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Кафедра иностранных языков по техническим специальностям

КОНТРОЛЬНЫЕ ЗАДАНИЯ

**по дисциплине «Иностранный язык» (английский)
и методические рекомендации по их выполнению**

**для студентов заочной формы обучения и студентов
факультета инновационной деятельности, управления и финансов
специальности 1-70 02 01 «Промышленное и гражданское строительство»**



Брест 2010

Контрольные задания предназначены для студентов заочной формы обучения и студентов факультета инновационной деятельности, управления и финансов специальности 1–70 02 01 «Промышленное и гражданское строительство» и рассчитаны на самостоятельную работу.

Основная цель данного методического пособия – развитие и закрепление навыков практического владения английским языком студентами неязыковых специальностей.

В издание включены идентичные по структуре контрольные работы (предлагаемые в пяти вариантах), а также рекомендации по их выполнению и оформлению.

Контрольные задания составлены в соответствии с учебными рабочими программами, разработанными на кафедре иностранных языков по техническим специальностям БрГТУ и рекомендованы к изданию.

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ВЫПОЛНЕНИЕ КОНТРОЛЬНЫХ ЗАДАНИЙ И ОФОРМЛЕНИЕ КОНТРОЛЬНЫХ РАБОТ

При выполнении контрольного задания по английскому языку необходимо учитывать следующие указания:

1. Каждое контрольное задание в данном пособии представлено в пяти вариантах. Выбор варианта контрольного задания осуществляется в соответствии с последней цифрой студенческого шифра. Студенты, шифр которых оканчивается на 1 или 2, выполняют вариант №1; на 3 или 4 – вариант №2; на 5 или 6 – вариант №3; на 7 или 8 – вариант №4; на 9 или 0 – вариант №5.

2. Выполнять контрольное задание рекомендуется в отдельной тетради. На обложке тетради необходимо указать свою фамилию и инициалы, номер контрольного задания и вариант, шифр зачётной книжки, курс обучения, специальность и номер группы.

3. Контрольное задание должно выполняться аккуратно и чётким почерком. При выполнении контрольного задания рекомендуется оставлять широкие поля для методических указаний и замечаний преподавателя-рецензента. Материалы контрольной работы следует располагать в тетради следующим образом:

Поля	<i>Левая страница тетради</i>	<i>Правая страница тетради</i>	Поля
	Текст на английском языке	Текст на русском языке	

4. Упражнения контрольного задания должны быть выполнены в последовательности, в которой они даны в настоящем пособии.

5. Список использованной литературы должен быть указан в конце выполненной работы.

6. Выполненные контрольные задания должны быть направлены для проверки и рецензирования на кафедру иностранных языков по техническим специальностям в установленные сроки.

Контрольные работы, выполненные без соблюдения вышеизложенных указаний или выполненные не полностью, возвращаются без проверки.

ИСПРАВЛЕНИЕ РАБОТЫ НА ОСНОВЕ РЕЦЕНЗИИ

1. При получении от рецензента проверенной контрольной работы внимательно прочтите рецензию, ознакомьтесь с замечаниями и проанализируйте отмеченные в работе ошибки.

2. Руководствуясь указаниями рецензента, ещё раз проработайте учебный материал. Все предложения, в которых были обнаружены орфографические и грамматические ошибки, неточности перевода, перепишите в исправленном виде в конце контрольной работы (т.е. выполните работу над ошибками).

3. В случае не допуска контрольной работы к защите, контрольную работу следует выполнить ещё раз в отдельной тетради, учитывая замечания рецензента и исправляя все ошибки и неточности. Отрецензированные контрольные работы являются учебными документами, которые необходимо сохранять.

РЕКОМЕНДУЕМАЯ ЛИТЕРАТУРА

Основные пособия

1. Агабекян И.П., Коваленко П.И. Английский для технических вузов. – Ростов н/Д: Феникс, 2006. – 349 с.
2. Бурлак А.И. Учебник английского языка для студентов архитектурных и инженерно-строительных специальностей вузов. – М.: Высш. школа, 1982. – 247с.
3. Мусихина О.Н., Гисина О.Г., Яськова В.Л. Английский язык для строителей.– Ростов н/Дону: Феникс, 2004. – 352 с.
4. Полякова Т.Ю., Синявская Е.В., Тынкова О.И. Английский язык для инженеров. – М.: Высш. школа, 2008. – 463 с.
5. Англо-русский словарь / В.К. Мюллер. – М.: Рус. яз., 1988. – 848 с.
6. Англо-русский словарь по строительству и новым строительным технологиям / А.А. Поздняков. – М.: Рус. яз. – Медиа, 2008. – 867 с.

Дополнительные пособия

1. Дубровская С.Г., Дубина Д.Б. Английский для технических вузов. – М.: Издательство АСВ, 2007. – 328 с.
2. Орловская И.В., Самсонова Л.С., Скубриева А.И. Учебник английского языка для студентов технических университетов и вузов. – М.: Изд-во МГТУ им. Н.Э. Баумана, 2008. – 448 с.

КОНТРОЛЬНАЯ РАБОТА № 1

(для студентов факультета заочного обучения)

Для того чтобы правильно выполнить контрольную работу № 1, необходимо изучить следующие грамматические разделы курса английского языка:

1. Имя существительное: образование форм множественного числа и притяжательного падежа.
2. Спряжение глаголов to be, to have в Present, Past и Future Indefinite. Особенности их перевода на русский язык.
3. Времена группы Indefinite (Present, Past, Future) действительного и страдательного залога изъявительного наклонения. Особенности образования, употребления и перевода на русский язык.
4. Времена группы Continuous (Present, Past, Future) действительного залога изъявительного наклонения. Времена группы Continuous (Present, Past) страдательного залога изъявительного наклонения. Особенности образования, употребления и перевода на русский язык.
5. Времена группы Perfect (Present, Past, Future) действительного и страдательного залога изъявительного наклонения. Особенности образования, употребления и перевода на русский язык.

ВАРИАНТ 1

1. Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием **-(e)s** и какую функцию это окончание выполняет, т.е. служит ли оно:

а) показателем 3-го лица единственного числа глагола в Present Indefinite;

б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Concrete is a structural material used in construction of residential and industrial buildings, bridges, tunnels and dams.

2. Hydraulic cement is a bonding agent that reacts with water to form hard substance.

3. The evergreens such as pines, firs and spruces produce most of the lumber used in construction.

4. Impregnation of the fibres with a fire retardant has increased wood's usefulness as a structural material.

5. Air conditioning involves control of some physical properties of air like its temperature, humidity and circulation.

2. Перепишите следующие предложения, подчеркните в них пассивные конструкции. Переведите предложения на русский язык, обращая внимание на особенности перевода пассивных конструкций.

1. Civil engineering is concerned with "civil" works such as construction of office and public buildings, highways and railroads.

2. Bricks are made in numerous sizes, shapes, surface textures and colours.

3. From prehistoric times wood has been used as material for construction.

4. Prefabricated units will have been delivered to the construction site by noon tomorrow.

5. The Brooklyn Bridge was designed by John A. Roebling in 1867.

3. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. Sandstone is a significant construction material which is used in making concrete in the form of crushed stone.

2. Many factors influence the strength of concrete.

3. Geodesy has grown out of several sciences including surveying, cartography and geology.

4. The construction of this building will be finished next year.

5. The earliest Roman bridges were wooden structures.

4. Перепишите следующие предложения. Дополните предложения глаголами to be или to have в требующейся видовременной форме. Переведите предложения на русский язык.

1. Concrete ... many valuable properties.

2. Wood ... relatively weak in both compression and tension.

3. We can hardly name a branch of industry where plastics ... not applied.

4. In ancient times, mud bricks ... widely used in Egypt, especially for domestic architecture.

5. Most modern bridges ... a concrete, steel or wood framework and an asphalt or concrete roadway.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 3 и 4 абзацы текста.

From the History of Concrete

1. Some form of concrete has been used by man for the past 5,000 years. The Egyptians used lime mortar in building the pyramids. The mortar was made by heating limestone in primitive kilns. The resulting lime was mixed with aggregate and used as mortar.

2. The Romans are credited with the discovery of hydraulic cement. They made hydraulic cement by mixing lime paste with a pozzolanic volcanic ash from Vesuvius. The name "pozzolanic" is derived from Pozzuoli, a name of Italian town, where pozzolan composed of tuff was found. Pozzolanic cement was used in such notable structures as the Pantheon and the Colosseum. These structures are still in existence, which indicates the high quality and durability of concrete made by the Romans.

3. The art of making cement was lost after the fall of the Roman Empire, and it was not until 1756 that hydraulic cement was used again. John Smeaton was commissioned to rebuild the Eddystone lighthouse off the coast of Cornwall, England. After he found by experiment that better limes could be made from limestone containing considerable clay, he built a sturdy lighthouse using hydraulic lime. Smeaton is credited with being the first to re-establish the use of hydraulic cement, which was the forerunner of natural cement.

4. In 1824 an English brick-mason, Joseph Aspdin, patented a cementing material that he produced by burning limestone and clay together. He named his product Portland cement because its colour resembled that of a limestone quarried on the Isle of Portland, a peninsula on the English coast. Aspdin is commonly considered to be the inventor of modern Portland cement. The use of Portland cement made it possible to produce high-quality concrete at a relatively low cost and led to the wide use of concrete as a structural material.

ВАРИАНТ 2

1. Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -(e)s, и какую функцию это окончание выполняет, т.е. служит ли оно:

а) показателем 3-го лица единственного числа глагола в Present Indefinite;

б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Concrete is a structural material used in construction of highways, buildings and bridges.

2. Concrete consists of cement, water, sand and gravel or crushed stone.

3. In the past, wood was widely used for piling to support docks, wharves and piers.

4. Air conditioning in its broadest sense includes any treatment of air to some desired quality level.

5. The bridge's engineer Benjamin Baker and Sir John Fowler made the Firth of Forth different from a simple beam bridge.

2. Перепишите следующие предложения, подчеркните в них пассивные конструкции. Переведите предложения на русский язык, обращая внимание на особенности перевода пассивных конструкций.

1. Fireclay bricks are used for lining the sides of fireplaces and industrial furnaces.
2. The first natural cement was made in small upright, wood-burning kilns that were fired for about a week.
3. Throughout the history, sandstone has been widely quarried and used as a building material.
4. The famous Mersey Tunnel was completed in 1934.
5. The construction of a new residential building will have been completed by the end of this year.

3. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. The profession of civil engineer is as old as civilization.
2. Steel and concrete together form a material that is known as reinforced concrete.
3. The first known attempt to measure the size of the earth was reported by Aristotle in the 4th century B.C.
4. Since 1900 there have been vast improvements in reinforced concrete design and construction.
5. A series of experiments on the new building material will be carried out over the next few weeks.

4. Перепишите следующие предложения. Дополните предложения глаголами to be или to have в требующейся видовременной форме. Переведите предложения на русский язык.

1. Stone ... strong in compression but weak in tension.
2. Concrete blocks ... building units resembling large bricks that are moulded from concrete.
3. Mortar ... first widely used by the Romans.
4. A pontoon bridge ... no piers or abutments.
5. Timber ... certain disadvantages: it burns and decays.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 1 и 2 абзацы текста.

From the History of Brick-making

1. Man has used bricks for building purposes for thousands of years. Archaeological excavations have unearthed a brick that is dated as 9,000 to 10,000 years old; this brick was discovered at the site of an ancient settlement beneath the city of Jericho. The earliest bricks, made in areas with warm climates, were simply placed in the sunlight for hardening. Sun-dried bricks, which were used extensively in ancient times, especially in Egypt, were made of clay mixed with straw.

2. In addition to the Egyptians, the ancient Assyrians, Chinese and Romans also used bricks. In China, bricks were used to build several parts of the Great Wall, which dates from

the 3d century B.C. The Romans made wide use of sun-dried bricks and burnt bricks. They built walls, forts, and cultural centres of brick. Two examples of Roman brick structures are the Herculaneum gate of Pompeii and the baths of Caracalla in Rome. During the period of the Roman Empire, the Romans spread the art of brick-making throughout Europe. In Britain, brick-making was discontinued when Roman occupation ended in 410.

3. After the fall of the Roman Empire, the kinds of brick used by Roman builders were no longer made, and the art of brick-making nearly ended. Brick-making continued only in Italy and the Byzantine Empire. In the 11th century, the use of brick spread from these lands to France. By the 13th century, the art of brick-making had reached England and other parts of Europe. In medieval times, bricks came into use because they were more readily available or easier to handle than stone. Remains of buildings show that the art of brick-making in England was well advanced by the time of Henry VIII (1491-1547). After the great fire of London in 1666 the city was rebuilt with mainly brick structures.

ВАРИАНТ 3

1. Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием *-(e)s*, и какую функцию это окончание выполняет, т.е. служит ли оно:

а) показателем 3-го лица единственного числа глагола в Present Indefinite;

б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Aggregates for concrete should be free from harmful materials such as clay and soluble salts.

2. Wood varies widely in its composition, structure and technical properties.

3. Many industrial plants need control of temperature and humidity conditions during manufacturing operations.

4. Steel corrodes 2-4 times faster in urban and industrial areas than in rural areas due to air pollutants.

5. Completed in 1987, the Sunshine Skyway is the world's longest cable-stayed concrete bridge.

2. Перепишите следующие предложения, подчеркните в них пассивные конструкции. Переведите предложения на русский язык, обращая внимание на особенности перевода пассивных конструкций.

1. In building a straight wall, bricks are laid in horizontal layers.

2. Since Roman times thin slices of wood known as veneer have been cut from logs.

3. Bitumen was used in ancient times as a binder for pavements, for waterproofing cisterns and for mummification.

4. The Thames Tunnel was built by Mark Isambard Brunei and his son in the 19th century.

5. The project will be discussed at the meeting tomorrow.

3. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. The civil engineer plans, designs and constructs the large variety of structures.
2. The plant will have fulfilled its yearly plan of production by the end of this year.
3. The use of plastics as materials for construction in the form of sheets, rods or tubes is increasing.
4. Wood has been effectively used for small bridges that carry light loads since early times.
5. Reinforced concrete, to which embedded steel bars add strength, was introduced in the 19th century.

4. Перепишите следующие предложения. Дополните предложения глаголами to be или to have в требующейся видовременной форме. Переведите предложения на русский язык.

1. Concrete ... an artificial stone made from a mixture of water, sand, gravel and cement.
2. Concrete-block structures ... durable and they usually require little maintenance.
3. The first real passenger elevator ... installed by Otis in 1857 in a store in New York.
4. Stone ... been used as a structural material since the earliest days.
5. Natural building materials ... stone, sand, lime and timber.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 3 и 4 абзацы текста.

Reinforced and Prestressed Concrete

1. When a horizontal beam is supported at each end but not in the middle, it bends. The bending is caused by the beam's own weight and by the weight of anything that it has to support. When it bends, the bottom surface is normally in tension. If the total load is too heavy, the beam will break.

2. Steel rods may be placed inside concrete beams while the mixture is still wet, and if these rods have hooked ends, they will grip the concrete and tend to prevent stretching. The steel and concrete together make a good combination to resist compression and tension, and such material is known as reinforced concrete or ferroconcrete.

3. Since concrete does not resist tension well a system is now in use in which it is not stretched. The concrete beam is compressed along its length by means of steel rods inside it; these rods remain in the beam and therefore concrete is always compressed unless some greater force tries to pull it apart. As long as the beam is not lengthened more than it is already compressed, the concrete will never be in tension. Such material is called prestressed concrete. Prestressed concrete can be used where ordinary concrete would fail. High buildings are now made with this material and it is likely that its use will increase.

4. Concrete is a bad conductor of heat; moreover, it does not catch fire. These are two great advantages in a building, and especially in a high building. Even if the furniture or the wooden floors are set on fire, and the surfaces of the concrete walls are heated, the interior parts of the walls do not become very hot for the concrete does not conduct the heat. The danger of fire is therefore decreasing.

ВАРИАНТ 4

1. Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием *-(e)s*, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;
- б) признаком множественного числа имени существительного;
- в) показателем притяжательного падежа имени существительного.

Переведите предложения на русский язык.

1. Water for concrete mixtures should not contain substances that harm the concrete.
2. Strength of materials is a branch of engineering that deals with the behaviour of materials in response to applied forces.
3. Ozone discolours dyed materials, cracks rubber and adds to the total cost of producing tires by requiring the addition of antioxidant chemicals.
4. A good mortar sticks to the surface of the bricks or stones and hardens to lock them together.
5. Before construction of the Brooklyn Bridge even began, the bridge's chief engineer, John A. Roebling died.

2. Перепишите следующие предложения, подчеркните в них пассивные конструкции. Переведите предложения на русский язык, обращая внимание на особенности перевода пассивных конструкций.

1. A trowel is used to apply mortar between the bricks.
2. Later Greek and early Roman stone structures were built without mortar.
3. The abacus has been used for thousands of years and has appeared in various forms in different countries.
4. The construction of a new bridge will have been accomplished by the end of this month.
5. Plastic materials are not found as such in nature.

3. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. John Smeaton, the builder of the famous Eddystone lighthouse near Plymouth, was the first to call himself a "civil engineer".
2. Fine aggregates are sometimes manufactured from larger pieces of aggregate by crushing, grinding and rolling.
3. The engineers will be working on a new project over the next three months.
4. Composed of calcium silicates, Portland cement is a key ingredient in concrete.
5. Since it opened to traffic in 1987 the sleek, new Sunshine Skyway Bridge has won dozens of engineering and design awards.

4. Перепишите следующие предложения. Дополните предложения глаголами to be или to have в требующейся видовременной форме. Переведите предложения на русский язык.

1. Concrete ... strong in compression but weak in tension.

2. Concrete blocks ... made of Portland cement, water and a variety of aggregates.
3. Though it was originally constructed for pedestrian use, the Thames Tunnel ... adapted for trains in 1865.
4. Non-ferrous metals ... the following characteristics: high conductivity and light weight.
5. Concrete ... poor elastic and tensional properties, but it is rigid, strong and durable.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 3, 4 и 5 абзацы текста.

Plastering

1. Plastering is a house construction technique involving the application of plaster to walls and ceilings. Exterior plasterwork being of a different composition is generally known as stucco. Plaster was used by the Egyptians, chiefly as a surface to receive colour decorations.

2. The Romans used it extensively, and there remain, especially at Pompeii, many ceilings and walls, with beautiful relief ornamentation of hard or fine plaster. Italian Renaissance artists imitated this Roman work; and relief ornament in plaster was employed in England for the rich ceilings and interiors in the reign of Henry VIII and Elizabeth I.

3. Interior plastering is applied over a base that will furnish a proper grip — by means of interstices provided by wood lath or metal lath or by irregularities of surface such as in hollow tile. To secure best results three successive coats of plaster are requisite in most types of work.

4. The first, or scratch coat, composed of sand and lime mixed with abundant fibre, must be thoroughly grounded into the lath and, before it hardens, is scratched to adhesion for the next coat. The second, called the brown coat or the floating coat, is composed of sand and lime without fibre, and is worked to a hard, compact texture, with its surface roughened to receive the final coat.

5. The third, called the white coat or the finishing coat is composed of plaster, slaked lime, and white sand, mixed with water to form a paste. It is trowelled on the wall to form a hard and smooth surface, the process requiring a skilled worker. Mouldings, cornices, and relief ornament are cast separately and then mounted into place. In former times ornamental details were moulded in their location from the damp plaster.

ВАРИАНТ 5

1. Перепишите следующие предложения. Подчеркните и определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -(e)s, и какую функцию это окончание выполняет, т.е. служит ли оно:

- а) показателем 3-го лица единственного числа глагола в Present Indefinite;**
- б) признаком множественного числа имени существительного;**
- в) показателем притяжательного падежа имени существительного.**

Переведите предложения на русский язык.

1. The strength of concrete is its ability to resist the stresses caused by compressive, tensile and flexural forces.

2. The indoor portion of the room air-conditioning unit consists of an air filter, a fan and a cooling coil.

3. The use of timber piles dates from Neolithic times.
4. Mortar is applied between bricks, stones, concrete blocks or other materials to bind them together.
5. The Mersey Tunnel is one of the world's biggest underwater tunnels.

2. Перепишите следующие предложения, подчеркните в них пассивные конструкции. Переведите предложения на русский язык, обращая внимание на особенности перевода пассивных конструкций.

1. The reconstruction of the city's historical buildings will be finished soon.
2. Plywood is used for many forms of construction including sheathing, interior finish and flooring.
3. When the Brooklyn Bridge was opened for service on May 24, 1883 it was the longest bridge in the world.
4. Various types of hoists powered by human labour, animals or waterpower were used from ancient times to raise and lower loads.
5. Steel-rib support with timber blocking outside has been widely employed in rock tunnels.

3. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. The term "civil engineer" didn't come into use until about 1750.
2. Plastics have found wide application both in everyday life and in industry.
3. Abacus was used to perform arithmetic operations such as addition, subtraction, multiplication and division.
4. The best project will be awarded a grant.
5. Aggregates are classed as coarse or fine depending on their size.

4. Перепишите следующие предложения. Дополните предложения глаголами to be или to have в требующейся видовременной форме. Переведите предложения на русский язык.

1. Concrete with steel bars embedded in it ... called reinforced concrete.
2. Bricks ... laid manually that is why they must be easily lifted with one hand.
3. Portland cement ... given its name by Joseph Aspdin, a brick layer of Leeds, England in 1824.
4. Steel ... great tensional, compressive and elastic properties.
5. The most commonly used building materials ... steel, concrete, stone, wood and brick.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 3, 4 и 5 абзацы текста.

Aggregates for Concrete

1. Concrete aggregate is a material which is mixed with cement to create hard, strong and long-lasting concrete. Aggregate makes concrete much stronger as it is acting as a type of reinforcement. The aggregate increases the lifetime of concrete, and makes it more durable.

There are fine aggregates made from small particles of material, and coarse aggregates which are made from large chunks.

2. In order for aggregate to be effective, it must be strong. Weak aggregate materials will weaken concrete, which is not desirable. Aggregate must also be hard, so that it keeps its shape without deforming in the concrete. Finally, it must be clean, which in the construction sense means that it is free of chemicals, clays and various leached materials which could interact with the concrete and interfere with the way it sets.

3. The texture of the aggregate is also a consideration. Coarse, porous materials will absorb water during the mixing process, requiring the addition of more water to compensate. This in turn requires adding more concrete to avoid weakening the mixture. Smoother aggregates do not require additional water, and they are less likely to cause cracks when the concrete sets.

4. Sand is a common example of a fine aggregate. Rocks and crushed glass can be used as large aggregates. Natural aggregate materials are quarried and crushed down to size. Besides, concrete aggregate needs to be thoroughly cleaned before use.

5. Exposed concrete aggregate is used to make the aggregate visible with a variety of construction techniques. Concrete with exposed aggregate is designed to be pleasant to look at, and it may be made with aggregate which is decorative as well as functional. This technique is often used for walkways and concrete furniture to add more visual interest to what would otherwise be a dull grey expanse.

КОНТРОЛЬНАЯ РАБОТА № 2

(для студентов факультета заочного обучения)

Для того чтобы правильно выполнить контрольную работу № 2, необходимо изучить следующие грамматические разделы курса английского языка:

1. Неличные формы глагола: простые и сложные формы инфинитива, конструкции с инфинитивом.

2. Неличные формы глагола: причастие I и причастие II. Простые и сложные формы причастия, конструкции с причастием.

The Infinitive Формы инфинитива

	Active Voice	Passive Voice
Present	to use, to do	to be used, to be done
Present Continuous	to be using, to be doing	—
Perfect	to have used, to have done	to have been used, to have been done
Perfect Continuous	to have been using, to have been doing	—

The Objective-with-the-Infinitive Construction

Объектный инфинитивный оборот (сложное дополнение)

Существительное
(общий падеж)

+ инфинитив

Местоимение
(объектный падеж)

I know my friend to be a good sportsman.
Я знаю, что мой друг хороший спортсмен.

The Subjective Infinitive Construction

Субъектный инфинитивный оборот (именительный падеж с инфинитивом)

Существительное
(общий падеж)

+ глагол-сказуемое + инфинитив

Местоимение
(именительный падеж)

The weather is expected to become severe.
Ожидают, что погода будет суровой.

He is said to know English well.
Говорят, что он хорошо знает английский.

The for-to-Infinitive Construction

Инфинитивный оборот с предлогом for

for + Существительное
(общий падеж)

+ инфинитив

Местоимение
(объектный падеж)

He asked for the papers to be brought.
Он попросил принести бумаги.

It is easy for him to say that.
Ему легко это говорить.

The Participle
Формы причастия

	Active Voice	Passive Voice
Present	using, doing	being used, being done
Perfect	having used, having done	having been used, having been done
Past	—	used, done

The Objective Participial Construction
Объектный причастный оборот

Существительное (общий падеж)	+ причастие		
Местоимение (объектный падеж)			
<i>We saw</i>	<i>the clouds</i>	<i>gathering.</i>	
<i>Мы увидели, что собираются тучи.</i>			
<i>We saw</i>	<i>him</i>	<i>looking for</i>	<i>something on the ground.</i>
<i>Мы видели, как он искал что-то на земле.</i>			
<i>I heard</i>	<i>his name</i>	<i>mentioned</i>	<i>several times.</i>
<i>Я слышал, как его имя упоминали несколько раз.</i>			

The Subjective Participial Construction
Субъектный причастный оборот

Существительное (общий падеж)	+ глагол в страдательном залоге	+ причастие	
Местоимение (именительный падеж)			
<i>He</i>	<i>was heard</i>	<i>coming up</i>	<i>the stairs.</i>
<i>Было слышно, как он поднимался по лестнице.</i>			
<i>The rocket</i>	<i>was seen</i>	<i>launched.</i>	
<i>Было видно, как ракету запустили.</i>			

The Nominative Absolute Participial Construction
Независимый / самостоятельный причастный оборот

подлежащее + причастие
(существительное или местоимение
в именительном падеже)

The student knowing English well, the examination didn't last long.
Так как студент хорошо знал английский, экзамен продолжался недолго.

This duty completed, he had three months' leave.
Когда эта работа была закончена, он получил трехмесячный отпуск.

The Prepositional Absolute Participial Construction
Независимый / самостоятельный причастный оборот с предлогом

with + Существительное (общий падеж) + причастие
Местоимение (объектный падеж)

They were walking on again, with Tom quietly singing a familiar song.
Они снова шли вперёд; Том тихо напевал знакомую песню.

She sat silent and still, with her eyes fixed on the ground.
Она сидела молча и неподвижно, опустив глаза в землю.

ВАРИАНТ 1

1. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. Various types of hoists powered either by human labour or animals were used from ancient times to raise and lower loads.

2. It's important to know which parts are critical to a house's structure.

3. They seem to have already finished the construction of this building.

4. He is known to have been working on this drawing for several weeks.

5. This house is said to have been constructed recently.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. When reinforced, concrete regains great strength.

2. Having applied early, he was disappointed not to be accepted.

3. He spent a lot of money modernizing the house.
4. Having finished the work on the drawing he left the office.
5. Weakened by successive storms, the bridge was no longer safe.

3. Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивную конструкцию. Переведите предложения на русский язык.

1. He is said to have been appointed manager at a big plant.
2. His "country cottage" turned out to be an enormous bungalow.
3. The commission board considered him to be the best candidate for this position.
4. He stepped aside for me to pass.
5. The students watched the experienced engineer demonstrate the advantages of silica concrete.

4. Перепишите следующие предложения. Подчеркните и определите в каждом из них причастную конструкцию. Переведите предложения на русский язык.

1. He had the walls of his room painted.
2. The professor being ill, the lecture was put off.
3. Having tested the new type of hoisting crane, the engineer offered some recommendations as to its use.
4. With a minimum of changes having taken place in the post-tensioning system, one can be sure of obtaining a post-tensioned crack-free panel.
5. The experiment having been finished the students left the laboratory.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 1, 2 и 3 абзацы текста.

Floor Systems

1. The continuous slab constitutes a floor system. Before the development of the reinforced concrete slab, the nearest equivalents were the floor composed of timber or stone beams set immediately alongside one another, and the floor provided by a more or less solid fill above a brick or concrete vault.

2. The first of these involved a very extravagant use of material and hence expenditure of effort. The second was more efficient, inherently strong, and fireproof, and continued to be used for these reasons until supplanted by the reinforced-concrete slab. But it had the drawbacks of greater overall depth than alternative forms, and of greater weight plus the generation of outward thrusts, so that stronger walls were called for.

3. The alternative to these forms was always some composite system, with beams as the principal spanning and load-bearing elements. In the commonest of these systems, still widely used, light timber beams span at short intervals between opposite walls and are covered by boards or twigs and rammed earth.

4. Today the usual floor system, apart from intermediate floors within single dwellings, is the reinforced-concrete slab with or without projecting beams. For very heavy loadings and wide spans, a grid of beams within a bay may be used to stiffen and strengthen the slab without requiring it to be of great thickness throughout. In all cases, the slab has a great advantage over the earlier systems because it is a good horizontal diaphragm, binding the walls or columns together and distributing any side loads between them.

ВАРИАНТ 2

1. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. After about 1800, steam engines were used to power hoists.
2. The footing is wider than the foundation to spread out loads.
3. They intended to have finished the construction earlier.
4. The company is said to have been conducting negotiations with building contractors for a long time.
5. The floors, walls, roofs and other parts of the building are to be carefully designed and proportioned.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. We visited one of the largest plants producing building materials in our country.
2. The concrete used in building construction is up-to-date.
3. Being very interested in the project, he offered his services immediately.
4. Placing the mild steel close to the concrete face, cracks will be more evenly distributed.
5. Unless treated, the water cannot be used for drinking and domestic purposes.

3. Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивную конструкцию. Переведите предложения на русский язык.

1. This plant is known to produce prefabricated units.
2. He was heard to participate in the experiments with a new chemical element.
3. They wanted the builders to improve the quality of building constructions.
4. The bearing capacity of the ground was too low for the builders to start the construction work of a sky-scraper.
5. This house is said to have been built two hundred years ago.

4. Перепишите следующие предложения. Подчеркните и определите в каждом из них причастную конструкцию. Переведите предложения на русский язык.

1. The group of students watched the experiment being carried out by a famous professor.
2. He had the exterior walls of his house plastered.
3. He stood with his arms folded.
4. His books having been translated into many languages, the professor became well-known all over the world.
5. The engineer having tested a new type of hoisting crane, the contractor made use of it.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 2 и 3 абзацы текста.

Foundations

1. The loads that a structure imposes on the ground normally reach the ground through walls, piers or columns. Ideally, if the ground surface is a firm stratum of natural rock, the walls, piers or columns can simply be ended when they reach it. They can also be built up directly

from it after some preliminary levelling. Unfortunately, such strata have rarely been found in the places where men have wanted to build. Therefore, some means have had to be provided.

2. There were three means that were widely practiced in Roman times: the spread footing, piling, and the continuous raft. The spread footing and the continuous raft spread the load fairly near the surface, simply by providing each wall, pier or column with a substantially wider base. Piling carried the load further down without necessitating deep excavation. Once hammered into the ground, piles acted as columns usually transmitting part of the load to firmer ground at the foot.

3. With the exception of the continuous concrete raft these methods continued to be in use well into the 19th century, with little change except in such matters as methods of pile driving and of working below water level. For deep underwater foundations the answer was the pneumatic caisson. This was a development of the earlier cofferdam – a wall within which, after pumping out the water, it was possible to excavate and then build the base of the pier in the dry. The new requirements for tall buildings were mainly met by the substitution of grillages of steel beams for the less efficient, earlier spread footings.

4. These have given way to footings and piles of reinforced concrete, while there have been parallel developments in piling with the substitution of steel and reinforced-concrete piles for the previously universal timber pile.

ВАРИАНТ 3

1. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. In the technology of buildings, every structure must work against gravity, which tends to pull everything down to the ground.

2. Modern building materials such as steel and reinforced concrete are used to advantage in post and lintel construction.

3. To have made the same mistake in the drawing twice was inexcusable for such an experienced engineer.

4. He is known to have been working on this problem for many years.

5. The construction of a new multi-storey house appears to have been accomplished recently.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. Having completed the course, he decided to get a job.

2. We spent a whole afternoon plastering the house.

3. Having been his own boss for such a long time, he found it hard to accept orders from another.

4. Weakened by successive earthquakes, the building was no longer safe.

5. Designed in the late 1800's, the Firth of Forth Bridge is very different from a simple beam bridge.

3. Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивную конструкцию. Переведите предложения на русский язык.

1. Concrete is considered to be one of the most important building materials.

2. The beam seemed to be fixed.

3. They are sure to know how the high-rise apartment house was constructed in such a short period of time.

4. This old castle is known to have been rebuilt recently.

5. It was difficult for Washington Roebling to carry on the construction of a bridge.

4. Перепишите следующие предложения. Подчеркните и определите в каждом из них причастную конструкцию. Переведите предложения на русский язык.

1. A new type of hoisting crane having been tested, the builders put it into operation.

2. They had the walls of their room papered.

3. The lecture having finished, the students left the lecture-hall.

4. The validity of the new theory proved, it was commonly accepted.

5. The inventor was demonstrating his new widget with the workers watching his operation attentively.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 2, 3 и 4 абзацы текста.

Concrete Block Walls

1. Concrete masonry dates back to one of the most amazing periods in history. Some of the earliest structures built using masonry and concrete walls are still standing today, including the great Egyptian pyramids, Greek temples and Roman walls. First built out of necessity, concrete block walls are still used not only for their durability and strength but also for decorative reasons.

2. Concrete block walls especially when reinforced are a very common and wise choice for load-bearing walls of homes and other buildings. Many homes are built on a concrete foundation and employ a concrete block wall on the perimeter of the structure. Large buildings, such as those used for commercial offices or apartments, typically use large amount of concrete blocks in their construction.

3. Concrete block walls have numerous benefits over other types of walls. They are fire resistant and made of non-combustible materials, which makes them ideal for use in hazardous areas. Concrete walls are also weather resistant and can withstand heavy storms, sub-zero temperatures, extreme heat and high winds. When used in homes, concrete block walls offer protection from mould, fungus, rotting, and provide better sound proofing than wood or other traditional building materials.

4. Concrete block walls are used for a variety of reasons and purposes. They provide structural support for homes and other buildings, and are used to frame outdoor areas and prevent erosion when used as retaining walls for soil.

5. They are relatively easy to construct, and require less time and training to erect than walls made of brick or other materials. When reinforced with steel, concrete block walls enable builders to construct larger buildings without compromising safety.

ВАРИАНТ 4

1. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. Pile is a long timber, steel or concrete post placed in the ground to support a building, bridge or wharf.

2. The purpose of a building is to provide a shelter for the performance of human activities.
3. Engineers seem to have accomplished their work on a new project.
4. The professor wanted the research paper to be completed as soon as possible.
5. The design team appears to have been developing this project for several months.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. Bedridden but determined to stay in charge, Washington Roebling used a telescope to keep watch over the bridge's progress.

2. Having failed twice, he didn't want to try again.

3. Having read the instructions, he snatched up the fire extinguisher.

4. Distinguished as an "Outstanding Civil Engineer Achievement" in 1965, the Chesapeake Bay Bridge-Tunnel is nothing short of a modern engineering wonder.

5. Building materials used in construction of this house are up-to-date.

3. Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивную конструкцию. Переведите предложения на русский язык.

1. He is considered to be an experienced engineer.

2. The bombings at night made the old walls shake to their foundations.

3. A material is said to be perfectly elastic if it completely recovers its original dimensions after the deforming forces are removed.

4. Timber is considered to be one of the earliest construction materials.

5. It was difficult for them to discuss this problem.

4. Перепишите следующие предложения. Подчеркните и определите в каждом из них причастную конструкцию. Переведите предложения на русский язык.

1. The engineer testing a new type of hoisting crane the builders helped him.

2. The houses had their roofs ripped off by the gale.

3. The student slowly and carefully spread the drawing on the desk, with professor attentively watching.

4. He was talking about having central heating put in.

5. They had their fence pulled down.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 2, 3 и 4 абзацы текста.

Trusses and Space Frames

1. Trusses and space frames are assemblies of linear members that act primarily in axial tension or compression as ties or struts. The term truss denotes an assembly in one plane, and the term space frame describes a three dimensional assembly in which the interconnections are such that a load at any point is distributed in all directions through the assembly. The joints need not be rigid and, ideally, should allow free relative rotations of the members. But they must be capable of transmitting tension as well as compression. The usual role in a building is of carrying a roof – in place of the arch, dome, vault, beam or slab.

2. In the early 19th century, the true timber truss, necessarily somewhat elaborated and with the bottom tie made from shorter lengths of timber with lapped joints, was stretched to span about 45 m; but the first wide-span iron roofs (of basically arched form) had then been built, and future development was in iron and steel.

3. With the introduction of wrought iron for the ties, there was a clearer differentiation between these and the struts that were carried over into steel construction. Because there was no risk of the ties buckling, they were made appreciably more slender.

4. The most important space frames are lighter framed equivalents of domes and vaults, or of slabs spanning in two or more directions simultaneously. The framed dome is a very early form, particularly if we include primitive dome-shaped huts. But even in fully developed timber-framing systems, the ribs were invariably aligned radially and circumferentially, and the system was then braced by additional diagonals or by the outer covering.

5. Early iron-framed domes merely reproduced this timber form, and it was only in the second half of the 19th century that an inherently stiff, triangulated pattern of framing was substituted. This might be regarded as the first true space frame.

ВАРИАНТ 5

1. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. A pile driver is a type of drop hammer used to place piles into the ground.

2. To provide the necessary lateral resistance, a rigid connection must be made between the vertical column and horizontal beam.

3. If the trees are too large, long or heavy to be moved without cutting, they are bucked into logs where they are felled.

4. When the vapour pressure in the wood is equal to the surrounding atmosphere, the wood is said to have attained equilibrium moisture content.

5. The firm is reported to be conducting negotiations with contractors.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. When writing letters he doesn't like to be disturbed.

2. Having got the students to be silent, the lecturer started to speak.

3. Constructed entirely of concrete and glass, a new sky-scraper looks magnificent.

4. The exact design of a building having been worked out, the builders started construction.

5. Crushed stone, manufactured lightweight stone and seashells are often used instead of natural gravel.

3. Перепишите следующие предложения. Подчеркните и определите в каждом из них инфинитивную конструкцию. Переведите предложения на русский язык.

1. Light steps in the gravel made him turn his head.

2. In selecting a building material, it's necessary to consider what stresses can be allowed without compromising the safety required.

3. Stone and brick, wood, steel, reinforced concrete and plastics are known to behave elastically within a certain range of loading.
4. Timber is known to be one of the few natural materials with good tensile properties.
5. The box with nails was too heavy for him to lift.

4. Перепишите следующие предложения. Подчеркните и определите в каждом из них причастную конструкцию. Переведите предложения на русский язык.

1. The problem being easy, the students solved it at once.
2. The walls of the old building being very thick, it withstood an earthquake without heavy damages.
3. The house is too small and Tom is having a room built on.
4. I can't ask you to dinner this week as I am having my house painted at the moment.
5. He leaned over the table, with his elbows resting upon it.

5. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 2 и 3 абзацы текста.

Types of House Foundations

1. A house needs a foundation to shoulder its considerable weight and provide a flat base for construction. Depending on when and where a house was built, the foundation may be made of stone, brick, lumber, concrete block or poured concrete. By far the most common material for foundations is concrete.

2. Most houses have a raised perimeter foundation that supports floors and load bearing walls. Some houses are built on a flat concrete slab that provides both a base for the structure and the bottom floor of the house. The bottom part of a foundation is called a footing. The footing is generally wider than the foundation wall and is located about 30 cm below the frost line (the average depth at which soil freezes year after year). The footing distributes the house's weight to prevent future settling or movement.

3. There are three types of conventional concrete foundations: poured concrete, concrete block, and post-and-pier. Size and acceptable types are regulated by building codes. A poured-concrete foundation may be a raised perimeter foundation, a flat slab or a combination of the two. A conventional perimeter foundation has a poured concrete wall supported by a poured concrete footing. Both are strengthened by steel reinforcing rods. This type of foundation is used in connection with both raised floors and slabs.

4. Concrete blocks are also used for standard foundation wall construction. Here they are supported by a concrete footing; both are reinforced with steel rods and the concrete blocks are filled with grout. A concrete pier, resting on a footing, may be used to help support beams at mid-span. Though some older homes rest entirely on piers, this method has been phased out in favour of stronger foundations.

КОНТРОЛЬНАЯ РАБОТА № 1

(для студентов факультета инновационной деятельности,
управления и финансов)

Для того чтобы правильно выполнить контрольную работу № 1, необходимо изучить следующие грамматические разделы курса английского языка:

1. Времена группы indefinite (Present, Past, Future) действительного и страдательного залога изъявительного наклонения. Особенности образования, употребления и перевода на русский язык.

2. Времена группы Continuous (Present, Past, Future) действительного залога изъявительного наклонения. Времена группы Continuous (Present, Past) страдательного залога изъявительного наклонения. Особенности образования, употребления и перевода на русский язык.

3. Времена группы Perfect (Present, Past, Future) действительного и страдательного залога изъявительного наклонения. Особенности образования, употребления и перевода на русский язык.

4. Неличные формы глагола: простые и сложные формы инфинитива. (см. стр. 14)

5. Неличные формы глагола: причастие I и причастие II. Простые и сложные формы причастия. (см. стр. 16)

6. Неличные формы глагола: простые и сложные формы герундия. Особенности перевода герундия на русский язык.

7. Условные предложения.

ВАРИАНТ 1

1. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. Like a human body, a house has a skeleton which gives it support, shape and a framework for outer coverings.

2. From the time of cave dwellers to the present, man has always needed a shelter from the elements.

3. As early as ancient Roman times, lead pipes were used to distribute water to homes.

4. Professor can't come at two o'clock tomorrow because he will be delivering a lecture at that time.

5. In 1889, Eiffel installed the first elevators on a grand scale in the Eiffel Tower.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. Completed in 1987, the Sunshine Skyway is the world's longest cable-stayed concrete bridge.

2. Powered either by human labour or animals various types of hoists were used from ancient times to raise and lower loads.

3. Having finally grasped what I meant, he got down to work.

4. Constructed originally for pedestrian use, the Thames Tunnel is currently used by trains of London Underground.

5. The first bridges built by man probably resembled those still being constructed by primitive peoples in isolated regions.

3. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. The building was originally due to be completed by June.

2. To ensure the structure's strength, its parts are sized and connected in accordance with building codes.

3. Exterior walls must be well insulated to reject rain, wind and cold in winter and heat in summer.

4. This is the branch of building engineering to be taken into consideration.

5. He seems to have finished his work.

4. Перепишите следующие предложения. Подчеркните в каждом из них герундий. Переведите предложения на русский язык, обращая внимание на особенности перевода герундия на русский язык.

1. Speeding up construction has been made possible through using all kinds of modern building equipment.

2. The main task of the builders is developing a highly efficient method of apartment and industrial construction.

3. They finished placing concrete.

4. They must improve erecting high-rise buildings.

5. There are several ways of placing prefabricated units into position.

5. Перепишите следующие предложения. Определите тип условных предложений (I – реального условия; II – нереального условия; III – нереального условия относящегося к прошлому; смешанный тип). Переведите предложения на русский язык.

1. If the stresses and strains in some parts are too great, the parts would break or give way possibly leading to the collapse of the bridge.

2. If a material were not elastic, repeated loading and unloading would increase the deformation to the point where the structure would become useless.

3. If the bearing soil is weak or not uniform, it will settle unevenly under the weight of the house causing ordinary concrete footing to break.

4. If he studies well, he will become a highly qualified specialist.

5. If I had known that you were coming, I would have met you at the station.

6. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 3 и 4 абзацы текста.

Cement: Man's Miracle Mix

1. One of the oldest building materials is finding its way into a lot of new places these days. Concrete first discovered by the Romans is now more widely used in construction than all other materials together.

2. The magic ingredient that makes concrete possible is cement. Cement is the most essential material and the most important one for making concrete of high quality. Cement is made of limestone and clay. It is burnt at high temperature and ground up into powder. During the grinding a small percentage of raw gypsum is added otherwise it would set too quickly. Depending on the kind and composition of the raw materials different types of cement are obtained: Portland cement, blast furnace cement, rapid-hardening cement and others. Portland cement does not come from a place of that name; it was called Portland because Joseph Aspdin, the English builder who invented it about 1824, thought it resembled the rock excavated on the Isle of Portland on the Dorset Coast.

3. Until recently, the aim of engineers was to make concrete with as few bubbles as possible. Now they have come up with a new concrete that has millions of microscopic bubbles per cubic foot. It is made by adding an agent, which forms the bubbles when the concrete is mixed. This concrete doesn't crack when freezing. The first 'air bubble' roads were built many years ago. They have stood up under winter freezes so well that today this concrete is used for new road construction.

4. Another discovery is 'soil cement'. Several years ago road builders lacking funds found that they could mix cement with soil on the site of the road, wet it and compact it, then cover it with bitumen. The first road they built is still carrying traffic. There are miles of soil-cement roads and streets today. Construction goes so fast that with modern equipment a road builder can complete a mile of soil-cement road in one day. Scientists are working on research into the behaviour of cement and concrete under all kinds of conditions.

ВАРИАНТ 2

1. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. In modern times, arch construction has been used extensively for bridges, utilizing steel, wood or reinforced concrete.

2. A force that permanently acts on a structure, such as weight of the building itself, is called a dead load.

3. Egyptians erected the pyramids, moving massive pieces of stone to their final resting place with the help of ropes, rollers and levers.

4. He will be working on this project until the end of the year.

5. We will have been living here for ten years next May.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. Concrete can act as a shield against damaging nuclear radiation.

2. The plane crashed, its bombs exploding as it hit the ground.

3. Being a student he was naturally interested in science.

4. Weakened by successive earthquakes, the building was no longer safe.

5. The problem discussed at the meeting turned out to be very important.

3. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. The plan was originally to complete the building by June.
2. To be structurally useful, materials for building must have certain physical properties.
3. The parts of a bridge must be strong enough to withstand the various kinds of forces placed on the bridge by traffic, wind and other agents.
4. He is said to have been working on this project for several months.
5. The work is known to have been done in time.

4. Перепишите следующие предложения. Подчеркните в каждом из них герундий. Переведите предложения на русский язык, обращая внимание на особенности перевода герундия на русский язык.

1. Strength-of-materials data are widely used in designing machinery, buildings, bridges and other structures.
2. The case is worth mentioning.
3. Putting in a new window will involve cutting away part of the roof.
4. The safe showed no signs of having been touched.
5. They tried putting wire netting all around the garden.

5. Перепишите следующие предложения. Определите тип условных предложений (I – реального условия; II – нереального условия; III – нереального условия относящегося к прошлому; смешанный тип). Переведите предложения на русский язык.

1. If he studied well at the University, he would have become a highly qualified specialist.
2. If she had had more time yesterday, she might have done this work.
3. If the compressive strength of a rigid beam is too low, it will buckle.
4. If the tensile stress of a rigid beam is too low, it will break.
5. If I were you, I would plant some trees round the house.

6. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 1 и 2 абзацы текста.

Concrete

1. It is difficult to imagine modern structure without concrete. Concrete is the building material which led to great structural innovations. The most important quality is its property to be formed into large and strong monolithic units. The basic materials for making concrete are cement, aggregate and water.
2. Concrete is made by binding together particles of sand and gravel, stone or broken brick. The binding agent used is a paste of Portland cement and water, in suitable proportions. When water is added to the cement, hydration takes place. This causes the whole mixture to set and harden, forming a solid mass. Cement starts hardening one hour after the water has been added. The process is called concrete curing. The strength of concrete under favourable condi-

tions increases with age. The strength of concrete is very rapid in the early stages, but continues more slowly for an indefinite period amounting to years. The sand, gravel or broken stone are termed 'aggregates'; sand is known as 'fine aggregate', and gravel as 'coarse aggregate'.

3. By giving concrete a big squeeze after it has hardened, builders can increase its elasticity ten times, so that it will bend under a heavy load without breaking. This is important in building bridges, viaducts, and floors of large buildings. The simplest way to pre-stress concrete is to put steel wires or bars in the concrete when it is poured.

4. The characteristics of concrete depend upon the quality of the materials used, grading of the aggregates, proportioning and amount of water. The most important requirements for concrete are: it should be hard, strong, durable, fire-resistant and economical. Concrete can be divided into two classes: mass or plain concrete and reinforced concrete where it is necessary to introduce steel. Plain or mass concrete can be used for almost all building purposes. Reinforced concrete is used in building bridges and arches, dams and dock walls, for underwater structures, for foundations, columns and beams. The use of concrete and reinforced concrete is almost universal.

ВАРИАНТ 3

1. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. Homes today are being built in weeks instead of months with new construction methods.
2. Nowadays cold water enters a building through brass, copper, steel or plastic pipe that does not contaminate the water.
3. How long have you been working on this project?
4. The quality of much early Egyptian stonework was extremely high.
5. The professor will be working on his research paper until the end of the year.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. The students watched the experienced engineer demonstrate the advantages of silica concrete.
2. Not knowing the language and having no friends in the town, he found it hard to find a job.
3. Having collected all the data, the engineer was able to write a full report on the properties of a new material.
4. The large building being built across the street is a new school.
5. Crane is a hoisting machine widely used for handling materials at building construction sites.

3. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. These buildings are liable to collapse in a strong earthquake.
2. Materials for building must be able to carry a load or weight without changing shape permanently.

3. To complete the post-tensioning operation was important.
4. This building is said to have been constructed last year.
5. They are known to be experimenting in their laboratory.

4. Перепишите следующие предложения. Подчеркните в каждом из них герундий. Переведите предложения на русский язык, обращая внимание на особенности перевода герундия на русский язык.

1. Did you find any difficulty in solving this problem?
2. We have no intention of ordering such machines.
3. When I entered the room, I found him busy translating the article from a scientific magazine.
4. The property of recovering from deformation is called elasticity.
5. In selecting building material it is important to consider what stresses can be allowed without compromising the safety requirements.

5. Перепишите следующие предложения. Определите тип условных предложений (I – реального условия; II – нереального условия; III – нереального условия относящегося к прошлому; смешанный тип). Переведите предложения на русский язык.

1. If I lived near my office, I would be in time for work.
2. Building materials behave elastically if the loading is not increased above a certain defined range.
3. If you had taken your medicine yesterday, you would be well now.
4. Had you obeyed orders, this disaster would not have happened.
5. If we are to go ahead with the building, it will not be until June at the earliest.

6. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 1, 2, 3, 4 абзацы текста.

Exterior Wall Construction

1. Exterior walls must reject rain, wind, and cold in winter and block excess heat in summer. To do this, they must be well insulated and designed to be leak-free. A variety of siding systems have been created to accomplish these tasks.

2. Many different kinds of sidings are used on houses: clapboard and similar wood sidings; sheet sidings made of plywood, hardboard, and oriented-strand board (OSB); synthetics such as vinyl, aluminium, and steel; wood shingles; masonry veneers; and stucco.

3. In addition, exterior house walls are designed to hold up a house. With few exceptions, house walls are framed with wooden wall studs and then clad with siding. This provides the necessary strength, is relatively economical, and allows numerous options for appearance.

4. Though many older homes don't have insulated walls, exterior walls of most homes built since 1970 are insulated. Insulation may be located in the cavities between wall's studs or may be applied as rigid board panels over the top of – or instead of – sheathing.

5. But walls must be more than just efficient walls – they must contain windows for views and natural light and doors for access. Through these elements they provide a connection with the world outside.

6. House wrap, a relatively new material, significantly reduces heat loss caused by air infiltration through walls. The material is stretched over sheathing or wall's studs and stapled or nailed in place. Because it is made from spun-bonded or woven polymer, it rejects water and wind but doesn't trap indoor humidity in walls.

7. Building paper – a thick, black, asphalt-treated felt paper – provides a protective barrier between sheathing and sidings of wood, aluminium, vinyl, steel, or masonry veneer. It is applied horizontally across a wall, from the bottom up.

ВАРИАНТ 4

1. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. A force that temporarily acts on a structure, such as a wind or a snowfall, is called a life load.

2. Early Egyptians shaped blocks weighing many tons and fitted them together with joints only 0.25 mm thick.

3. Masonry has been used since ancient times: mud bricks were used in the city of Babylon for secular buildings.

4. The construction of a new office building will have been accomplished by the end of this year.

5. In the past, masonry units were stacked without using any bonding agent.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. Crushed stone, manufactured lightweight stone and seashells are often used in lieu of natural gravels.

2. She smelt something burning and saw smoke rising.

3. Knowing the English language well, he can translate newspaper articles without a dictionary.

4. Yesterday the professor told us about the experiments being carried out in his laboratory.

5. Concrete blocks made of sand, stone and gravel are heavy and very strong.

3. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. There are plans to construct a new road bridge across the river.

2. The architect wanted to plan the work at every stage.

3. Foundations serve to keep the walls and floors from contact with the soil, to guard them against the action of frost, to prevent them from sinking and setting.

4. To give the calculated ultimate moments the designer must determine effective prestressing force.

5. This chemical element is known to have been discovered last year.

4. Перепишите следующие предложения. Подчеркните в каждом из них герундий. Переведите предложения на русский язык, обращая внимание на особенности перевода герундия на русский язык.

1. Proportioning of the concrete ingredients is one of the most important manufacturing steps in producing high quality concrete.

2. After using sun-dried bricks for hundreds of years the ancient Egyptians discovered how to cut stone for building purposes.

3. He put off making a decision till he had more information.

4. Would you consider selling the property?

5. I appreciate your giving me so much of your time.

5. Перепишите следующие предложения. Определите тип условных предложений (I – реального условия; II – нереального условия; III – нереального условия относящегося к прошлому; смешанный тип). Переведите предложения на русский язык.

1. He would not have made such a terrible mistake if he were not so absent-minded.

2. If I worked harder at University, I would be sitting in a comfortable office now, I wouldn't be sweeping the streets.

3. I would have been seriously injured in that accident if I had not been wearing a seat belt.

4. If the loading is increased above a certain range, building materials can show two types of behaviour – brittle and plastic.

5. If there were no bridges, people would need boats to cross waterways and would have to travel around such obstacles as canyons and ravines.

6. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 2 и 3 абзацы текста.

Reinforced Concrete

1. Reinforced concrete is a combination of two of the strongest structural materials: concrete and steel. This term is applied to a construction in which steel bars or heavy steel mesh are properly embedded in concrete. The steel is put in position and concrete is poured around and over it, and then tamped in place so that the steel is completely embedded. When the concrete hardens and sets, the resulting material gains great strength. This new structural concrete came into practical application at the turn of the 19th century.

2. The reinforcing of concrete was first introduced in France in 1861 by Joseph Monier, who constructed flower pots, tubs and tanks, and Francois Coignet, who published theories of reinforcing for beams, arches, and large pipes. Since 1896 the development of reinforced concrete work has made great progress. And the reasons of this progress are quite evident. Concrete has poor elastic and tensional properties, but it is rigid, strong in compression, durable under and above ground and in the presence or absence of air and water, it increases its strength with age, it is fireproof.

3. Steel has great tensional, compressive and elastic properties, but it is not durable being exposed to moisture, it loses its strength with age, or being subjected to high temperature.

Steel does not undergo shrinkage or drying but concrete does and therefore steel acts as a restraining medium in a reinforced concrete member. Shrinkage causes tensile stresses in the concrete, which are balanced by compressive stresses in the steel.

4. First there was a tendency among architects to consider reinforced concrete as a method of construction suited only to heavy and massive structures. Much study and experience have led to vast improvements in the manufacture of this concrete. The potentialities of a substance which can be poured into any form or shape from delicate ornament to huge cantilevers and parabolic arches and which is monolithic throughout its mass appear to be in the hands of the creators of concrete buildings.

ВАРИАНТ 5

1. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое, определите его видовременную форму и залог; укажите его инфинитив. Переведите предложения на русский язык.

1. The better grades of limestone are widely used as building materials.
2. Stress is produced in all bodies that are subjected to external forces.
3. Romans perfected the technique of using masonry facing on a core of concrete and rubble.
4. Masonry has been used since ancient times: stone was used for the construction of the great temples of the Nile Valley.
5. A series of experiments on new machinery will be carried out over the next few months.

2. Перепишите следующие предложения. Подчеркните в каждом из них причастие; определите тип причастия (Participle I или Participle II). Переведите предложения на русский язык.

1. I saw him changing the wheel of his car.
2. Knowing the English language well, he was able to translate newspaper articles without a dictionary.
3. All books taken from the library must be returned next week.
4. The questions discussed at a number of meetings last month have already been decided.
5. The required characteristics of concrete are usually governed by specifications.

3. Перепишите следующие предложения. Подчеркните в каждом из них инфинитив, определите его видовременную форму и залог. Переведите предложения на русский язык.

1. In order to preserve the elastic property of a material, the stresses and strains in it must not exceed certain limit called the elastic limit.
2. He decided to speed up the work on the construction site.
3. To resist horizontal thrust which exists at the base of an arch, the Romans used massive piers or buttresses.
4. The first bridge is known to be built in Babylon about 2200 B.C.
5. They are known to have been working on this project for several months.

4. Перепишите следующие предложения. Подчеркните в каждом из них герундий. Переведите предложения на русский язык, обращая внимание на особенности перевода герундия на русский язык.

1. The ancient Greeks were very fond of using upright pillars in construction, partly for supporting the roofs and partly for decoration.
2. Is there anything here worth buying?
3. I appreciate being given this opportunity.
4. With only simple devices, the Egyptians erected the pyramids, moving massive pieces of stone to their final resting place.
5. The structural engineer is involved in designing such things as large buildings, bridges, dams, subways and piers.

5. Перепишите следующие предложения. Определите тип условных предложений (I – реального условия; II – нереального условия; III – нереального условия относящегося к прошлому; смешанный тип). Переведите предложения на русский язык.

1. If there is a shortage of any product, prices of that product go up.
2. I would speak English better now if I had practised more.
3. If they should agree the contract, we would have to work twice as hard.
4. If I had seen you yesterday, I would have told you about the meeting.
5. If a beam bridge is made up of two or more beams joined rigidly together over supports, the bridge becomes continuous.

6. Прочитайте и устно переведите на русский язык с первого по последний абзац текста. Перепишите и письменно переведите на русский язык 3 и 4 абзацы текста.

Building Materials

1. The chemical composition and characteristics of white Portland cement are similar to those of ordinary Portland cement except that the latter is of grey colour. The colour of white cement is due to the raw materials used and special precautions taken in its production. The materials are pure limestone and white clay. White cement is more expensive than ordinary cement. It is used in places where the white colour is desirable.

2. High alumina cement is dark brown in colour. It contains about 40 per cent each of lime and alumina with about 15 per cent of iron oxides. This cement sets at about the same rate as Portland cement but gains strength very rapidly. Owing to the chemical activity after hardening for the first 24 hours, it requires very wet curing conditions. This cement is several times more costly than ordinary Portland cement.

3. Sedimentary rock is chiefly employed for building purposes. Most of these rocks are formed of fragments of igneous rocks, which have been deposited by water in layers or strata. As successive layers were formed these sediments became hardened and consolidated by great pressure and were cemented together by sandy or clayey paste or by a chemical substance conveyed by the percolating water. Other rocks of this division are formed from remains of marine organism and chemically by precipitation. The principal sedimentary rock is sandstone and limestone.

4. Sandstones consist of grains of quartz held together by a cement or matrix. Sandstones are classified according to the nature of the binding material thus siliceous sandstones, calcareous sandstones and argillaceous sandstones. The durability of sandstones depends very largely upon the cementing material. Siliceous sandstones are therefore generally considered to be the most durable of the sedimentary rocks, as the binding material of silica is highly resistant to acid attack.

5. The excellent state of preservation of many ancient structures built of this stone is evidence of this.

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