ДОНСКОЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ

УПРАВЛЕНИЕ ДИСТАНЦИОННОГО ОБУЧЕНИЯ И ПОВЫШЕНИЯ КВАЛИФИКАЦИИ

Кафедра «Иностранных языков»

Методические указания

по профессионально-ориентированному чтению по дисциплине

«Английский язык»

(Часть 1)

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Аннотация

Методические указания предназначены для студентов Дорожно-транспортного факультета.

Методические указания включают 3 раздела, состоящих из нескольких тем и разнообразных типов заданий, направленных на развитие навыков профессионально-ориентированной устной и письменной речи. Рассчитаны на аудиторную работу студентов, продолжающих изучать английский язык, рекомендуются для практических занятий в неязыковом вузе.

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UNIT 1
TRANSPORT MEANS: AUTOMOBILES

Topic 1: Development of the Automobile

I. Answer the questions:

– *What outstanding personalities in the sphere of car industry do you know?*

– *What inventions in the automobile history can you mention? How did they influence the further development of industry?*

– *What are the most popular car models according to sociological surveys?*

New words and phrases to learn:

Automobile (car, auto, motor-car) – автомобиль
Vehicle (self-propelled vehicle) – транспортное средство
Carriage (steam-driven carriage) – паровая повозка
Speed – скорость
Internal combustion engine – двигатель внутреннего сгорания
To steer – управлять
Two-stroke engine – двухтактный двигатель

1. Read and translate the text:

The automobile has a long history. The French engineer Nicolas Joseph Cugnot built the first self-propelled vehicle (Paris, 1789), a heavy, three-wheeled, steam-driven carriage with a boiler that projected in front; its speed was 3 mph (5 kph). In 1801 the British engineer Richard Trevithick also built a three-wheeled, steam-driven car; the engine drove the rear wheels. Development of the automobile was retarded for decades by over-regulation: speed was limited to 4 mph (6.4 kph) and until 1896 a person was required to walk in front of a self-propelled vehicle, carrying a red flag by day and a red lantern by night. The Stanley brothers of Massachusetts, the most well-known American manufacturers of steam-driven autos, produced their Stanley Steamers from 1897 until after World War I.

The development of the automobile was accelerated by the introduction of the internal-combustion engine. Probably the first vehicle of this type was the three-wheeled car built in 1885 by the engineer Karl Benz in Germany. Another German engineer, Gottlieb Daimler, built an improved internal-combustion engine in 1885. The Panhard car, introduced in France by the Daimler company in 1894, had many features of the modern car. In the United States, internal-combustion cars of the horseless buggy type were manufactured in

the 1890s by Charles Duryea and J. Frank Duryea, Elwood Haynes, Henry Ford, Ransom E. Olds, and Alexander Winton. Many of the early engines had only one cylinder, with a chain-and-sprocket drive on wooden carriage wheels. The cars generally were open, accommodated two passengers, and were steered by a lever.

The free growth of the automobile industry in the early 20th century was threatened by the American inventor George Selden's patent, issued in 1895. Several early manufacturers licensed by Selden formed an association in 1903 and took over the patent in 1907. Henry Ford, the leader of a group of independent manufacturers who refused to acknowledge the patent, was engaged in litigation with Selden and the association from 1903 until 1911, when the U.S. Circuit Court of Appeals ruled that the patent, although valid, covered only the two-stroke engine; most cars, including Ford's, used a four-stroke engine. The internal-combustion engine used by Henry Ford was introduced in his Model T in 1908. In the 1930s European manufacturers began to make small, affordable cars such as the Volkswagen. In the 1950s and '60s U.S. automakers produced larger, more luxurious cars with more automatic features. In the 1970s and '80s Japanese manufacturers exported their small, reliable, fuel-efficient cars worldwide, and their increasing popularity spurred U.S. automakers to produce similar models. Sport-utility vehicles (SUVs) and minivans, with their greater cargo and passenger capacities, became highly popular in the U.S. during the 1990s and led to resurgence in sales of domestic vehicles. By the start of the 21st century, China had surpassed all European nations to become the third largest automobile market behind the U.S. and Japan.

The mass production of automobiles and the creation of highways linking cities to suburbs and region to region, transformed the global landscape and society forever.

2. Answer the questions:

- Who invented the first self-propelled vehicle?
- What is the first speed limit imposed to car manufacturers?
- What was the main reason for the rapid development of car manufacturing?
- Who was Henry Ford and why is he so famous?
- What are the leading countries in automobile production?

3. Match the words on the left to their definitions on the right.

1. vehicle	a. to guide, to direct
2. carriage	b. a machine by which power is used to do work
3. steer	c. a person who studies, plans and builds machines, ships, docks, roads, bridges, forts, etc.
4. speed	d. a round frame or disc which turns on an axis. Carts, carriages, etc. run on it. It is used for numerous mechanical purposes and in machines
5. engine	e. delay, make slow or late
6. engineer	f. one who owns a workshop or factory and employs persons to make goods
7. wheel	g. any kind of carriage or conveyance on land, e.g. a cart, a lorry, a motor-car, a ricksha, a bicycle
8. manufacturer	h. swiftness, quick motion
9. retard	i. the privilege granted by the government of having the sole right to make and sell something which one has invented
10. patent	j. a vehicle with wheels in which people may travel, esp. one with four wheels and pulled by a horse

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

Topic 2: Types of transport means

I. Answer the questions:

- *What is your favourite car model? Give your reasons.*
- *Describe the car of your dream.*

New words and phrases to learn:

Automobile (car, auto) – автомобиль
Gasoline – бензин
To carry – перевозить
Diesel fuel – дизельное топливо
Bus – автобус
Truck (lorry) – грузовик
Power lines – линии электропередач
Steam propulsion engine – паровой двигатель

1. Read and translate the text:

An automobile, motor car or car is a wheeled motor vehicle used for transporting passengers, which also carries its own engine or motor. Most definitions of the term specify that automobiles are designed to run primarily on roads, to have seating for one to eight people, to typically have four wheels, and to be constructed principally for the transport of people rather than goods. However, the term *automobile* is far from precise, because there are many types of vehicles that do similar tasks.

There are approximately 600 million passenger cars worldwide (roughly one car per eleven people). Around the world, there were about 806 million cars and light trucks on the road in 2007; they burn over 260 billion gallons of gasoline and diesel fuel yearly. The numbers are increasing rapidly, especially in China and India.

A bus (archaically also omnibus, multibus, or autobus) is a road vehicle designed to carry passengers. Buses vary in capacity from 8 to 300 passengers. Buses are widely used for public transportation.

The most common type of bus is the single-decker bus, with larger loads carried by double-decker buses and smaller loads carried by midibuses and minibuses. A luxury, long distance bus is called a coach. A bus is powered by a combustion engine, although early buses were horse-drawn and there were experiments with steam propulsion. Trolleybuses use overhead power lines. In parallel with the car industry bus manufacturing is increasingly globalized, with the same design appearing around the world.

A truck (American English) or lorry (British English) is a motor vehicle - more specifically a commercial vehicle commonly used for transporting goods and materials. Some light trucks/lorries are similar in size to a passenger automobile. Commercial transportation trucks/lorries or fire trucks can be large, and can also serve as a platform for specialized equipment.

2. Answer the questions:

– Give the definition of the notion "automobile". Is it a precise term?

– Give the definition of the notion "bus". What types of buses can you mention?

– What is the general purpose of trucks/ lorries use?

3. Match the words on the left to their definitions on the right.

1. gasoline	a. any substance that can be burned for supplying heat
2. carry	b. a strong vehicle for carrying large or heavy loads, esp. an open railway wagon, a two-wheeled handcart or a motor-lorry
3. fuel	c. a measure used for liquids
4. truck	d. a machine or engine that supplies power, esp. an internal-combustion engine, driven by oil or petrol (gasoline), as used in vehicles, boats and flying machines
5. bus	e. the act of carrying, or the state of being carried, from one place to another
6. motor	f. a liquid obtained from petroleum and used for lighting and heating
7. gallon	g. a vehicle with seats inside and sometimes outside on the roof for carrying passengers along a fixed route
8. transportation	h. support the weight of a thing and move it from one place to another; take from one place to another

4. Fill in the gaps with a suitable word from the box.

equipment	bus	transportation	fuel	carry

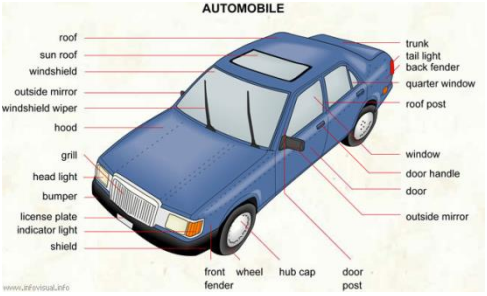
1. I never … much money about me.
2. Wood, coal and oil are forms of …
3. Shall we walk or go by …?
4. The …of his laboratory took time and money.
5. … by air is quick but expensive.

5. Make up a detailed plan of the text.

6. Retell the text according to your plan.

Topic 3: An automobile structure

III. Find Russian equivalents for:



3.1 Body, frame, suspension

New words and phrases to learn:

volatile fuel – улетучивающееся топливо
steel body – цельнометаллический кузов
chassis – ходовая часть
transmission – коробка передач
steering system – рулевое управление
braking system – тормозная система
electrical system – электрика
fuel system – топливная система
exhaust system – выхлопная система
oil lubrication system – смазочная система
cooling system – система охлаждения
suspension – подвеска
tires – шины
unitized-body construction – несущая безрамная конструкция
subframe – нижняя рама

1. Read and translate the text:

Automobile is a four-wheeled, trackless, self-propelled vehicle for land transportation of as many as eight people. Also known as car, auto.

This four-wheeled automotive vehicle was designed for passenger transportation and commonly propelled by an internal-combustion engine using a volatile fuel. The modern automobile consists of about 14,000 parts and comprises several structural and mechanical systems. These include the steel body, containing the passenger and storage space that sits on the chassis; the internal-

combustion gasoline engine that powers the car by means of a transmission; the steering and braking systems that control the car's motion and the electrical system including a battery, alternator, and other devices. Subsystems involve fuel, exhaust, lubrication, cooling, suspension, and tires.

The automobile body is the assembly of sheet-metal, fiberglass, plastic, or composite-material panels together with windows, doors, seats, trim and upholstery, glass, and other parts that form enclosures for the passenger, engine, and luggage compartments. The assembled body structure may attach through rubber mounts to a separate or full frame (body-on-frame construction), or the body and frame may be integrated (unitized-body construction). In the latter method, the frame, body parts, and floor pan are welded together to form a single unit that has energy-absorbing front and rear structures, and anchors for the engine, suspension, steering, and power-train components. A third type of body construction is the space frame which is made of welded steel stampings. Similar to the tube chassis and roll cage combination used in race-car construction, non-load-carrying plastic outer panels fasten to the space frame to form the body.

The frame is the main structural member to which all other mechanical chassis parts and the body are assembled to make a complete vehicle. In older vehicle designs, the frame is a separate rigid structure; newer passenger-car designs have the frame and body structure combined into an integral unit, or unitized body. Subframes and their assembled components attach to the side rails at the front and rear of the unitized body. The front subframe carries the engine, transmission or transaxle, lower front suspension, and other mechanical parts. The rear subframe, if used, carries the rear suspension and rear axle.

The suspension supports the weight of the vehicle, absorbs road shocks, transmits brake-reaction forces, helps maintain traction between the tires and the road, and holds the wheels in alignment while allowing the driver to steer the vehicle over a wide range of speed and load conditions. The springs may be coil, leaf, torsion bar, or air.

2. Answer the questions:

- How many parts does the automobile consist of?
- What are the main systems of the car?
- What materials is an automobile made of?
- Give the definition of frame.

– What is suspension? What is it used for?

3. Match the column on the left to the column on the right to make up collocations and give their Russian equivalents.

1. volatile	a. space
2. steel	b. system
3. steering	c. components
4. unitized-body	d. body
5. oil	e. fuel
6. internal-combustion	f. front
7. storage	g. construction
8. composite-material	h. engine
9. energy-absorbing	i. system
10. power- train	j. panels

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

3.2 Steering system, braking system, engine

New words and phrases to learn:

Rotary motion – круговое движение
Linear motion – прямолинейное движение
to mount – закреплять
Hydraulic component – гидравлическая деталь
spark-ignition – электрозажигание
four-stroke – четырёхтактный (двигатель)
internal combustion engine – двигатель внутреннего сгорания
inline four-cylinder engine – однорядный четырёхцилиндровый двигатель
V-type engine – двигатель с V-образным расположением цилиндров
fuel injection – система впрыска топлива топлива
engine operation – работа двигателя в штатном режиме
spark timing – синхронизация искры
power (drive) train – силовая трансмиссия
rear-drive vehicle – заднеприводный автомобиль
front-drive vehicle – переднеприводный автомобиль
constant velocity – постоянная скорость
universal joint – шарнирная муфта

1. Read and translate the text:

The steering system enables the driver to turn the front wheels left or right to control the direction of vehicle travel. The rotary motion of the steering wheel is changed to linear motion in the steering gear, which is located at the lower end of the steering shaft. The linear motion is transferred through the steering linkage to the steering knuckles, to which the front wheels are mounted. Steering systems are classed as either manual steering or power steering, with power assist provided hydraulically or by an electric motor.

A brake is a device that uses a controlled force to reduce the speed of or stop a moving vehicle, or to hold the vehicle stationary. The automobile has a friction brake at each wheel. When the brake is applied, a stationary surface moves into contact with a moving surface. The resistance to relative motion or rubbing action between the two surfaces slows the moving surface, which slows and stops the vehicle.

The engine supplies the power to move the vehicle. The power is available from the engine crankshaft after a fuel, usually gasoline, is burned in the engine cylinders. Most automotive engines are located at the front of the vehicle and drive either the rear wheels or the front wheels through a drive train or power train made up of gears, shafts, and other mechanical and hydraulic components. Most automotive vehicles are powered by a spark-ignition four-stroke-cycle internal combustion engine. The inline four-cylinder engine and V-type six-cylinder engine are the most widely used, with V-8 engines also common. Other automotive engines have three, five, ten, and twelve cylinders. Some passenger cars and trucks have diesel engines. Some automotive spark-ignition and diesel engines are equipped with a supercharger or turbocharger.

Most automotive engines have electronic fuel injection instead of a carburettor. A computer-controlled electronic engine control system automatically manages various emissions devices and numerous functions of engine operation, including the fuel injection and spark timing. This allows optimizing power and fuel economy while minimizing exhaust emissions.

The power available from the engine crankshaft to do work is transmitted to the drive wheels by the power train, or drive train. In the front-engine rear-drive vehicle, the power train consists of a clutch and manual transmission, or a torque converter and an automatic transmission; driveshafts and Hooke (Cardan) universal joints; and rear drive axle that includes the final drive, differential, and wheel axle shafts. In the typical front-engine front-drive vehicle,

the power train consists of a clutch and manual transaxle, or a torque converter and an automatic transaxle. The final drive and differential are designed into the transaxle, and drive the wheels through half-shafts with constant-velocity universal joints.

2. Match the following words and word groups to the Russian ones.

rotary motion	двигатель внутреннего сгорания
linear motion	электрозажигание
rear-drive vehicle	круговое движение
internal combustion engine	гидравлическая деталь
front-drive vehicle	прямолинейное движение
hydraulic component	переднеприводный автомобиль
spark-ignition	заднеприводный автомобиль

3. Decide whether the following statements are true or false (T/F). If the statement seems to be wrong, correct it.

– The steering system enables the driver to turn the front wheels left or right to control the direction of vehicle travel.

– The brake system supplies the power to move the vehicle.

– Most automotive vehicles are powered by a spark-ignition four-stroke-cycle internal combustion engine.

– Most automotive engines have electronic fuel injection instead of a carburettor.

– Spark-ignition allows optimizing power and fuel economy while minimizing exhaust emissions.

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

3.3 Transmission, wheels, electrical system

New words and phrases to learn:

gear ratio – коэффициент передачи

manual transmission – коробка передач с ручным управлением

automatic transmission – автоматическая коробка передач;

to shift – перемещать, переключать

to disengage – разрядить; разряжать

automatic clutch disengagement – автоматическое сцепление
transmitting torque – передаваемый крутящий момент
tyre wear – износ шин
loss of control – потеря управления
resiliency – упругость
clutch disengagement – выключение муфты
drive axle – ведущий мост автомобиля
solid-state electronic device – твердотельное электронное устройство
voltage regulator – регулятор напряжения генератора
alternator – генератор
electronic ignition – электронная система зажигания
fuel injection – впрыск топлива
air bag – воздушная подушка безопасности
traction control – противобуксовочная система
remote keyless entry – удаленный безключевой доступ в автомобиль

1. Read and translate the text:

The transmission is the device in the power train that provides different forward gear ratios between the engine and drive wheels, as well as neutral and reverse. The two general classifications of transmission are manual transmission, which the driver shifts by hand, and automatic transmission, which shifts automatically. To shift a manual transmission, the clutch must first be disengaged. However, some vehicles have automatic clutch disengagement for manual transmissions, while other vehicles have a limited manual-shift capability for automatic transmissions.

In drive axles, the differential is the gear assembly between axle shafts that permits one wheel to rotate at a speed different from that of the other (if necessary), while transmitting torque from the final-drive ring gear to the axle shafts. When the vehicle is cornering or making a turn, the differential allows the outside wheel to travel a greater distance than the inside wheel; otherwise, one wheel would skid, causing tire wear and partial loss of control.

A wheel is a disc or a series of spokes with a hub at the center and a rim around the outside for mounting of the tire. The wheels of a vehicle must have sufficient strength and resiliency to carry the weight of the vehicle, transfer driving and braking torque to the tires, and withstand side thrusts over a wide range of speed and road conditions. Wheel size is primarily determined by the load-bearing strength of the tire.

The use of solid-state electronic devices in the automobile began during the 1960s, when the electromechanical voltage regulator of the alternator, was replaced by a transistorized voltage regulator. This was followed in the 1970s by electronic ignition, fuel injection, and cruise control. Since then, electronic devices and systems on the automobile have proliferated. These include engine and power train control, air bags, antilock braking, traction control, suspension and ride control, remote keyless entry, memory seats, driver information and navigation systems, cellular telephone and mobile communications systems, and onboard diagnostics.

2. Answer the questions:

- What is transmission? What types of transmission system can you mention?
- What is the difference between manual transmission and automatic one?
- What are the advantages of electronic system?

3. Give the English equivalents for the following words and word combinations:

Потеря управления
автоматическая коробка передач
коробка передач с ручным управлением
автоматическое сцепление
коробка передач
сцепление
выключение муфты
ведущий мост автомобиля
твердотельное электронное устройство
регулятор напряжения генератора
генератор
электронная система зажигания
впрыскивание топлива
воздушная подушка безопасности
противобуксовочная система
удаленный безключевой доступ в автомобиль.

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

UNIT 2
ROAD NETWORK

Topic 1: Road materials and technologies

I. Answer the questions:

- *What road construction materials do you know?*
- *What materials are the most commonly used in Russia?*
- *Describe the condition of the Russian roads. What measures are to be taken to improve the situation?*

1.1 The general classification of road materials: asphalt concrete

New words and phrases to learn:

amount of traffic – пропускная способность дороги
weight of the vehicle – вес транспортного средства
general requirements – общие требования
mechanical strength – механическая сила
compactness – плотность
porosity – пористость
viscosity – вязкость
stability – устойчивость
asphalt concrete – асфальтобетон
composite material – композитный материал
asphalt binder – асфальт раствор
mineral aggregate – минеральная смесь
moisture – влажность
consumption – потребление
fossil fuel – ископаемые виды топлива
carbon dioxide – двуокись углерода
vapours – испарения
patching material – заполнитель
to dissolve – растворять
to evaporate - испаряться

1. Read and translate the text:

Roads are constructed from a variety of materials. The material used depends on local conditions and other factors such as the amount of traffic the road is designed for and the weight of the vehicles allowed to use the road. The road construction materials should keep to general requirements such as mechanical strength, compactness, porosity, viscosity and stability. The most commonly used materials are: asphalt concrete of any type; bitumen; cobblestones; crushed stones; concrete; chipseal.

The production of the road construction materials requires the development of the special modern technologies to provide the roads with the higher level of safety index.

- Asphalt concrete

Asphalt concrete, normally known simply as asphalt, is a composite material commonly used for construction of pavement, highways and parking lots. It consists of asphalt binder and mineral aggregate mixed together then laid down in layers and compacted. Mixing of asphalt and aggregate is accomplished in one of several ways:

Hot mix asphalt concrete (commonly abbreviated as HMAC or HMA) is produced by heating the asphalt binder to decrease its viscosity, and drying the aggregate to remove moisture from it prior to mixing. Mixing is generally performed with the aggregate at about 150 °C for virgin asphalt and 166 °C for polymer modified asphalt, and the asphalt cement at 95 °C. HMAC is the form of asphalt concrete most commonly used on highly trafficked pavements such as those on major highways, racetracks and airfields.

Warm mix asphalt concrete (commonly abbreviated as WMA or WAM) is produced by adding either zeolites, waxes, or asphalt emulsions to the mix. This allows significantly lower mixing and laying temperatures and results in lower consumption of fossil fuels, thus releasing less carbon dioxide, aerosols and vapours. Not only are working conditions improved, but the lower laying-temperature also leads to more rapid availability of the surface for use, which is important for construction sites with critical time schedules. The usage of these additives in hot mixed asphalt (above) may afford easier compaction and allow cold weather paving or longer hauls.

Cold mix asphalt concrete is produced by emulsifying the asphalt in water with (essentially) soap prior to mixing with the aggregate. While in its emulsified state the asphalt is less viscous and the mixture is easy to work and compact. The emulsion will break after enough water evaporates and the cold mix will, ideally, take on the properties of cold HMAC. Cold mix is commonly used as a patching material and on less trafficked service roads.

Cut-back asphalt concrete is produced by dissolving the binder in kerosene or another lighter fraction of petroleum prior to mixing with the aggregate. While in its dissolved state the asphalt is less viscous and the mix is easy to work and compact. After the mix is laid down the lighter fraction evaporates.

Mastic asphalt concrete or sheet asphalt is produced by heating hard grade blown bitumen (oxidation) in a green cooker (mixer) until

it has become a viscous liquid after which the aggregate mix is then added.

Natural asphalt concrete can be found in some parts of the world where rock near the surface has been impregnated with upwelling asphalt.

Rubberized Asphalt Concrete (RAC), also known as Asphalt Rubber, is pavement material that consists of regular asphalt concrete mixed with crumb rubber - ground, used tires that would otherwise be discarded or take up space in landfills.

2. Answer the questions:

- Give the definition of asphalt concrete.
- How many types of asphalt concrete mixes do you know? What's the difference between them?
- What type of asphalt concrete is the easiest to work with? Why?

3. Decide whether the following statements are true or false (T/F). If the statement seems to be wrong, correct it.

- The material used for road construction depends on the price of its manufacturing. This is a main criteria for the choice of the construction material.
- Asphalt concrete consists of asphalt binder and mineral aggregate mixed together then laid down in layers and compacted.
- There are 7 types of asphalt concrete mixes.
- Cold mix asphalt concrete is used to repair roads in winter and in rainy seasons.
- Natural asphalt concrete can be found in some parts of the world where rock near the surface has been impregnated with upwelling asphalt.

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

1.2 The general classification of road materials: bitumen, cobblestones, crushed stones

New words and phrases to learn:

organic liquid – жидкость органического происхождения

carbon disulfide – дисульфид углерода

crude bitumen – битум природного происхождения
tar-like form – смолистое вещество
molasses – патока
residual fraction – остаточная фракция
mortar – раствор
to bind – связывать (о компонентах)
substitutes - заменители

1. Read and translate the text:

- Bitumen

Bitumen is a mixture of organic liquids that are highly viscous, black, sticky, entirely soluble in carbon disulfide, and composed primarily of highly condensed polycyclic aromatic hydrocarbons.

Naturally occurring or crude bitumen is a sticky, tar-like form of petroleum which is so thick and heavy that it must be heated or diluted before it will flow. At room temperature, it has a consistency much like cold molasses. Refined bitumen is the residual (bottom) fraction obtained by fractional distillation of crude oil. It is the heaviest fraction and the one with the highest boiling point, boiling at 525°C.

Most bitumens contain sulfur and several heavy metals such as nickel, vanadium, lead, chromium, mercury and also arsenic, selenium, and other toxic elements. Bitumens can provide good preservation of plants and animal fossils.

- Cobblestone

Cobblestones are stones that were frequently used in the pavement of early streets.

Note that Cobble is a generic geological term for any stone having dimensions between 2.5–10 inches. Cobblestones are typically either set in sand or similar material, or are bound together with mortar. Paving with cobblestones allows a road to be heavily used all year long. It prevents the buildup of ruts often found in dirt roads. It has the additional beneficial advantage of not getting muddy in wet weather or dusty in dry weather. A disadvantage is that carriage wheels, horse hooves and even modern automobiles make a lot of noise when rolling over cobblestone paving.

Cobblestones set in sand have the environmental advantage of being permeable paving, and of flexing rather than cracking with movements in the ground.

- Crushed stone

Crushed stone is one of the most accessible natural resources, and is a major basic raw material used by construction, agriculture, and other industries. Despite the low value of its basic products, the

crushed stone industry is a major contributor to and an indicator of the economic well-being of a nation. The demand for crushed stone is determined mostly by the level of construction activity, and, therefore, the demand for construction materials.

Stone resources of the world are very large. High-purity limestone and dolomite suitable for specialty uses are limited in many geographic areas. Crushed stone substitutes for roadbuilding include sand and gravel, and slag. Substitutes for crushed stone used as construction aggregates include sand and gravel, iron and steel slag, sintered or expanded clay or shale, and perlite or vermiculite.

Crushed stone is a high-volume, low-value commodity. The industry is highly competitive and is characterized by many operations serving local or regional markets. Production costs are determined mainly by the cost of labor, equipment, energy, and water, in addition to the costs of compliance with environmental and safety regulations.

2. Answer the questions:

- Give the definition of bitumen.
- Is there any difference between the terms crude bitumen and refined bitumen?
- What chemical elements does bitumen contain?
- What is a main reason of paving roads with cobblestones?
- What is a disadvantage of paving roads with cobblestones?
- Why is the crushed stone production referred to as an indicator of the economic well-being of the country?
- Enumerate the factors determining the crushed stone production cost.

3. Find Russian equivalents for:

- highly condensed polycyclic aromatic hydrocarbons
- preservation of plants and animal fossils
- generic geological term
- buildup of ruts
- additional beneficial advantage
- the most accessible natural resources
- high-purity limestone
- construction aggregates
- low-value commodity
- costs of compliance with environmental and safety regulations

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

1.3 The general classification of road materials: concrete, chipseal

New words and phrases to learn:

cementitious materials – цементирующие материалы
chemical admixtures – химические примеси
to solidify – застывать
crack reflection – образование трещин
stone retention – сцепление камней
volatile organic compounds – летучие органические вещества
solvent content – растворимый компонент
patch – заплата
ditch – канава

1. Read and translate the text:

- Concrete

Concrete is a construction material composed of cement (commonly Portland cement) as well as other cementitious materials such as fly ash and slag cement, aggregate (generally a coarse aggregate such as gravel, limestone or granite plus a fine aggregate such as sand), water, and chemical admixtures. Concrete solidifies and hardens after mixing with water and placement due to a chemical process known as hydration. The water reacts with the cement, which bonds the other components together, eventually creating a stone-like material. Concrete is used to make pavements, pipe, architectural structures, foundations, motorways/roads, bridges/overpasses, parking structures, brick/block walls and footings for gates, fences and poles.

- Chipseal

Chipseal is a pavement surface treatment that combines a layer(s) of asphalt with a layer(s) of fine aggregate. Chipseals are typically used on rural roads carrying lower traffic volumes, and the process is often referred to as "asphaltic surface treatment". It is cheaper than resurfacing an asphalt concrete or a Portland Cement Concrete pavement, but not as long lasting.

Chipseals are constructed by evenly distributing a thin base of hot bitumen or asphalt onto an existing pavement and then embedding finely graded aggregate into it. The aggregate is evenly distributed over the seal spray, then rolled into a smooth pavement surface. A chipseal surfaced pavement can optionally be sealed with a

top layer which is referred to as a fog seal or cape seal.

The introduction of polymer-modified bitumen and emulsion binder has increased the chipseal's ability to prevent crack reflection and improve stone retention by improving the properties of the bitumen binder. Newer techniques use asphalt emulsion (a mixture of liquid asphalt, surfactant, and water) instead of asphalt. This has been shown to help reduce aggregate loss and reduce cost of installation, but can increase the occurrence of stripping. It reduces emissions of volatile organic compounds (VOCs) due to the lower solvent content.

It can keep good pavement in good condition by sealing out water, but provides no structural strength and will only repair minor cracks. While the small stones used as surface yield a relatively even surface without the edges of patches, it also results in a very rough surface that leads to significantly louder rolling noises of automobile wheels.

Although chipseal is an effective low cost way to repair road, it has some drawbacks. Loose crushed stone is often left on the surface, due to under-application of emulsion or over application of stone. If not removed, this can cause safety and environmental problems such as cracked windshields, loss-of-control crashes (especially for motorcyclists and bicyclists), and deposition of foreign material into drainage courses. Therefore, it is very important to sweep the road after the emulsion sets.

2. Answer the questions:

- Give the definition of concrete. Say what it is used for.
- What is another name of chipseal?
- What is the main task of chipseal as a structural material?
- What are the advantages of chipseal use?
- What are the drawbacks of chipseal?

3. Match the words from the given columns:

portland	concrete
coarse	materials
chemical	content
asphalt	stone
solvent	admixtures
structural	binder
crushed	cement
bitumen	bitumen
cementitious	aggregate
hot	strength

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

Topic 2: Types of roads

II. Answer the question:

– Would you prefer to live in a city with a busy traffic or in a village (small town)? Speak on advantages and disadvantages of both variants.

2.1 The general notion of the term "roads"

New words and phrases to learn:

identifiable route (way, path) – обозначенная дорога
to diverge – расходиться, распространяться
urban space easement – городской сервитут
efficient roads – рентабельные дороги
transportation facilities – транспортная инфраструктура
continuous right-of-way – непрерывное движение
geographic obstacles – природные преграды
vehicular and pedestrian traffic – транспортное и пешеходное движение
Storm drainage – ливневки
detrimental effects – разрушительные процессы
runoff coefficients – коэффициенты износа

1. Read and translate the text:

A road is an identifiable route, way or path between places. Roads are typically smoothed, paved, or otherwise prepared to allow easy travel; though they need not be, and historically many roads were simply recognizable routes without any formal construction or maintenance.

The term was also commonly used to refer to roadsteads, waterways that lent themselves to use by shipping. In urban areas roads may diverge through a city or village and be named as streets, serving a dual function as urban space easement and route. Economics and society depend heavily on efficient roads.

Although transport systems follow the same supply and demand theory as other industries, the complications of network effects and choices between non-similar goods (e.g. car and bus travel) make estimating the demand for transportation facilities

difficult.

In transport, demand can be measured in numbers of journeys made or in total distance traveled across all journeys (e.g. passenger-kilometers for public transport or vehicle-kilometers of travel (VKT) for private transport). Supply is considered to be a measure of capacity. The price of the good (travel) is measured using the generalized cost of travel, which includes both money and time expenditure. The effect of increases in supply (capacity) is of particular interest in transport economics as the potential environmental consequences are significant.

Road construction requires the creation of a continuous right-of-way, overcoming geographic obstacles and having grades low enough to permit vehicle or foot travel and may be required to meet standards set by law or official guidelines. The process is often begun with the removal of earth and rock by digging or blasting, construction of embankments, bridges and tunnels, and removal of vegetation (this may involve deforestation) and followed by the laying of pavement material. A variety of road building equipment is employed in road building.

Roadways are designed and built for primary use by vehicular and pedestrian traffic. Storm drainage and environmental considerations are a major concern. Erosion and sediment controls are constructed to prevent detrimental effects. Drainage lines are laid with sealed joints in the road easement with runoff coefficients and characteristics adequate for the land zoning and storm water system. Drainage systems must be capable of carrying the ultimate design flow from the upstream catchment with approval for the outfall from the appropriate authority to a watercourse, creek, river or the sea for drainage discharge.

Various types of road are in use around the world. Roads range in size from private driveways, to the stereotypical two-lane highway, to high capacity dual carriageway routes, such as freeways, motorways and high-quality dual carriageways. The names associated with a particular type of road vary around the world, and many names are partially equivalent but not exactly equivalent to each other. As a result, the name given to a road in one country could apply to a different type of road in another country.

Most countries have major roads of medium capacity that connect cities, places, other routes, or other significant points of interest. They may have multiple lanes of traffic, a median or central reservation between lanes of opposing traffic, and partial access control (ramps and grade separation). Often they are restricted to

motorized vehicles that can maintain high speeds. However, they can also be as simple as a two-lane shoulderless road.

2. Answer the questions:

- What is general definition of the term «road»?
- What disciplines are connected with the notion of «road» this or that way?
- How does the process of road construction start?
- What are the main factors determining road construction?
- Why is it so important to have a diverse roads network? What types of roads could you point out?

3. Find Russian equivalents for:

- roadsteads
- supply and demand theory
- measure of capacity
- potential environmental consequences
- to meet standards
- erosion and sediment controls
- particular type of road
- partial access control
- lanes of opposing traffic
- two-lane shoulderless road

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

2.2 Types of roads

New words and phrases to learn:

alley – пешеходная дорога
pedestrian lane – пешеходная зона
blind alley (dead end) – тупик
arterial (high-capacity) road – дорога с высокой пропускной способностью
neighborhoods – пригороды
intersections – перекрестки
collector (low-capacity) road – дорога с низкой пропускной способностью
suburban layout – дорожная схема пригородной дорожной сети
beltway (loop, ring road, orbital motorway) – кольцевая дорога
circumferential highway – объездная трасса
bypass – объездная дорога

congestion – пробка
high-quality dual carriageway – высокоскоростная магистраль (автобан)
central reservation – разделительная полоса
junction – перекресток
roundabouts – кольцевая развязка
highway – высокоскоростная трасса

1. Read and translate the text:

- Alley

An alley or alleyway is a narrow, pedestrian lane found in urban areas which usually runs between or behind buildings. In older cities and towns in Europe, alleys are often what is left of a medieval street network, or a right of way or ancient footpath in an urban setting. In older urban development, alleys were built to allow for deliveries such as coal to the rear of houses. Alleys may be paved, or simply dirt tracks. Blind alleys have no outlet at one end and are thus a cul-de-sac.

- Arterial road

An arterial road is a moderate or high-capacity road which is immediately below a highway level of service. Much like a biological artery, an arterial road carries large volumes of traffic between areas in urban centres. They are noted for their lack of residential entrances directly onto the road (except in older or denser communities); they are designed to carry traffic between neighborhoods, and have intersections with collector and local streets. Often, commercial areas such as shopping centers, gas stations and other businesses are located on them. Arterial roads also link up to expressways and freeways with interchanges. The category is often subdivided into principal arterial roads and minor arterial roads, with the former category being for the more important and busier roads.

- Collector road

A collector road is a low or moderate-capacity road which is below a highway or arterial road functional class. Collector roads tend to lead traffic from local roads or sections of neighborhoods to activity areas within communities, arterial roads or (occasionally) directly to expressways or freeways. Collector roads can have many different characteristics. Some urban collectors are wide boulevards entering communities or connecting sections. Others are residential streets, which are typically wider than local roads, although few are wider than 4 lanes wide except in extremely dense areas. Some small-scale commercial areas can be found on collector roads in residential areas. Key community functions such as schools, churches and recreational

facilities can often be found on residential collector roads. The same description, substituted for industrial or rural purposes, can be found on collector roads in those areas.

Collector roads can originate in different ways: most often they have been planned along with the suburban layout and built especially for that purpose. Occasionally they can fill gaps in a grid system between arterial roads.

- Beltway

A beltway, loop (American English), ring road, or orbital motorway (British English) is a circumferential highway found around or within many cities.

Beltway, *orbital motorway*, *perimeter loop*, *beltline*, and similar terms refer to an expressway/motorway/freeway style standard road that often originally enclosed the built up area and was later encroached upon by developed areas.

Ring road may sometimes refer to a beltway-style road, but more commonly indicates a road or series of roads within a city or town that have been joined together by town planners to form an orbital distributor style road, but where the standard of road could be anything from an ordinary city street up to an expressway level. The principal difference is that a ring road is an orbital distributor road system designed from already existing roads, as opposed to a beltway which is designed from new as such a road system. A ring road designation also implies a more inner-city road designed to route traffic around a city centre, as opposed to routing traffic around a larger conurbation.

- Bypass (road)

A bypass is a road or highway that avoids or "bypasses" a built-up area, town, or village, to let through traffic flow without interference from local traffic, to reduce congestion in the built-up area, and to improve road safety.

If there are no strong land use controls, buildings are built along a bypass, converting it into an ordinary town road, and the bypass may eventually become as congested as the local streets it was intended to avoid. Shopping centers and some other companies often are built there for ease of access, while homes are often avoided for noise reasons.

- High-quality dual carriageway

A dual carriageway (British English) or divided highway (North American English) is a road or highway in which the two directions of traffic are separated by a central barrier or strip of land, known as a central reservation (British English) or median (North American

English). This type of road is usually able to carry a great deal more traffic than normal single carriageways (British English) or two-lane roads (North American English) and boulevards.

- Junction (road)

A road junction is a location where vehicular traffic going in different directions can proceed in a controlled manner designed to minimize accidents. In some cases, vehicles can change between different routes or directions of travel.

However, with the 20th century advent of road traffic, roads became much busier and junctions became clogged with vehicles unable to cross each other's paths. In modern practice, bypasses and ring roads are used to keep through traffic *out* of major population centers.

There are two different types of junction between roads:

- Interchanges are junctions where roads pass above or below one another, preventing a single point of conflict by utilizing grade separation and slip roads. The terms *motorway junction* and *highway junction* typically refer to this layout.

- Intersections do not use grade separation (they are at-grade) and roads cross directly. Forms of these junction types include roundabouts and traffic circles, priority junctions, and junctions controlled by traffic lights or signals.

- Highway

A highway is a main road for travel by the public between important destinations, such as cities, large towns, and states. Highway designs vary widely and can range from a two-lane road without margins to a multi-lane, grade-separated expressway, freeway, or motorway. In English, British, and American law, the word "highway" is sometimes used to denote *any* public way used for travel, whether major highway, freeway, street, lane, alley, pathway, dirt track, footpaths, and trails, and navigable waterways. However, in practical and useful meaning, a "highway" is a major and significant, well-constructed road that is capable of carrying reasonably-heavy to extremely-heavy traffic.

In the United States, "highway" is a general term for denoting a public way, including the entire area within the right-of-way, and includes many forms:

1. a high-speed, limited-access road like expressways, freeways, and large toll highways.
2. an important road that connects cities and large towns.
3. any road or street, or a travel way of any kind, including pedestrian ways, trails, and navigable waterways, to which the public

has a perpetual right of use.

In some places, "highway" is a synonym for "road" or "street", and in some cases, the word "highway" is simply used in cases of carelessness and laziness on the part of the speaker, who believes that "street", "road", and "highway" are all synonymous and uses them accordingly.

2. Answer the questions:

- What is the difference between the arterial road and the collector road?
- Why is the construction of a beltway preferable in a city road network?
- What is the busiest type of road according to the given classification?
- How many types of junctions are there?
- Give the definition of highway.

3. Decide whether the following statements are true or false (T/F). If the statement seems to be wrong, correct it.

- An alley or alleyway is a narrow, pedestrian lane found in urban areas.
- The terms "collector road" and "arterial road" are the total synonyms.
- The principal difference is that a ring road is an orbital distributor road system designed from already existing roads, as opposed to a beltway which is designed from new as such a road system.
- "Highway" is a general term for denoting a private way, including the entire area within the right-of-way.
- Roundabouts and traffic circles, priority junctions and junctions controlled by traffic lights or signals are the forms of interchanges.

4. Make up a detailed plan of the text.

5. Retell the text according to your plan.

VOCABULARY

UNIT 1
TRANSPORT MEANS: AUTOMOBILES

Topic 1: Development of the Automobile

Automobile (car, auto, motor-car) – автомобиль
Vehicle (self-propelled vehicle) – транспортное средство
Carriage (steam-driven carriage) – паровая повозка
Speed – скорость
Internal combustion engine – двигатель внутреннего сгорания
To steer – управлять
Two-stroke engine – двухтактный двигатель

Topic 2: Types of transport means

Automobile (car, auto) – автомобиль
Gasoline – бензин
to carry – перевозить
Diesel fuel – дизельное топливо
Bus – автобус
Truck (lorry) – грузовик
Power lines – линии электропередач
Steam propulsion engine – паровой двигатель

Topic 3: An automobile structure

Car – автомобиль
Sedan (4-door saloon car) – седан
Limousine – лимузин
Buggy – багги
3-door hatchback – хэтчбэк
Coupe (2-door saloon car) – купе
Roadster – родстер
Pickup – пикап
Van – минивэн
GT car (gran turismo car) – кроссовер
Baby (compact) car – малолитражный автомобиль
Convertible car- кабриолет
Estate car – городской автомобиль
Racing car – спортивный автомобиль
Streamlined racing car – спортивный автомобиль с обтекаемым кузовом
Town car – городской автомобиль
Caravan – туристический автомобиль с прицепом
Jeep – джип
Motorcycle – мотоцикл
Bus – автобус
City bus – автобус городского маршрута

Intercity bus (coach) – автобус междугороднего и дальнего следования
Trolleybus – троллейбус
Ambulance car – «Скорая помощь»
Patrol (police car) – полицейский автомобиль
Truck (freight car, lorry) – грузовик
Agitator – авто-бетономешалка
Automobile transport trailer – автопоезд
Dumptruck – авто-самосвал
Garbage truck – мусоровоз
Hopper truck – бензовоз
Insulated van (refrigerator) – грузовик - холодильник
Lumber truck – грузовик для перевозки длинномерных грузов (пиломатериалы)
Sprinkler (street flusher) – поливалка
Tank – авто-цистерна
Wrecker – эвакуатор
Crain truck – авто-кран
Trailer – прицеп
House trailer – прицеп-дом
Body – кузов
Bonnet, hood - капот
Boot, trunk – багажник
Trunk lid – крышка багажника
Roof – крыша
Roof panel – панель крыши
Sunroof – люк
Fender – крыло
Chassis – шасси
Suspension - подвеска
Wheels – колеса
Wheel cover – колпак колеса
Mud flap - брызговик
Axle - ось, мост
Bumper – бампер
Body door – дверь кузова
Door handle – ручка двери
Door lock – дверной замок
Outside mirror - боковое зеркало
Door pillar – дверная стойка
Wind screen – ветровое стекло
Windschield wiper – дворник ветрового стекла
Headlight/taillight – передние/задние фары
Turn signal – «поворотник»
Brake signal – стоп-фонарь
Backup/reversing light – фонарь заднего хода
Sidemarker light – боковой габаритный фонарь, подфарник
Warning lights – «аварийка»
Main beam lights – фары ближнего света
High beam lights – фары дальнего света
Internal combustion engine – двигатель внутреннего сгорания
Injector – инжектор
Intake manifold – впускной коллектор
Valve spring – клапанная пружина
Timing belt – ремень генератора
Camshaft – распредвал
Inlet valve – впускной клапан
Combustion chamber – камера сгорания
Ring – поршневое кольцо

Piston unit – поршневая группа
Piston skirt – юбка поршня
Alternator – генератор
Connecting rod – шатун
Cooling fan – вентилятор
Pulley – шкив
Crankshaft – коленвал
Fan belt – ремень привода вентилятора
Oil pan gasket – прокладка поддона картера
Oil drain plug – маслосливная пробка
Flywheel – маховик
Engine block – блок цилиндров
Exhaust manifold – выхлопной коллектор
Exhaust valve – выпускной клапан
Spark plug – свеча зажигания
Rocker arm – коромысло
Cylinder unit – цилиндровая группа
Cylinder head – головка цилиндра
Driving turbine – турбина привода
Muffler – глушитель
Tail pipe extension – глушитель
Radiator – радиатор
Thermostat – термостат
Radiator hose – шланг радиатора
Filter – фильтр
Fuel tank – бензобак

Gearbox – коробка передач

Clutch – сцепление

Starting gear ring – зубчатый маховик
Gasket – прокладка
Sliding sleeve – скользящая муфта
Gearshift rods – тяги переключения передач
Gearshift pattern – схема переключения скоростей
Strut unit – стойка
Bearing – подшипник
Suspension spring – пружина подвески
Piston rod – поршневая тяга
Suspension damper – амортизатор
Rim – обод
Stub axle – поворотная цапфа
Steering arm – рычаг рулевого управления
Track – rod ball – joint – поперечная рулевая тяга
Live axle – ведущий мост
Pump unit – насосная система

Brake unit – тормозная система

Disk brake – дисковый тормоз
Brake pad – тормозная диск
Caliper – тормозной суппорт
Drum brake – барабанный тормоз
Brake shoe – тормозная колодка
Wheel cylinder – тормозной цилиндр
Brake lining – тормозная накладка
Return spring – возвратная пружина
Anchor pin – анкерный палец

Dashboard – приборная доска

Horn – звуковой сигнал
Wiper switch – регулятор дворников
Rearview mirror – зеркало заднего вида
Vanity mirror – зеркало бокового обзора
Glove compartment – бардачок
Climate control – климат-контроль
Gearshift lever – рычаг переключения передач
Parking brake lever – рычаг ручного тормоза
Gas pedal – педаль газа
Brake pedal – педаль тормоза
Clutch pedal – педаль сцепления
Ignition switch – замок зажигания
Steering wheel – рулевое колесо

3.1 Body, frame, suspension

volatile fuel – легко улетучивающееся топливо
steel body – цельно-стальной кузов; стальной кузов
chassis – основание; ходовая часть (напр. автомобиля)
transmission – коробка передач, трансмиссия;
steering system – система рулевого управления
braking system – тормозная система
electrical system – электрическая установка
fuel system – топливная система; система питания топливом
exhaust system – система выпуска; система выпуска отработавших газов
oil lubrication system – система жидкой смазки
cooling system – система подачи СОЖ
suspension – подвесное устройство; навесное устройство
tires – монтировать шину; автопокрышка
unitized-body construction – несущий безрамный кузов
subframe – нижняя рама; подрамник

3.2 Steering system, braking system, engine

Rotary motion – круговое движение; поворот
Linear motion – прямолинейное движение
to mount – закреплять
Hydraulic component – гидравлическая деталь
spark-ignition – электрическое зажигание; электрозажигание
four-stroke – four-stroke четырёхтактный (двигатель)
internal combustion engine – двигатель внутреннего сгорания

inline four-cylinder engine – однорядный четырёхцилиндровый двигатель
V-type engine – двигатель с V-образным расположением цилиндров
fuel injection – система впрыска топлива; система впрыскивания топлива; внутреннее смесеобразование
engine operation – работа двигателя
spark timing – установка зажигания; синхронизация искры
power (drive) train – силовая передача; трансмиссия; энергопоезд
rear-drive vehicle – автомобиль с приводом на задние колёса; заднеприводный автомобиль
front-drive vehicle – автомобиль с приводом на передние колёса; переднеприводный автомобиль
constant-velocity – постоянная скорость
universal joint – шарнирная муфта

3.3 Transmission, wheels, electrical system

gear ratio – передаточное число; коэффициент передачи
manual transmission – коробка передач с ручным управлением
automatic transmission – автоматическая коробка передач;
to shift – перемещать; передвигать
to disengage – разрядить; разряжать
automatic clutch disengagement – автоматическое сцепление
transmitting torque – передаваемый крутящий момент
tyre wear – износ шин
loss of control – потеря управления
resiliency – упругость
clutch disengagement – выключение муфты
drive axle – ведущий мост автомобиля
solid-state electronic device – твердотельное электронное устройство
voltage regulator – регулятор напряжения генератора
alternator – генератор
electronic ignition – электронная система зажигания
fuel injection – впрыскивание топлива
air bag – воздушная подушка безопасности
traction control – противобуксовочная система
remote keyless entry – удаленный безключевой доступ в автомобиль

UNIT 2
ROAD NETWORK

Asphalt concrete – асфальтобетон
Asphalt binder – битумный раствор
Cut-back asphalt – коллоидальный раствор битума
Mineral aggregate – минеральный наполнитель
Zeolite – цеолит
Wax – воск
Fraction – фракция
Bitumen – битум, асфальт
Rubberized asphalt concrete – прорезиненный асфальтобетон
Disulfide – дисульфид
Concrete – бетон
Portland cement – портланд цемент
Fly ash – зола-унос
Chemical admixtures – хим.примеси
Vermiculite – вермикулит (слюда)
Clay – глина
Slag – шлак
Gravel – гравий
Limestone – известь
Tar – смола; дёготь
Cobblestone – булыжник
Mortar – раствор
Crushed stone – щебень
Retention – задерживающая способность
Volatile organic compounds – летучие органические соединения
Solvent – растворитель
Surfactant – поверхностно-активное вещество
Embankment – набережная
Bridge – мост
Tunnel – тоннель
Aqueduct – акведук
Vehicular traffic – транспортная зона
Pedestrian traffic – пешеходная зона
Private driveways – частные подъездные пути
Two-lane highway – шоссе
Dual – carriageway (divided highway) – друхполосная трасса
Alley – дорога
Blind alley (dead end) – тупик
Arterial road – главная дорога; магистраль
Collector road – магистральная улица районного значения
Beltway (loop, ring road) – объездная дорога
Bypass – объездная дорога
Junction – перекресток
Intersection – перекрёсток
Interchange – развязка

Topic 1: Road materials and technologies

amount of traffic – пропускная способность дороги
weight of the vehicle – вес транспортного средства
general requirements – общие требования
mechanical strength – механическая сила
compactness – плотность
porosity – пористость
viscosity – вязкость
stability – устойчивость
asphalt concrete – асфальтобетон
composite material – композитный материал
asphalt binder – асфальт раствор
mineral aggregate – минеральная смесь
moisture – влажность
consumption – потребление
fossil fuel – ископаемые виды топлива
carbon dioxide – двуокись углерода
vapours – испарения
patching material – заполнитель
to dissolve – растворять
to evaporate – испаряться

1.2 The general classification of road materials: bitumen, cobblestones, crushed stones

organic liquid – жидкость органического происхождения
carbon disulfide – дисульфид углерода
crude bitumen – битум природного происхождения
tar-like form – смолистое вещество
molasses – патока
residual fraction – остаточная фракция
mortar – раствор
to bind – связывать (о компонентах)
substitutes – заменители

1.3 The general classification of road materials: concrete, chipseal

cementitious materials – цементирующие материалы
chemical admixtures – химические примеси
to solidify – застывать
crack reflection – образование трещин
stone retention – крепление
volatile organic compounds – летучие органические вещества
solvent content – растворимый компонент
patch – заплата
ditch – канава

Topic 2: Types of roads

2.1 The general notion of the term "roads"

identifiable route (way, path) – обозначенная дорога
to diverge – расходиться, распространяться
urban space easement – городской сервитут
efficient roads – рентабельные дороги
transportation facilities – транспортная инфраструктура
continuous right-of-way – непрерывное преимущественное право движения
geographic obstacles – природные преграды
vehicular and pedestrian traffic – транспортное и пешеходное движение
Storm drainage – ливневки
detrimental effect – вредное воздействие; отрицательное воздействие
разрушительные процессы
runoff coefficients – коэффициенты износа

2.2 Types of roads

Alley – узкий проезд
Pedestrian lane – пешеходный тротуар
Blind alley (dead end) – непроходная улица, тупик
Arterial road – главная дорога; магистраль
high-capacity – с высокой пропускной способностью
Neighborhoods – окрестности
Intersection – перекрёсток
Collector road – магистральная улица районного значения
low-capacity – малообъёмный
suburban layout – пригородная дорожная схема
beltway (loop, ring road, orbital motorway) – кольцевая дорога
circumferential highway – кольцевая дорога