремление
assume [ə'sju:m]	допускать, представлять
attendant [ə'tendənt]	зд. дежурный оператор
behave [bɪ'heɪv, bə-]	вести себя
closely ['kləuslɪ]	тщательно
contribute to [kən'trɪbju:t tu:]	вносить вклад
earn living [ɜ:n 'lɪvɪŋ]	зарабатывать на жизнь
employee [ˌɪmplɔɪ'i: / emplɔɪ'i:]	работник
enterprise ['entəpraɪz]	предприятие
guide [gaɪd]	руководство
Harvard ['hɑ:vəd]	Гарвардский университет (штат Массачусетс, США)
high school [haɪ sku:l]	старшие классы общеобразовательной школы
homeless shelter ['həumlɪs 'ʃeltə]	приют для бездомных
human side ['hju:mən saɪd]	человеческий фактор
large-scale manufacturing [ˌlɑ:ʤ'skeɪl ˌmænjə'fækʧ(ə)rɪŋ]	массовое производство
lazy ['leɪzɪ]	ленивый
maintain [meɪn'teɪn]	зд. отстаивать
manuscript ['mænjuskrɪpt]	рукопись
Massachusetts ['mæsə'ʧu:sɪts]	Массачусетс (штат США)
master of arts ['mɑ:stə əv ɑ:ts]	магистр гуманитарных наук
mechanical engineering [mɪ'kænɪk(ə)l 'enʤɪ'nɪ(ə)rɪŋ]	инженерная механика
outlin ['autlaɪn]	обозначить
pioneer ['paɪə'nɪə]	первый исследователь, основоположник
psychological need ['saɪkə'lɔʤɪk(ə)l ni:d]	психологическая потребность

reward [rɪ'wɔːd]   выгода, вознаграждение
rise to rank [raɪz tuː ræŋk]   дослужиться до (должности)
skilled professional [skɪld prə'feʃ(ə)nəl] квалифицированный специалист
supervise ['s(j)uːpəvaɪz]   наблюдать
volunteer ['vɔl(ə)n'tɪə]   работать на общественных началах

Answer the questions.

1. Where and when was Douglas McGregor born?
2. What is he famous for?
3. What education did he receive?
4. Where did he start his academic career?
5. Where did he begin his Presidential term?
6. What does McGregor's theory *X* assume?
7. What is theory *Y* based on?
8. To whom are theories *X* and *Y* more applicable, according to McGregor?
9. What ideas did McGregor put forward in his last manuscript?
10. What is theory *Z* about?
11. Do psychologists and managers use his ideas now?
12. Can labor motivation be explained only by McGregor's theories?

Rudolf Diesel (1858 – 1913)

Rudolf Diesel, a German inventor and mechanical engineer, was born in 1858 into the family of Bavarian immigrants living in Paris. The young boy's capacity for work was phenomenal and at the age of 14 Diesel announced his intention to become an engineer.

After finishing his basic education at the top of his class in 1873, he entered the newly founded Industrial School of Augsburg. Two years later, he received a merit scholarship from the Royal Bavarian Polytechnic School of Munich and continued his study although his parents wanted him to begin working.

One of Diesel's professors in Munich was Carl von Linde. Professor Karl von Linde aroused Diesel's interest in heat engines. For 10 years, Diesel was making hundreds of drawings and calculations of an engine operating on ammonia. The first experimental engine was built in 1893 in Augsburg but it failed. During the tests, the engine exploded and almost killed him. He spent many months in a hospital, followed by health and eyesight problems.

Later Diesel improved the engine efficiency: an ignition system was not needed, as a fuel pump worked instead of a carburetor. His engine was a four-stroke one. The Diesel engine has the benefit of running more fuel-efficiently than gasoline engines. The diesel engine became widespread in many applications, such as stationary engines, agricultural machines, submarines, ships, locomotives, trucks, and modern automobiles. Rudolf Diesel obtained patents for his design in Germany and other

countries including the USA, France, Austria, America and Russia. However, Diesel became a bankrupt during a financial crisis of 1913.

The first successful Diesel engine ran in 1897 and is now on display at the German Technical Museum in Munich.

On 29 September 1913, Rudolf Diesel died under mysterious conditions on board a ship. Various versions of Diesel's death were put forward. Some talked about suicide, some about murder. At the end of the First World War, one German war prisoner said that it was he, on the instructions of German intelligence, who threw R. Diesel into the sea in order to prevent his engine negotiations with the British Admiralty. The exact circumstances of his death have not been clarified.

In the 20th century, his name was enrolled into the USA Automotive Hall of Fame.

Vocabulary

announce [ə'naʊns]	объявлять
application ['æplɪ'keɪʃ(ə)n]	зд. применение
arouse [ə'raʊz]	вызывать (интерес)
Augsburg [ˈaʊksbʊrk]	г. Аугсбург на юго-западе Германии
Bavaria [bə've(ə)rɪə]	Бавария (Германия)
British Admiralty ['brɪtɪʃ 'ædm(ə)rəltɪ] –	Британское Адмиралтейство
circumstance ['sɜ:kəmstæns]	обстоятельство
drawing ['drɔ:ɪŋ]	чертеж
efficiently [ɪ'fɪʃəntlɪ]	рационально
explode [ɪk'spləud]	взрываться
fail [feɪl]	потерпеть неудачу
four-stroke ['fɔ:strəʊk]	четырёхтактный (двигатель)
fuel pump [fjuəl pʌmp]	топливный насос
gasoline ['gæsəli:n]	бензин
Hall of Fame [hɔ:l ɔv feɪm]	Галерея славы (США)
heat engine ['hi:t'endʒɪn]	тепловой индукторный двигатель
ignition [ɪg'nɪʃ(ə)n]	замок зажигания
improve [ɪm'pru:v]	улучшать
industrial school [ɪn'dʌstrɪəl sku:l]	ремесленное училище
intelligence [ɪn'telɪdʒ(ə)ns]	разведка
intention [ɪn'tenʃ(ə)n]	намерение
merit scholarship ['merɪt 'skɔləʃɪp]	стипендия для одаренных учеников
Munich ['mju:nɪk]	г. Мюнхен (Германия)
murder ['mɜ:də]	убийство
mysterious [mɪ'stɪ(ə)rɪəs]	загадочный
negotiation [nɪ'gəʊʃɪ'eɪʃ(ə)n]	проведение переговоров
obtain [əb'teɪn]	получать
put forward ['put'fɔ:wəd]	выдвигать
receive [rɪ'si:v]	принимать

royal ['rɔɪəl]	королевский
truck [trʌk]	грузовик
war prisoner [wɔ: 'prɪz(ə)nə]	военнопленный
widespread ['waɪdsprɛd]	широко распространённый
work capacity [wɜ:k kə'pæsɪtɪ]	работоспособность

Answer the questions.

1. What made Diesel's name famous?
2. Where and when was R. Diesel born?
3. Where did he enter after school?
4. Did he decide to become an engineer after graduating from Polytechnic School of Munich?
5. Who developed his interest in motor design?
6. What happened to his first experimental engine?
7. How did he improve his engine?
8. What was the advantage of a diesel engine over a gasoline engine in those days?
9. What is the German Technical Museum in Munich famous for?
10. In which countries did Rudolf Diesel receive patents for his motors?
11. What applications did the diesel engine become widespread in?
12. What mystical events are associated with the name of Diesel?

Steven Paul Jobs (1955 – 2011)

Steven Paul Jobs was an American business magnate, industrial designer, investor, media proprietor and an innovator of the personal computer. He was the chairman, chief executive, and co-founder of Apple Incorporation.

Steven Jobs was born in San Francisco in 1955. A middle-class couple Paul and Clara Jobs adopted him. His father was a mechanical engineer and worked for a corporation that produced lasers. Young Steve grew up in the world center of computer technology – Silicon Valley. He was interested in different kinds of electronic devices from his childhood.

In 1972, Steven Jobs graduated from high school in California and became a student of Reed College in Portland (USA). After just one semester, Jobs dropped out the college and began working. Together with his friend Wozniak, he attended meetings of the Computer Club, which became a stepping-stone to the development and marketing of the first *Apple* computer.

In the late 1970s, Wozniak engineered one of the first commercially successful lines of personal computers, the Apple II. Jobs directed its aesthetic design and marketing.

After leaving *Apple* in 1985, Jobs founded *NeXT*, a computer platform development company that specialized in computers for higher education and business markets. Apple acquired *NeXT* in 1997, and Jobs became a chief executive of his former company.

In 2006, The Walt Disney Company acquired *Pixar Animation Studios* where Steven was working, and Jobs became a stockowner and a member of the Board of Directors. He ran one of the leading animation film companies and was recognized as the world's outstanding business executives.

Steven Jobs contributed to the development of at least five fields: personal computing system with *Apple II* and *Macintosh*, music with *iPod* and *iTunes*, phone with *iPhone*, and animation with *Pixar*. The middle-class kid with no higher education, he built a computer empire and became a multi-millionaire.

To be sure, Jobs changed millions of lives by making technology easy to use, exciting and beautiful.

In 2003, Steven's illness was diagnosed as a rare form of cancer. On October 5, 2011 he died.

Vocabulary

acquire [ə'kwaɪə]	приобретать
adopt [ə'dɔpt]	усыновлять
attend [ə'tend]	посещать
be sure [bi: ʃuə] = certainly ['sɜ:tnlɪ]	конечно, безусловно
board of directors [bɔ:d ɔv d(a)ɪ'rektəz]	совет директоров
business executive ['bɪznɪs ɪg'zekjutɪv]	управляющий деловым предприятием
cancer ['kænsə]	рак
chairman ['ʧeəmən]	председатель
chief executive ['ti:fɪg'zekjutɪv]	глава корпорации
co-founder [kəu 'faundə]	соучредитель
contribute [kən'trɪbju:t]	вносить вклад
couple ['kʌp(ə)l]	супружеская пара
drop out ['drɔp'aut]	бросать
establish [ɪ'stæblɪʃ]	учреждать
found [faund]	основывать
middle-class ['mɪdl'klɑ:s]	люди среднего достатка
outstanding [aut'stændɪŋ]	выдающийся
Pixar Animation Studios ['pɪksə ænɪ'meɪʃ(ə)n 'stju:dɪəuz]	американская киностудия, работающая в жанре компьютерной анимации
proprietor [prə'praɪətə]	собственник
stepping-stone ['stepɪŋstəun]	«закладной камень» = первый шаг
stockowner [stɔk 'əunə]	акционер

Answer the questions.

1. What made the name of Steve Jobs famous?
2. Where and when was he born?
3. What influenced his love for electronic devices?
4. Did he graduate from college?
5. Did he obtain a higher education?
6. What a significant event happened in his life in 1976?
7. What positions did he hold at Apple Corporation?
8. What is NeXT?
9. What connected Steve Jobs with the Walt Disney Company?
10. Why was he considered one of the outstanding business executives?
11. What areas did Steve Jobs contribute to?
12. How did he change millions of lives?

David Suzuki (1936)

David Suzuki is an internationally known environmental activist and scientist. He became famous through the television show *The Nature of Things*.

David Suzuki was born in 1936 in Vancouver, Canada. Suzuki and his twin sister Marcia were grandchildren of Japanese immigrants who came to Canada in the early part of the 20th century. Because of the birth, his family was sent to an internment camp in British Columbia during the Second World War. The family was released at the end of the war.

After finishing his preliminary education, Suzuki left Canada to study at Amherst College in Massachusetts (USA) where he earned his Bachelor's degree in Biology, followed by Doctor of Philosophy in Zoology from the University of Chicago. He graduated from it in 1961 and began his scientific career by studying genetics.

In 1963, he returned to Canada to teach at Zoology Department and Genetics Department of the British Columbia University. He had worked as a professor for almost forty years.

In 1970, Suzuki began his broadcasting career with the weekly children's show *Suzuki on Science*. In 1979, his most well-known program *The Nature of Things* was broadcasted on TV to stimulate the public interest in nature, wildlife and ecological well-being.

Suzuki declared openly of human involvement in climate change and society's inaction to change existing practices of careless use of nature. He established the David Suzuki Foundation for the promotion of living in balance with the natural world. The Foundation's priorities are oceans and ecological fishing, climate change and clean energy.

Despite his advanced age, Suzuki is now taking part in an advertisement campaign promoting energy conservation with lightbulbs, etc.

He is an objector of genetically modified food.

Suzuki is the author of 52 books, nineteen for children. His books explore human society's impact on the natural world.

He received 16 significant national academic awards and over 100 other awards, numerous honorary degrees from over two dozen universities around the world.

Vocabulary

advanced age [əd'vɑ:nst eɪdʒ]	пожилой возраст
advertisement campaign [əd'vɜ:tɪsmənt kæm'peɪn]	рекламная кампания
award [ə'wɔ:d]	награда
British Columbia ['brɪtɪʃ kə'lʌmbɪə]	Британская Колумбия (провинция Канады)
broad [brɔ:d]	широкий
broadcasting ['brɔ:d'kɑ:stɪŋ]	ТВ / радиовещание
careless ['keəlɪs]	беззаботный
declare [dɪ'kleə]	высказываться
despite [dɪs'paɪt]	несмотря на
earn Bachelor's degree [ɜ:n]	зд. получать степень бакалавра
energy conservation ['enədʒɪ 'kɔnsə'veɪʃ(ə)n]	энергосбережение
environmental [ɪn'vaɪ(ə)rən'mentl]	экологический
establish [ɪ'stæblɪʃ]	устанавливать
exist [ɪg'zɪst]	существовать
explore [ɪk'splɔ:]	исследовать
foundation [faun'deɪʃ(ə)n]	зд. фонд
honorary ['ɔnər(ə)rɪ]	почётный
impact ['ɪmpækt]	влияние
inaction [ɪn'ækʃ(ə)n]	бездействие
internment camp [ɪn'tɜ:nmənt kæmp]	лагерь для военнопленных
involvement [ɪn'vɔlvmənt]	вмешательство
light bulb ['laɪtbʌlb]	электрическая лампочка
objector [əb'dʒektə]	противник
preliminary education [prɪ'lɪmɪn(ə)rɪ 'edju'keɪʃ(ə)n]	начальное образование
priority [praɪ'ɔrɪtɪ]	приоритет
promote [prə'məut]	продвигать
receive [rɪ'si:v]	получать
release [rɪ'li:s]	освобождать
stimulate ['stɪmjuleɪt]	побуждать
well-being ['wel'bi:ŋ]	благополучие
wildlife ['waɪldlaɪf]	дикая флора и фауна

Answer the questions.

1. When and where was David Suzuki born?
2. Where did David Suzuki spend his childhood?
3. What degrees did he get in Massachusetts and Chicago?
4. What career did he begin after graduation?
5. Why did he return to Canada in 1963?
6. How did his television career begin?
7. What was the well-known program created by him in the 80s about?
8. What are his books about?
9. What is he promoting now?
10. What is the David Suzuki Foundation activity aimed at?
11. What are the David Suzuki Foundation's priorities?
12. Why has David Suzuki become an international celebrity?

Wilhelm Conrad Roentgen (1845 – 1923)

Wilhelm Conrad Roentgen was a German mechanical engineer and physicist. He was born in 1845 in the Province of Germany, as the only child of a merchant and cloth manufacturer.

When he was three years old, his family moved to the Netherlands, where he went to the Institute of Martinus Herman van Doorn, a boarding school. He did not display any special abilities, but showed love for nature.

In 1862, he entered the Technical School at Utrecht (the Netherlands), from where he was unfairly expelled.

In 1865, he entered the Polytechnic Institute in Zurich to study mechanical engineering. He attended lectures and worked in the laboratory. In 1869, he received the Doctor of Philosophy degree in Physics. He went through his scientific career from assistant to professor and rector at various universities of Germany. His last job was the University of Munich.

Roentgen's scientific papers were devoted to specific heats of gases, thermal conductivity of crystals, electrical characteristics of quartz, etc.

Roentgen's name, however, is mainly associated with the detection of electromagnetic radiation in a wavelength range known as X-rays or Roentgen rays. In 1895 in his laboratory at the University of Wurzburg (Germany), Roentgen was investigating the properties of new rays that he termed 'X-rays' using the mathematical designation ('X') for something unknown. While investigating the ability of various materials to stop the rays, Roentgen brought a small piece of lead into position while a discharge was occurring. Roentgen thus saw the first radiographic image: his own flickering skeleton on the screen.

The new rays bear his name in many languages as 'Roentgen rays' and the associated X-ray radiograms as 'Roentgenograms'. Roentgen was awarded the honorary Doctor of Medicine degree after his discovery. In 1901, Roentgen was awarded the first

Nobel Prize in Physics. The award was officially "in recognition of the extraordinary services he has rendered by the discovery of the remarkable rays later named after him."

Roentgen donated the 50,000 Swedish krona from his Nobel Prize to the research of the University of Wurzburg. Like Pierre Curie, Roentgen refused to take out patents related to his discovery of X-rays, as he wanted the society to benefit from practical applications of the phenomenon.

Thanks to his invention, new areas of science and technology appeared – roentgenology, X-ray diagnostics, X-ray structural analysis, etc.

Vocabulary

application ['æplɪ'keɪʃ(ə)n]	сфера применения
attend [ə'tend]	посещать
award [ə'wɔːd]	награждать
boarding school ['bɔːdɪŋ'skuːl]	школа-интернат
bear [beə] one's name	носить чьё-то имя
cloth manufacturer [klɔθ 'mænju'fækʧ(ə)rə]	изготовитель тканей
designation ['dezɪg'neɪʃ(ə)n]	обозначение
detection [dɪ'tekʃ(ə)n]	обнаружение
discharge [dɪs'ʧɑːdʒ]	разряд, выброс
donate [də(u)'neɪt]	жертвовать
expel [ɪk'spel]	исключать
extraordinary [ɪk'strɔːd(ə)n(ə)rɪ]	необычный
flicker ['flɪkə]	мерцать
honorary ['ɔnər(ə)rɪ]	почётный
investigate [ɪn'vestɪgeɪt]	исследовать
invention [ɪn'venʃ(ə)n]	изобретение
lead [led]	свинец
merchant ['mɜːʧ(ə)nt]	купец
Munich ['mjuːnɪk]	г. Мюнхен (Германия)
occur [ə'kɜː]	происходить
phenomenon /-na [fɪ'nɔmɪnən / fi'nɔminə]	явление /явления (мн.ч)
Pierre Curie [ˈpɪər ˈkjʊərɪ]	фр. учёный-физик, один из первых исследователей радиоактивности
property ['prɔpətɪ]	зд. свойство
radiographic [ˌreɪdiəʊ'græfɪk]	радиографический
recognition ['riːekəg'nɪʃ(ə)n]	признание
refuse ['refjuːs]	отказываться
relate [rɪ'leɪt]	зд. быть связанным
remarkable [rɪ'mɑːkəb(ə)l]	замечательный
render ['rendə]	оказывать, предоставлять
roentgen ['rɒntgən, 'rɛnt-]	Рентген (по фамилии ученого)
roentgenology [ˌrɒntgə'nɒlədʒi]	рентгенология

specific heat [spɪ'sɪfɪk hi:t]	удельная теплоемкость
Swedish krona ['swi:dɪʃ'krəunə]	шведская крона
thanks to ['θæŋkstu:]	благодаря
the Netherlands [ðə 'neðələndz]	Нидерланды
thermal conductivity [ˌθɜ:m(ə)l kəndʌk'tɪvɪtɪ]	теплопроводность
wavelength ['weɪvlɛŋθ]	длина волны
X-ray ['eksreɪ]	рентгеновские лучи
Wurzburg [ˈvuətsbə:g]	г. Вюрцбург на юге Германии
Zurich ['z(j)uərɪk]	г. Цюрих на севере Швейцарии

Answer the questions.

1. What is the name of Wilhelm Konrad Roentgen associated with?
2. When and where was he born?
3. Where did he study?
4. Did he display any special abilities in his childhood and youth?
5. What was his scientific career?
6. What physical phenomena did he study?
7. Why did he call his remarkable rays as X-rays?
8. How did he first see the X-ray image of his hand?
9. What awards did he receive?
10. To what did Roentgen donate 50,000 Swedish kronas from his Nobel Prize?
11. Why did Roentgen refuse to take out patents related to his discovery of X-rays?
12. What new science subject areas appeared thanks to his invention?

Adam Smith (1723 – 1790)

Adam Smith, the famous economist and philosopher, the representative of classical bourgeois political economy, was born in Scotland in 1723. His father, a customs officer, gave his son a brilliant education. At the age of 14, he entered the University of Glasgow and then the University of Oxford.

When he lived in Europe, he got to know many well-known scientists, philosophers and progressive-minded people who influenced much the formation of Smith's economical and philosophical views.

In 1751, Smith was appointed professor of logic at the University of Glasgow. Smith delivered lectures on ethics, rhetoric, law and political economy. In 1787, he headed Glasgow University.

Meanwhile, the industrial revolution was taking place in England and industrial production forms began prevailing. Reflecting this fact, Smith introduced his famous concept of capital, where he focused on its functional forms and paid much attention to state finances.

The most famous books written by Smith are *Theory of Moral Sentiments, The Wealth of Nations*. The first one described Smith's philosophical, religious and psychological views on moral. The second book was devoted to the production and distribution problems. The book contained his doctrine about the income of main classes. Smith laid the foundations for classical economic theory of free market. He is considered a creator of the academic economics disciplines.

Smith made great contribution to the field of political economy. Smith believed that rational self-interests and competition could lead to economic prosperity. Though Smith's doctrines had some faults from the viewpoint of modern science, his works represent the height of the 18th century economic thought.

Adam Smith died in 1790 in Edinburgh. His works on history, astronomy, philosophy and fine arts were published after Smith's death.

Vocabulary

appoint [ə'pɔɪnt]	назначать
deliver lectures [dɪ'lɪvə 'lektʃəz]	читать лекции
believe [bɪ'li:v]	верить, полагать
bourgeois ['buəʒwɑ:]	буржуазный
competition ['kɔmpɪ'tɪʃ(ə)n]	конкуренция
contain [kən'teɪn]	содержать
contribution ['kɔntrɪ'bju:ʃ(ə)n]	вклад
customs officer ['kʌstəmz'ɔfɪsə]	работник таможни
distribution ['dɪstrɪ'bju:ʃ(ə)n]	распределение
doctrine ['dɔktrɪn]	учение, теория
Edinburgh ['edɪnbərə]	г. Эдинбург (столица Шотландии)
ethics ['eθɪks]	этика, учение о морали
fine arts ['faɪn'ɑ:ts]	изящные искусства
fault [fɔ:lt]	недостаток, ошибка
Glasgow ['glɑ:sgəu, 'glæzgəu]	г. Глазгоу (Шотландия)
head [hed]	стоять во главе
height [haɪt]	вершина, апогей
income ['ɪŋkʌm, 'ɪn-]	доход, прибыль
influence ['ɪnfluəns]	влиять
logic ['lɔdʒɪk]	логика
lay the foundation [leɪ θi: faun'deɪʃ(ə)n]	заложить основание
meanwhile ['mi:nwaɪl]	в то время как
nation ['neɪʃ(ə)n]	зд. народ
originator [ə'rɪdʒɪneɪtə]	создатель
pay attention to [peɪ ə'tenʃ(ə)n tu:]	обратить внимание
prevail [prɪ'veɪl]	преобладать
progressive-minded [prə'gresɪv 'maɪndɪd]	передовых взглядов (человек)
prosperity [prɔ'sperɪtɪ]	процветание
public thought ['pʌblɪk θɔ:t]	общественная мысль

rational ['ræʃ(ə)nəl]	здравый, рациональный
representative ['reprɪ'zentətɪv]	представитель
research [rɪ'sɜ:ʧ]	исследование
rhetoric ['retərɪk]	риторика
scientific ['saɪən'tɪfɪk]	научный
self-interest [ˌself'ɪntrɪst]	личная выгода
sentiment ['sentɪmənt]	проявление чувств, настрой
though [ðəu]	хотя
view [vju:]	видение, представление
wealth [welθ]	богатство

Answer the questions.

1. What made Adam Smith famous?
2. Where and when was he born?
3. What education did he get?
4. Who influenced the formation of Smith's economical and philosophical views?
5. What disciplines did Smith lecture in Glasgow University?
6. What post did he hold?
7. How did the Industrial Revolution in England influence his views?
8. Was he an open-minded person?
9. What are his most famous books?
10. In what book did he state his doctrine about the income of main classes?
11. Why was he considered a creator of the academic economics disciplines?
12. What other fields of science did he contribute to?

Isaac Newton (1642 – 1727)

Isaac Newton, one of the greatest men in the history of science, was born into a family of a poor farmer in the little village of England in 1642. When a young person was 19, he became a student of Cambridge University. He began studying physics, astronomy and mathematics.

In 1665 he received his scientific degree, but soon the university was closed because of the danger of plague, and Newton went home for eighteen months. It was the most important period in his life when he made his two great discoveries –the nature of white light, and the law of gravitation.

Newton's great discovery was the law of decomposition of light. The scientist proved that the white light is composed of light rays of all the colours of a rainbow.

He also discovered the law of universal gravitation that states, "Every particle of matter is attracted by every other particle of matter with a force proportional to the square of their distance apart". It is interesting how he discovered the law of gravitation. Once, as he was sitting in the garden, his attention was attracted by the fall of an apple. Many people saw such an ordinary thing before. However, Newton

asked himself "Why does that apple fall perpendicularly to the ground? Why doesn't it go sidewards or upwards?" The answer to this question was the theory of gravitation discovered by Newton.

Newton applied the principle of gravitation to prove that power that guides the moon around the Earth and the planets around the Sun is the force of gravity. Another application of the law of universal gravitation was Newton's exploration of tides.

Among the Newton's scientific works, there were research papers on mathematics, mechanics, astronomy, physics, chemistry, alchemy, theology and philosophy. He developed the principles of modern physics that he laid out in his book *Principia*, one of the paramount contributions of the 17th century scientific thought. The book highlighted the concepts of universal gravitation and three laws of motion that remained the base of scientific theories for centuries.

Newton was highly honored by his country people and in 1703 he was elected the President of the Royal Scientific Society.

Isaac Newton died at the age of 84 and was buried in Westminster Abbey in England where his monument stands today. On the statue, erected to Newton in 1755, an inscription is cut "His mind surpassed the human race."

Vocabulary

alchemy ['ælkəmɪ]	алхимия
apart [ə'pɑ:t]	кроме, в отдельности
apply [ə'plaɪ]	применять
attention [ə'tenʃ(ə)n]	внимание
attract [ə'trækt]	притягивать, привлекать
burry ['bɜ:rɪ]	похоронить
compose [kəm'pəuz]	входить в состав
contributor [kən'trɪbjutə]	участник
danger ['deɪndʒə]	опасность
decomposition ['di:kɔmpə'zɪʃ(ə)n]	разложение
discover [dɪs'kʌvə]	открывать
elect [ɪ'lekt]	избирать
erect [ɪ'rekt]	воздвигать
exploration ['eksplə'reɪʃ(ə)n]	исследование
fall [fɔ:l]	падать
force [fɔ:s]	сила
gravitation ['grævɪ'teɪʃ(ə)n]	притяжение
guide [gaɪd]	управлять
highlight ['haɪlaɪt]	сделать акцент, подчеркнуть
honor ['ɔnə]	удостаивать, чествовать
human race ['hju:mən reɪs]	человечество
inscription [ɪn'skrɪpʃ(ə)n]	краткое посвящение, надпись
Isaac ['aɪzək]	мужское имя Исаак

matter ['mætə]	вещество
mind [maɪnd]	ум, разум
paramount ['pærəməunt]	первостепенный
perpendicularly [ˌpɜːrpən'dɪkjələrli]	перпендикулярно
plague [pleɪg]	чума
Principia [prɪn'sɪpɪə]	книга Ньютона «Нача́ла» (лат.язык)
prove [pruːv]	доказывать
rainbow ['reɪnbəu]	радуга
ray [reɪ]	луч
receive [rɪ'siːv]	получать
remain [rɪ'meɪn]	сохранять
Royal Society ['rɔɪəlsə'saɪətɪ]	Королевское общество (академия наук Великобритании)
sidewards ['saɪdwədz, -wərdz]	направленный в сторону
state [steɪt]	излагать, сообщать
surpass [sə'pɑːs, sər'pæs]	превосходить
theology [θɪ'ɔlədʒɪ]	теология, богословие
tide [taɪd]	приливо-отливное движение
upwards ['ʌpwədz]	вверх
Westminster Abbey [ˌwes(t)'mɪn(t)stə 'æbɪ]	Вестминстерское аббатство (место коронации британских монархов и усыпальница королей, государственных деятелей и выдающихся людей)

Answer the questions.

1. When and where was Newton born?
2. Where did he study?
3. What are his major discoveries?
4. When did Newton make these discoveries?
5. What did he prove by his experiments with light?
6. How did the idea that later led to the discovery of the Law of Gravitation first come to him?
7. Why does an apple not go sidewards or upwards when falling down a tree?
8. What natural phenomena became evidence of the existence of the gravity force?
9. What is his book Principia famous for?
10. What other fields of science did he contribute to?
11. Why is he considered to be well in advance of his time?
12. What is cut on the one of his statues?

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