

Задание: Найдите тексты по своей специальности по шифру специальности. Прочитайте и письменно переведите тексты. Составьте к текстам список незнакомых слов с их переводом. (Этим списком можно пользоваться на зачете). Для перевода текстов можно пользоваться on-line словарем Multitran.

ЛТИ 35.03.01 (Лесное дело)

Text 1

Forestry is the science, art, and craft of creating, managing, using, conserving, and repairing forests and associated resources in a sustainable manner to meet desired goals, needs, and values for human benefit. Forestry is practiced in plantations and natural stands. The main goal of forestry is to create and implement systems that allows forests to continue a sustainable provision of environmental supplies and services. The challenge of forestry is to create systems that are socially accepted while sustaining the resource and any other resources that might be affected.

Silviculture, a related science, involves the growing and tending of trees and forests. Modern forestry generally embraces a broad range of concerns, including assisting forests to provide timber as raw material for wood products, wildlife habitat, natural water quality management, recreation, landscape and community protection, employment, aesthetically appealing landscapes, biodiversity management, watershed management, erosion control, and preserving forests as 'sinks' for atmospheric carbon dioxide. A practitioner of forestry is known as a forester. The word "forestry" can also refer to a forest itself.

Forest ecosystems have come to be seen as the most important component of the biosphere, and forestry has emerged as a vital field of science, applied art, and technology.

Forestry education today

Today, forestry education typically includes training in general biology, botany, genetics, soil science, climatology, hydrology, economics and forest management. Education in the basics of sociology and political science is often considered an advantage.

In India, forestry education is imparted in the agricultural universities and in Forest Research Institutes (deemed universities). Four year degree programmes are conducted in these universities at the undergraduate level. Masters and Doctorate degrees are also available in these universities.

In the United States, postsecondary forestry education leading to a Bachelor's degree or Master's degree is accredited by the Society of American Foresters. In Canada the Canadian Institute of Forestry awards silver rings to graduates from accredited university BSc programs, as well as college and technical programs. In many European countries, training in forestry is made in accordance with requirements of the Bologna Process and the European Higher Education Area. The International Union of Forest Research Organizations is the only international organization that coordinates forest science efforts world-wide. Organizations such as the Forest Policy Education Network are dedicated to facilitating international forest politics and exchanging information on the subject.

Text 2

A park is an area with either planted or natural vegetation, roads, alleys, water reservoirs and various things to help people to rest and to spend their free time usefully. Parks are of two types: regular (or architectural) and irregular. Regular parks are planned in geometrical proportions of alleys, roads, gardens and waters, they are usually decorated with fountains, sculptures, etc.; in irregular parks trees, roads and waters imitate natural landscape unchanged by man. Parks were built already in very ancient time. We know of wonderful architectural parks of

ancient Egypt. Everyone heard of the Babylonian suspension gardens. Beautiful landscape type parks are known in ancient China. In ancient Greece special gardens were built with space to train the youth in sports and sport games. In Middle ages parks and gardens of Eastern countries had their own decorative design.

ИЭИТ 23.03.03.
(Эксплуатация транспортно-технологических машин и комплексов)

Text 1

Toyota enjoys the status of being the Japan's most successful manufacturer of stylish and performance oriented coupes. Being equipped with high quality parts and accessories, their manufactured vehicles have always been a craze among the enthusiast motorists. Those who have experienced with Toyota know that what it means to owe such a great vehicle as it deserves the right maintenance worth its quality. Indeed, a single fault in any of the parts can hamper efficiency of your precious coupe.

One of such complicated parts is the automatic transmission unit of your Toyota. It stands for a system that transfers the power from engine to the drive wheels while keeping the engine within normal range. It accomplishes this task by means of combination of gears known as planetary gear set. Later further contains the components like sun gear, planet gears, and a ring. All of them remain in constant network. Similarly, there is a torque converter that serves as the clutch found on regular shift vehicles. It is usually fixed between the engine and the transmission and let the engine to keep on running when the vehicle comes to a stop.

Another part of the automatic transmission unit that plays a key role is its hydraulic system. It is basically a network of several passages and tubes that help in sending transmission fluid to all the parts of torque converter and transmission. An oil pump incorporated in the automatic transmission unit helps to generate all the oil pressure needed in the system. As for the valve body, it serves as the controlling center of the unit and helps to direct the flow of hydraulic fluid to several valves in so activating the clutch pack.

Your Toyota automatic transmission should shift easily and silently under light acceleration. In case, shift points make noise while shifting, you should at once get your Toyota transmission unit replaced. If it turns out to be caught severely, then you can consider purchasing a rebuilt automatic transmission for your coupe.

In a rebuilding process, the transmission unit is removed from the vehicle. Then it is disassembled and each part is thoroughly inspected for wear and tear. All the components are cleaned in a special cleaning solution. It is important to remove governor assembly first prior to detaching oil pan, oil filter, and intake pipe. The dust and debris accumulated at the base of oil pan indicates the type of damage caused in the unit. Afterwards, both vacuum modulator and valve are detached.

Text 2

The **internal combustion engine** is an engine in which the combustion of a fuel (normally a fossil fuel) occurs with an oxidizer (usually air) in a combustion chamber that is an integral part of the working fluid flow circuit. In an internal combustion engine (ICE) the expansion of the high-temperature and high-pressure gases produced by combustion apply direct force to some component of the engine. The force is applied typically to pistons, turbine blades, or a nozzle. This force moves the component over a distance, transforming chemical energy into useful mechanical energy. The first commercially successful internal combustion engine was created by Étienne Lenoir.

The term *internal combustion engine* usually refers to an engine in which combustion is intermittent, such as the more familiar four-stroke and two-stroke piston engines, along with variants, such as the six-stroke piston engine and the Wankel rotary engine.

ИЭИТ 13.03.01. **(Теплоэнергетика и теплотехника)**

Text 1

NON-TRADITIONAL RENEWABLE SOURCES OF ENERGY

1. Now we are using traditional power sources such as oil, natural gas and coal, wind and water power. The consumption is more than 50 billion barrels per year. Scientists understand that if mankind consumes natural resources with the same rate, these resources will exhaust¹ in a few hundred years. The amount of natural resources on Earth is not unlimited. That is why it is so important to use such renewable sources of energy as the sun, wind, ocean tides², currents³, geothermal energy and others. Research is being carried out in these fields.

2. One of the most promising researches is the development of power stations with direct transformation of solar energy into electricity on the basis of photo effect. It was Russia that was the first in the world to develop and test a photoelectric battery of 32,000 volts and effective area of only 0.5 sq.m., which made it possible to concentrate solar radiation. This idea is now being intensively developed in many countries.

3. However, the efficiency of a solar power station is considerably reduced because of the limited time of its work during the year. But it is possible to improve the efficiency of solar power stations by developing different combinations of solar power stations and traditional ones – thermal, atomic and hydraulic. Today some engineers are working at the problem of developing electric power stations with the use of a thermal-chemical cycle.

4. In Kamchatka there are geothermal power stations operating on hot water-steam from the depths of about a kilometer. In some projects water will be heated by the warmth of volcanoes at a depth of four - five km. Several big companies show great interest towards windmill⁵. The installation of the smallest one, ranging from 100 to 2,000 kilowatts would provide sufficient electricity to power several homes; the largest could provide electricity to a small village. It is important that all these advances in developing new sources of energy and improving the old ones help to solve the energy problem as a whole and they do not have negative effects on the environment.

Text 2

Cogeneration (also **combined heat and power, CHP**) is the use of a heat engine or a power station to simultaneously generate both electricity and useful heat.

All thermal power plants emit a certain amount of heat during electricity generation. This can be released into the natural environment through cooling towers, flue gas, or by other means. By contrast, CHP captures some or all of the by-product heat for heating purposes, either very close to the plant, or—especially in Scandinavia and eastern Europe—as hot water for district heating with temperatures ranging from approximately 80 to 130 °C. This is also called Combined Heat and Power District Heating or CHPDH. Small CHP plants are an example of decentralized energy.

Cogeneration was practiced in some of the earliest installations of electrical generation. Before central stations distributed power, industries generating their own power used exhaust steam for process heating. Large office and apartment buildings, hotels and stores commonly generated

their own power and used waste steam for building heat. Because of the economies and high cost of early purchased power, these combined heat and power operations continued for many years after utility electricity became available. Cogeneration is still common in pulp and paper mills, refineries and chemical plants.

ИСиА 08.03.01 (Строительство)

Text 1

Building material is any material which is used for construction purposes. Many naturally occurring substances, such as clay, rocks, sand, and wood, even twigs and leaves, have been used to construct buildings. Apart from naturally occurring materials, many man-made products are in use, some more and some less synthetic. The manufacture of building materials is an established industry in many countries and the use of these materials is typically segmented into specific specialty trades, such as carpentry, insulation, plumbing, and roofing work. They provide the make-up of habitats and structures including homes.

Structural Clay Blocks

Bricks or *compressed earth blocks* are used for building more frequently in industrialized society since the building blocks can be manufactured off site in a centralized location at a brickworks and transported to multiple building locations. These blocks can also be monetized more easily and sold.

Structural bricks are almost always made using clay, often clay soil is the only ingredient used, but other ingredients can include sand, lime, concrete, stone and other binders. The formed or compressed block is then air dried, fired, or kiln dried. Kiln fired clay bricks are considered a ceramic material. Clay bricks can be solid or have hollow cavities to aid in drying and make them lighter and easier to transport.

The individual bricks are placed upon each other in rows using mortar, grout, and clay slips. Successive rows being used to build up walls, arches, and other structures.

Brick walls can be built substantially thinner than cob/adobe while keeping the same strength. They require more energy to create but are easier to transport and store, and are lighter than stone blocks. Romans were fond of building with brick.^[3] Building with brick gained much popularity in the mid-18th century and 19th centuries.

Text 2

COMPOSITE CERAMICS

Composite materials are materials in which two or more different substances, such as metals, ceramics, glass, or polymers are combined without chemical reaction. As a result one can produce a material with properties different from those of any of the individual constituents². The constituents of a composite would retain their individual characteristics.

Recently engineers have developed various kinds of composite ceramics which appeared to combine an increased toughness³ with the same hardness and strength of usual ceramics. A promising recent development is the addition of a tiny quantity of metal to increase toughness and tool life. Thus, the composite ceramics for cutting tools should possess the following properties both at room and high temperatures (1000°C): high strength, high toughness, high hardness, high thermal resistance and high chemical inertness.

Advanced ceramic materials have such properties that mechanical engineers are becoming more and more interested in their use as structural parts. Ceramic engines and turbines are considered to be the top of the pyramid with respect to application. At a lower level of performance there are other applications, for example, ceramic heat exchangers for chemical plants. One should mention here that the long-term reliability in service still needs improving and the cost factor is likely to remain a problem. If these problems are solved, it will be possible to use advanced composite materials widely.

ИЕНиТ 04.03.01. (Химия)

Text 1

The pulp and paper industry comprises companies that use wood as raw material and produce pulp, paper, board and other cellulose-based products.

The industry is criticized by environmental groups like the Natural Resources Defense Council for unsustainable deforestation and clear cutting of old-growth forest. The industry trend is to expand globally to countries like Russia, China and Indonesia with low wages and low environmental oversight.

Paper pollution

The production and use of paper has a number of adverse effects on the environment which are known collectively as paper pollution. Pulp mills contribute to air, water and land pollution. Discarded paper is a major component of many landfill sites, accounting for about 35 percent by weight of municipal solid waste (before recycling). Even paper recycling can be a source of pollution due to the sludge produced during deinking.

According to a Canadian citizens organization, "People need paper products and we need sustainable, environmentally safe production." The amount of paper and paper products is enormous, so the environmental impact is also very significant. It has been estimated that by 2020 paper mills will produce almost 500,000,000 tons of paper and paperboard per year,^[4] so great efforts are needed to ensure that the environment is protected during the production, use and recycling/disposal of this enormous volume of material.

Pulp and paper is the third largest industrial polluter to air, water, and land in both Canada and the United States, and releases well over 100 million kg of toxic pollution each year.^[5]

Worldwide, the pulp and paper industry is the fifth largest consumer of energy, accounting for four percent of all the world's energy use. The pulp and paper industry uses more water to produce a ton of product than any other industry.

Text 2

Pulp Manufacture

At the pulping stage, the processed furnish (wood or other fiber source) is digested into its fibrous constituents. The bonds between fibers may be broken chemically, mechanically, or by a combination of the techniques called semi-chemical pulping. The choice of pulping technique is dependent on the type of furnish and the desired qualities of the finished product, but chemical pulping is the most prevalent.

Many mills perform multiple pulping processes at the same site, most frequently non-deink secondary fiber pulping and papergrade kraft pulping (U.S. EPA, 1993a).

There are three basic types of wood pulping processes: 1) chemical pulping, 2) semi-chemical pulping, and 3) mechanical pulping, and there are some secondary fiber pulping techniques.

Secondary fiber pulping

Secondary fiber pulping accounted for 39 percent of domestic pulp production in 2000 in US. Nearly 200 mills rely exclusively on recovered paper for pulp furnish, and roughly 80 percent of U.S. paper mills use recovered paper in some way. In addition, consumption of fiber from recovered paper is growing more than twice as fast as overall fiber consumption. Secondary fibers are usually presorted before they are sold to a pulp and paper mill. If not, secondary fibers are processed to remove contaminants before pulping occurs. Common contaminants consist of adhesives, coatings, polystyrene foam, dense plastic chips, polyethylene films, wet strength resins, and synthetic fibers. In some cases, contaminants of greater density than the desired secondary fiber are removed by centrifugal force while light contaminants are removed by flotation systems. Centric cleaners are also used to remove material less dense than fibers (wax and plastic particles).