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**МЕТОДИЧНІ ВКАЗІВКИ  
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## UNIT 1. WHAT IS TRANSPORTATION?

### 1.1 City and city transport

#### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1	layout	розміщення
2	commerce	торгівля
3	enlarge	збільшувати
4	drift	переміщення, зсув
5	suburb	окраїна, пригород
6	urban	міський
7	subway	метро
8	congestion	затор, скупчення

#### II. Learn the following word combinations:

present layout – сучасне розміщення

city growth – зростання міста

to enlarge the movement of passengers – збільшувати рух пасажирів

a steady drift of population – постійне переміщення населення

high density centre – центр з високою щільністю

low density suburb – окраїна з низкою щільністю

a mass-produced motor car – автомобіль масового виробництва

lack of cheap transport – нестача дешевого транспорту

introduction of urban railways – введення міських залізниць

residential areas – житловий район

to own a car – мати машину

to lead to road congestion – приводити до дорожніх заторів

peak hours – години пік

service industry – індустрія обслуговування

to be acceptable – бути доступним

moving pavement – тротуар, що рухається

improved transport – поліпшений транспорт

to face a problem – зіштовхуватися з проблемою

to solve a problem – вирішувати проблему

#### III. Translate the following international words:

problem, service, transport, population, commerce, system, mass, situation, peak.

#### IV. Give the initial form of the following words:

briefly, cheaply, congestion, creative, reduction, acceptable, planning.

### CITY AND CITY TRANSPORT

Before describing new systems of transport, it is necessary to look back to see how cities got their present layout.

The first cause of city growth is the growth of population. The cities developed because of the need for people to gather for natural protection, commerce and education. The population growth has greatly enlarged the movement of passengers in big cities.

There has been, on the other hand, a steady' drift of population from the high density centre to the lower density suburbs.

Walking was the major transport both in and out of cities until the end of the XVIII century. The cost of a horse was three times higher than that of a mass-produced motor car today.

The lack of cheap transport led to the development of very high density building within the city centre. The situation was changed by the introduction of horse buses and urban railways in the middle of the XIX century, followed by horse trams and electric trams. This allowed a city to grow even more.

The introduction of the motor car and motor bus alongside with the subway allowed the residential areas to broaden still more around cities. This growth leads to longer journeys to work, school, shopping even without population growth.

To own a car has become not only pleasant, but in many cases necessary. Car ownership, however, leads to road congestion, especially at peak hours,

Transport is a service industry, and must be coordinated with city planning. It is necessary to develop transport systems which are cheaper to install, to operate, and be more acceptable than the existing ones.

New forms of urban transport may involve low speed moving pavements, never-stop railways and buses on reserved tracks.

Improved transport will not, of course, solve all the problems facing city today, but they will make city life more pleasant.

### TEXT – BASED ASSIGNMENTS

#### I. Choose Ukrainian equivalents:

- |               |                |                |                 |
|---------------|----------------|----------------|-----------------|
| 1. layout     | a) план        | б) система     | в) розміщення   |
| 2. protection | a) захист      | б) оплот       | в) огороження   |
| 3. urban      | a) сільський   | б) гірський    | в) міський      |
| 4. growth     | a) ріст        | б) продовження | в) уповільнення |
| 5. to develop | a) відстоювати | б) розвивати   | в) поспішати    |

6. movement	a) рух	б) затримка	в) зупинка
7. to travel	a) мандрувати	б) рухатися	в) їхати
8. cause	a) обставина	б) причина	в) слідство
9. lack	a) наявність	б) присутність	в) відсутність
10. to enlarge	a) збільшувати	б) зменшувати	в) розподіляти

## II. Translate into English:

щільність, окраїна, метро, пасажир, переміщення, постійний, населення, захист, торгівля, дешевий транспорт, залізниця, розширювати, володар, дорожній затор, поліпшувати.

## III. Match words from columns A and B to make word combinations:

A	B
1. steady	a) congestion
2. city	b) owner
3. cheap	c) hours
4. mass-produced	d) drift
5. urban	e) growth
6. high	f) transport
7. car	g) density
8. residential	h) motor car
9. peak	i) railways
10. road	j) area

## IV. Insert appropriate prepositions where necessary:

1. This growth leads... longer journeys... work, school, and shopping centers. 2. It is necessary... develop transport systems which are cheaper... install and... operate. 3. The increase and improvement ... transport is believed ... be the main reason ... this drift. 4. Car ownership leads ... road congestion. 5. Minicars will be used ... city streets.

## V. Complete the following sentences:

1. There has been a steady drift of population from.... 2. The cost of a horse was three times higher.... 3. The lack of cheap transport led to the development.... 4. The introduction of the motor car allowed.... 5. This growth leads to.... 6. Car ownership leads to.... 7. Transport is a service industry, and must be coordinated.... 8. New forms of urban transport may involve....

## VI. Form sentences using the following words:

- The, cause, growth, of, first, is, the, city, of, population, growth.
- Situation, was, the, by, changed, the, horse, introduction, of, buses.
- A, to grow, city, this, allowed, more, even.

4. Car, leads, to, ownership, congestion, road.
5. To develop, is, necessary, it, systems, transport.

### **VII. Answer the following questions:**

1. What was the initial cause of city growth?
2. What did people gather for into cities?
3. What was the main type of transport up to the XVIII century?
4. What led to the development of very high density building within the city center?
5. What did introduction of the motor car and motor bus allow?
6. What does car ownership lead to?
7. What do the new forms of urban transport involve?

### **VIII. Translate into English:**

1. Перша причина зростання міста – це ріст населення. 2. Ріст населення значно збільшив рух пасажирів. 3. Нестача дешевого транспорту привела до розвитку щільного будівництва у центрі міста. 4. Транспорт – це індустрія обслуговування, яка повинна бути узгоджена з плануванням міста. 5. Необхідно розвивати транспортну систему.

### **IX. Write down the main idea of the text and key words.**

### **X. Make up a plan of the text, prepare a short report on the text.**

## **1.2 Transportation**

### **PRE – TEXT EXERCISES**

#### **I. Mind the pronunciation of the following words:**

- |    |               |                      |
|----|---------------|----------------------|
| 1. | roar          | ревіти, шуміти       |
| 2. | livestock     | поголів'я худоби     |
| 3. | rumble        | гримотіти, гуркотати |
| 4. | jolt          | трястися             |
| 5. | rough         | нерівний             |
| 6. | route         | маршрут, шлях        |
| 7. | tire          | шина                 |
| 8. | choke         | задихатися           |
| 9. | buoy          | буй, бакен           |
| 10 | neighbourhood | сусіди               |

**II. Word combinations to remember:**

to use in daily life – використовувати в повсякденному житті

to cut travel time – скорочувати час пересування

to take smb. a month to travel – займати місяць для пересування

jet airliner – реактивний пасажирський літак

a two-week vacation – двотижнева відпустка

wooden wheels - дерев`яні колеса

springless wagon – вагон без пружин

paved road – мощена дорога

air-filled tires – шини, наповнені повітрям

to choke in clouds of smoke and dust – задихатися в хмарах диму і пилу

reclining seats – крісла з відкидною спинкою

to serve tasty meals – подавати смачну їжу

to depend on transportation – залежати від перевезень

traffic lights – світлофор

to operate safely – працювати безпечно

to affect our live – впливати на життя

scene of a crime – місце злочину

**III. State the part of speech of the following words:**

everything, highway, jolt, possible, transportation, devise, which, obtain, without, safely.

**IV. Translate words with the same root:**

1. to develop – developed – development

2. safe – safety – safely

3. to produce – product – production

**TRANSPORTATION**

History of transportation takes us where we want to go, and brings us nearly everything we eat, wear, and use in daily life. Day and night, swift airliners speed passengers through the sky. Long trains roar across the countryside carrying passengers, mail, and such products as food, livestock, and coal. Automobiles, buses, and huge trucks rumble along the streets and highways. Ships steam across oceans and along lakes and rivers. Pipelines carry petroleum and natural gas across thousands of miles. Developments in transportation have cut travel time greatly in the past 200 years. In 1800, it often took a businessman a month to travel by sailing ship from London to New York City. Today, he can fly this distance by jet airliner in only a few hours. The airplane has made New York City closer in time to Sydney, Australia, than it was to Montreal, Canada, only a hundred years ago.



Americans and Canadians can easily travel to Europe and lack on a two-week vacation. Modern transportation also makes it possible to travel in comfort. The pioneers jolted westward over rough trails in springless wagons with wooden wheels. Today, tourists ride on paved roads over the same routes in automobiles and buses with wheels that have soft, air-filled tires. Passengers on the first trains sat on hard wooden seats and often choked in clouds of smoke and dust. Food could be obtained only at wayside stations. Many of today's trains have soft, reclining seats. Air conditioning may keep the air clean and cool, and dining cars serve tasty meals.

Transportation would not be possible without communication. It depends on communication just as communication depends on transportation. Automobiles and trucks could not travel on crowd, streets and highways without street signs and traffic lights. Automatic block signals and other means of communication enable railroads to operate safely. Lighthouses, lightships, bell buoys, and radio compasses provide information for ships at sea. Airplanes could not land and take off safely without radio, radar, and other electronic communication devices.

### **How Transportation Affects Our Life**

Without transportation our modern society could not exist. We would have no metals, no coal, and no oil. Nor would we have any products made from these materials. Besides, we would have to spend most of our time raising food – and the food would be limited to the kinds that could grow in the climate and soil of our own neighbourhoods.

Transportation also affects our lives in other ways. Transportation can speed a doctor to the side of a sick person, even if the patient lives on an isolated farm. It can take police to the scene of a crime within moments of being notified. Transportation enables teams of athletes to compete in national and international sports contents.

### TEXT – BASED ASSIGNMENTS

**I. Form nouns of the verbs by means of the following suffixes: - tion, - ion, - ment, -ation:** to produce, to transport, to develop, to communicate, to operate, to inform, to isolate, to compete.

**II. Give English equivalents:**

пасажирський літак, мчати, нерівні рейки, кондиціонування повітря, багатолюдна вулиця, дорожній знак, маяк, електронний пристрій, існувати, вирощувати їжу, бути обмеженим, хвора людина, місце злочину, повідомляти.

**III. Match Ukrainian and English equivalents:**

A	B
1. daily	a) сидіння
2. truck	b) подорожувати
3. food	c) повсякденний
4. development	d) шосе
5. pipeline	e) їжа
6. to travel	f) м'який
7. westward	g) вантажівка
8. seat	h) у західному напрямку
9. highway	i) розвиток
10. soft	j) трубопровід

**IV. Match words from columns A and B to make word combinations:**

A	B
1. natural	a) tire
2. daily	b) sign
3. travel	c) car
4. jet	d) life
5. springless	e) lights
6. air-filled	f) time
7. dining	g) gas
8. traffic	h) device
9. street	i) airliner
10. electronic	j) wagon

**V. Find out synonyms:**

A	B
1. notify	a) holiday
2. swift	b) current
3. huge	c) inform
4. rumble	d) highway
5. vacation	e) influence
6. road	f) machine
7. tasty	g) massive
8. device	h) quick
9. modern	i) delicious
10. affect	j) rattle

**VI. Complete the following sentences:**

1. Day and night swift airliners speed.... 2. Pipelines carry.... 3. Modern transportation also makes.... 4. Today tourists ride.... 5. Air conditioning may keep.... 6. Automobiles and trucks could not travel.... 7. Airplanes could not land.... 8. Without transportation .... 9. Besides we would have to.... 10. Transportation also affects....

**VII. Answer the following questions:**

1. What speed passengers through the sky? 2. How have developments in transportation cut travel time? 3. What does modern transportation make it possible? 4. What does transportation depend on? 5. What enable railroads to operate safely? 6. What would we have to spend most of our time? 7. How does transportation affect our live?

**VIII. Translate into English:**

1 Сучасні перевезення уможливають подорож у комфорті. 2. Пасажири перших потягів сиділи на твердих дерев`яних сидіннях та часто задихалися в хмарах диму і пилу. 3. Перевезення не можливі без комунікації. 4. Сучасне суспільство не може існувати без перевезень. 5. Перевезення також впливають на наше життя і іншими шляхами.

**IX. Discuss how transportation affects our lives.****X. Prepare a short report on the text.**

## UNIT 2. KINDS OF TRANSPORTATION

### 2.1. Land transportation

#### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1.	harbour	порт
2.	rural	сільський
3.	dugout	каное
4.	canoe	каное
5.	haul	перевозити
6.	freight	вантажні перевезення
7.	lumber	стройовий ліс
8.	vehicle	транспортний засіб
9.	customer	споживач
10.	scooter	моторолер

#### II. Word combinations to remember:

weather conditions – погодні умови

to determine the type of transportation – визначати тип перевезень

dog sleds – собачі запряжки

rural region – сільський район

jungle area - джунглі

means of travel – засіб пересування

remaining freight – вантажні перевезення, що залишилися

to be best suited – найбільше підходити

to play an important role – грати важливу роль

to haul freight cheaply – перевозити вантаж за низькою ціною

to drill oil wells – свердлити нафтові шпари

to lay pipelines – прокласти трубопровід

a main means of transporting people – головний засіб перевезення людей

#### III. Translate the following international words:

transportation, type, region, form, automobile, airplane, barge, service, material, role, product.

#### IV. While reading and translating the text keep in mind meanings of the following words

truck – 1. вантажівка 2. візок 3. каток, колесо.

freight – 1. перевезення вантажу 2. фрахт судна 3. тоннаж

haul – 1. тягнути 2. перевозити, транспортувати 3. волокни

## LAND TRANSPORTATION

There are three main kinds of transportation: (1) land, (2) water, and (3) air. Each has advantages and disadvantages. For example, trucks and trains can operate in storms that may ground airplanes or keep ships in harbours. Weather and geographical conditions may also determine the type of transportation used in a region. In snowbound arctic regions, dog sleds remain one of the most dependable means of land transportation. Sure-footed donkeys and llamas are still an important form of land transportation on the narrow mountain trails of rural regions in Latin America. In some jungle areas of South-eastern Asia, dugout canoes provide the swiftest means of travel.

**On Land**, the chief forms of transportation are (1) automobiles, (2) railroads, (3) trucks, and (4) pipelines.

Automobiles provide the most important means of passenger travel almost in all countries. They account for more than four fifths of all the miles travelled by people. The remaining passenger travel is about equally divided among airplanes, trains, and buses. The automobile also is important in land transportation especially in Western Europe and some, other parts of the world.

**Railroads** haul about half of the freight transported in the United States. Trucks carry about a fifth of this freight, and pipelines transport a little less than a fifth. Boats, barges, and airplanes transport the remaining freight. Railroads have equal or greater importance in the transportation of freight in Canada, Europe, and other areas. In addition to hauling freight, most railroads provide passenger service between cities and towns. Commuter trains transport thousands of persons daily between their homes in suburban areas and large cities.

Railroads move every type of material, but are best suited to great quantities of heavy freight. For this reason, railroads play an important role in transporting coal, iron ore, grain, lumber, and other heavy products. Trains can haul freight cheaply because single locomotive can pull as many as 200 freight cars.

**Trucks** cost relatively more than railroads for transportation, because they require more power and more men to move the same amount of freight. But trucks can travel wherever there are roads. Special trucks used in logging, mining, drilling oil wells, and laying pipelines can operate even in areas that lack roads.

The big trucks we see on the highways carry from 15 to 20 tons of freight. Any company or factory with this much freight to ship can load a truck at its door. The truck can then be driven directly to the customer's door.

**Other Methods of Land Transportation** include buses, streetcars, electric elevated trains, subway trains, motorcycles, motor scooters, bicycles. Buses serve as a main means of transporting people in cities in many parts of the world, and also within larger cities and towns. Streetcars, elevated trains, and subway trains usually found only in larger cities, people in some countries use motorcycles, motor scooters, and bicycles as widely as Americans and Canadians use automobiles. The high cost of petroleum fuels outside the United States and Canada prevents most persons from driving vehicles that use as much gasoline as automobiles.

## TEXT – BASED ASSIGNMENTS

**I. Choose English equivalents:**

- |                  |                   |                 |               |
|------------------|-------------------|-----------------|---------------|
| 1. перевага      | a) advantage      | b) disadvantage | c) disengage  |
| 2. умова         | a) action         | b) condition    | c) evolution  |
| 3. перевезення   | a) transportation | b) addition     | c) production |
| 4. забезпечувати | a) account        | b) determine    | c) provide    |
| 5. важливий      | a) important      | b) essential    | c) chief      |
| 6. вантаж        | a) trail          | b) freight      | c) train      |
| 7. вимагати      | a) acquire        | b) equal        | c) require    |
| 8. перевозити    | a) haul           | b) travel       | c) move       |
| 9. запобігати    | a) prevent        | b) keep         | c) divide     |
| 10. залишатися   | a) drive          | b) carry        | c) remain     |

**II. Translate into Ukrainian:**

operate, harbour, arctic region, snowbound, swiftest means of travel, pipeline, account, passenger travel, freight, importance, commuter train, suit, iron ore, mining.

**III. Match words from columns A and B to make word combinations:**

- | A               | B                 |
|-----------------|-------------------|
| 1. to have      | a) scooter        |
| 2. geographical | b) freight        |
| 3. dog          | c) wells          |
| 4. rural        | d) condition      |
| 5. commuter     | e) area           |
| 6. heavy        | f) sleds          |
| 7. oil          | g) advantages     |
| 8. motor        | h) transportation |
| 9. jungle       | i) region         |
| 10. land        | j) train          |

**IV. Find out synonyms:**

- | A            | B            |
|--------------|--------------|
| 1. operate   | a) buyer     |
| 2. determine | b) kind      |
| 3. chief     | c) guard     |
| 4. freight   | d) cargo     |
| 5. haul      | e) area      |
| 6. type      | f) carry     |
| 7. move      | g) decide    |
| 8. customer  | h) transport |
| 9. prevent   | i) work      |
| 10. region   | j) main      |

**V. Decide whether the statements are true or not. Correct the wrong ones:**

1. There are two main kinds of transportation.
2. Automobiles provide the most important means of passenger travel almost in all countries.
3. Railroads haul all the freight transported in the United States.
4. Commuter trains transport thousands of persons daily between their homes in suburban areas and large cities.
5. Automobiles account for more than two fifths of all the miles travelled by people.

**VI. Complete the following sentences:**

1. Weather and geographical conditions....
2. In some jungle areas of South-eastern Asia....
3. Most railroads provide ....
4. Railroads are best suited to. ....
5. Trains can haul freight cheaply because....
6. Special trucks used in....
7. Other methods of land transportation include....
8. The high cost of petroleum fuels prevents....
9. The big trucks we see on the highways carry....
10. In snowbound arctic regions dog sleds remain...

**VII. Answer the following questions:**

1. What are three main kinds of transportation?
2. What may determine the type of transportation?
3. What are the chief forms of transportation on land?
4. What do automobiles provide?
5. What are railroads best suited for?
6. What are special trucks used for?
7. What do other methods of transportation include?

**VIII. Translate into English:**

1. Існує три види перевезень.
2. Автомобілі - це найважливіший засіб пасажирських перевезень в усіх країнах.
3. Погода та географічні умови визначають тип перевезень у регіоні.
4. Залізниці відіграють важливу роль у перевезенні вугілля, залізної руди та інших товарів.
5. Великі вантажівки перевозять від 15 до 20 тон вантажу.

**IX. Speak about:**

- advantages and disadvantages of different kinds of transportation
- the chief forms of transportation on land
- other methods of land transportation

**X. Make up a plan of the text; prepare a short report on the text.**



## 2.2 Water and air transportation

### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1. inland	внутрішній
2. deposit	родовище
3. freighter	вантаж, морське судно
4. iron	чорний метал
5. efficient	ефективний
6. artery	артерія
7. chrome	хром
8. manganese	марганець
9. barrier	перепона
10 helicopter	вертоліт

#### II. Word combinations to remember:

to provide cheap water transportation – забезпечувати дешеві перевезення водою

important means of water transportation – важливий засіб перевезень водою

to haul large quantities of heavy goods – перевозити велику кількість важкого вантажу

neighbouring countries – сусідні країни

manufactured goods – промислові товари

to flash around the world – мчатися по світу

to follow the shortest route between two points – прямувати найкоротчим шляхом між двома точками

water barriers – водні перепони

to carry passengers and mail – перевозити пасажирів та пошту

high cost of air transportation – висока вартість перевезень повітрям

downtown areas – центральна частина міста

suburban areas – приміські райони

all kinds of rescue work – усі види рятувальних робіт

to pluck injured climbers from mountains – діставати поранених альпіністів з гір

police department – поліцейське відділення

to patrol waterfront areas – охороняти території біля порту

crowded highways - перевантажні дороги

**III. Translate the following international words:**

ocean, system, deposit, million, transportation, canal, artery, product, banana, passenger, region, police, chrome, airplane.

**IV. State the part of speech of the following words:**

transportation, huge, provides, million, for, along, barge, they, other, include, chrome, across, important, most, all, enable, some.

## WATER AND AIR TRANSPORTATION

**On Water,** transportation follows chief routes: (1) on lakes (2) on rivers, and (3) across oceans.

**Lake Transportation.** The United States and Canada are the only countries with the advantage of a system of inland waterways like the Great Lakes. The lakes form the heart of the St. Lawrence Seaway. Huge deposits of iron ore lie to the west of these lakes, and great quantities of coal are mined to the south and east. Large specially designed freighters provide cheap water transportation to bring millions of tons of coal and iron.

**River Transportation** provides cheap, efficient water transportation for many countries. For this reason, much heavy industry has been located along the rivers.

River barges also serve as an important means of water transportation in different countries. They haul large quantities of heavy goods on the rivers and canals of Belgium, The Netherlands, France, and West Germany. In China, tiny sampans and other river boats provide transportation on the larger rivers.

**Oceans** serve as the main arteries of transportation between continents. Ocean ships carry about two thirds of the goods between the United States and other countries. Most of the rest of this trade is with the neighbouring countries of Canada and Mexico. It moves by trains, trucks, and lake steamers. The largest quantities of goods shipped across oceans include petroleum, coal, grain, and iron ore. But ocean ships transport nearly every product produced or raised by man. Great refrigerated ships bring bananas from Central America to the United States. Industrial nations imports mahogany, chrome, and manganese by ship from various regions and send automobiles, machinery, and other manufactured good to all parts of the world.

**In the Air.** Jet airliners enable travellers to eat breakfast in New York City and have dinner in London. Jets speed passengers and mail over the 3,250 air miles separating the two cities in only some hours. In the 1500's, it took one of Ferdinand Magellan's sailing ships, the *Victoria*, three years to make the first

trip around the world. A jet airplane can flash around the world in about 36 hours.

Airplanes usually follow the shortest route between two points, because they can fly over mountains and water barriers. They carry chiefly passengers and mail. Not much freight is shipped by air, because of the high costs of air transportation.

Helicopters are also important in air transportation. In some large cities, helicopters ferry passengers and mail between airports and downtown areas. They also carry mail to suburban areas. In addition, helicopters are used in all kinds of rescue work, such as plucking injured climbers from mountains. Some police departments use helicopters to patrol waterfront areas and crowded highways.

## TEXT – BASED ASSIGNMENTS

### I. Translate into Ukrainian:

chief, advantage, inland waterways, deposit, mine, efficient, barge, haul, heavy goods, trade, neighbouring, steamer, grain, mahogany, manganese, mail, route, freight, helicopter, rescue work.

### II. Give English equivalents:

південь, забезпечувати, важка промисловість, важливий, торгівля, товари, вугілля, імпортувати, розділяти, вартість, приміський район, величезний, дешевий, зерно, вирощувати, подорож.

### III. Match Ukrainian and English equivalents:

A	B
1. route	a) імпортувати
2. advantage	b) торгівля
3. deposit	c) маршрут
4. barge	d) устаткування
5. provide	e) перевага
6. trade	f) вантаж
7. import	g) баржа
8. machinery	h) центральна частина міста
9. freight	i) забезпечувати
10. downtown	j) поклад

### IV. Find out synonyms of the given words among those in brackets:

1. enable 2. carry. 3. cheap 4. inland 5. route 6. important 7. machinery  
(a) equipment b) bring c) domestic d) significant e) way f) inexpensive g) empower)

**V. Find out antonyms of the given words among those in brackets:**

1. heavy 2. growth 3. inland 4. large 5. high 6. advantage

(a) low b) foreign c) light d) decline e) small f) disadvantage)

**VI. Make the word combinations using the words in both columns:****A**

1. cheap
2. inland
3. heavy
4. huge
5. neighbouring
6. suburban
7. rescue
8. manufactured
9. police
10. crowded

**B**

- a) area
- b) highways
- c) goods
- d) work
- e) department
- f) transportation
- g) countries
- h) waterway
- i) industry
- j) deposits

**VII. Complete the following sentences:**

1. The United States and Canada are the only countries .... 2. Large specially designed freighters provide .... 3. River barges serve as .... 4. Ocean ships carry about .... 5. The largest quantities of goods shipped across oceans include .... 6. Industrial nations imports .... 7. Jet airliners enable travelers .... 8. Not much freight .... 9. Helicopters are.... 10. Helicopters are used ....

**VIII. Answer the following questions:**

1. What routes does transportation follow on water? 2. What provide cheap water transportation? 3. Why have heavy industries been located along the rivers? 4. What do barges haul? 5. What are the oceans? 6. What do ocean ships transport? 7. What are helicopters?

**IX. Fill in the table summarizing the information of the text:**

<b>Kinds of transportation</b>	<b>Main characteristic features</b>
<b>1.</b>	
<b>2.</b>	

**X. Make up a plan of the text; prepare a short report on the text.**

## UNIT 3. PROBLEMS OF TRANSPORTATION

### 3.1. Problems of transportation

#### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1. detour	обхід, об'їзд
2. severe	шпаркий, потужний
3. endanger	наражати на небезпеку
4. brittle	неміцний, ламкий
5. termite	терміт
6. desert	безлюдний
7. violent	сильний, великий
8. wharf	пристань, причал
9. pier	дамба
10. iceberg	айсберг

#### II. Word combinations to remember:

to overcome problems – перемагати проблеми

to depend on weather – залежати від погоди

to fill sails – наповнювати вітрила

weather conditions – погодні умови

desert region – безлюдний регіон

daytime temperature – денна температура

to operate swiftly and safely – працювати швидко та безпечно

a good system of paved roads – гарна система ґрунтових доріг

to be conveniently located – зручно розміщуватися

to cause accident – спричиняти аварії

to provide services – забезпечувати обслуговування

#### III. Translate the following international words:

service, ocean, electronic, temperature, region, problem, telegraph, termite, pilot, radar, radio.

#### IV. Translate words with the same root:

to consult – consultant – consultation

to operate – operation – operational

to develop – developer – development

## PROBLEMS OF TRANSPORTATION

Many problems must be overcome in the task of transporting people and materials from one place to another. Transportation services must be able to operate day and night, the year around, in all kinds of climate and weather. They must be able to operate over mountains and rivers, and through snow and storms.

**Climate and Weather.** In the days of sailing ships transportation by water depended almost entirely on the weather. Ships needed favorable winds to fill their sails. Sailors often made long detours to sail through waters where they could depend on the wind. Storms often sank or disabled sailing vessels. Even today weather conditions are a problem to water transportation. Ocean liners usually try to sail around severe storms rather than through them. In the North Atlantic, icebergs endanger ships in certain months. Fog always threatens vessels, even though many ships have the electronic "eyes" of radar.

On land, snow and ice often block railroads and highways. In extreme northerly regions, it is difficult to build railroads and highways, because the ground stays permanently frozen a short distance below the surface. During the summer, the surface of such ground thaws and becomes a muddy bog. In winter, the extremely low temperatures in these areas make steel rails so brittle that they break easily.

In rainy tropical regions, dense jungles must be cleared before railways and roads can be built. In these regions, railroads must use steel ties and telegraph poles. Wooden poles and ties rot in tropical climates. They may also be destroyed by termites. In desert regions, such as the Sahara, the Gobi, and the south-western United States, extremely high daytime temperatures cause transportation equipment to overheat and break down. Drifting sand blows into machinery, and may block roads and railroad tracks.

But weather is the greatest threat to air transportation. Small aircraft caught in violent storms must either fight their way through or find a safe landing place. All pilots consult weather reports maps before taking off, so they can avoid bad weather conditions. Since the 1940's, radio, radar, and other electronic devices have made flying safer.

### Aids to Transportation

Modern transportation can operate swiftly and safely because of the many aids to transportation that have been developed. Automobiles and trucks would be useless without a good system of paved roads. Bridges and tunnels help speed land vehicles across rivers, mountains, and other barriers. Ships require safe harbors equipped with wharves and piers in order to load

and unload their cargoes. Airplanes could not speed passengers throughout the world without airports conveniently located near cities.

Air, railroad, bus, and ship transportation are remarkably safe today. Railroads have automatic signals and instruments that send sound waves to check steel rails for flaws that might cause accidents. The engineer may have a radiotelephone in his locomotive cab.

Buses have been improved by such devices as air-suspension systems in place of springs. All water traffic, whether on oceans, rivers, or lakes, has been made safer by radio, radar, and such devices as gyrocompasses. Radio puts ships in touch with shore and with other vessels. Radar enables them to "see" through fog, storms, and darkness. Airplanes patrol major ship routes to assist in rescues in case of accidents. Ships of the International Ice Patrol warn of the presence of icebergs. Radio and radar provide much the same services for aircraft. Accurate weather information permits planes to fly over or around most storms.

## TEXT – BASED ASSIGNMENTS

### I. Choose English equivalents:

- |                |                   |                |               |
|----------------|-------------------|----------------|---------------|
| 1. залежати    | a) to define      | b) to depend   | c) to develop |
| 2. перемагати  | a) to overcome    | b) to operate  | c) to sail    |
| 3. залізниця   | a) highway        | b) railroad    | c) ground     |
| 4. перевезення | a) transportation | b) temperature | c) telegraph  |
| 5. обладнання  | a) vessel         | b) condition   | c) equipment  |
| 6. руйнувати   | a) to provide     | b) to destroy  | c) to brittle |
| 7. авіація     | a) aircraft       | b) pilot       | c) report     |
| 8. порт        | a) vehicle        | b) wharf       | c) harbour    |
| 9. безпечний   | a) sound          | b) safe        | c) swift      |
| 10. вантажити  | a) to load        | b) to speed    | c) to assist  |

### II. Translate into Ukrainian:

to depend, favorable, vessel, to brittle, tropical region, short distance, to destroy, desert region, equipment, to overheat, drifting sand, violent storm, to take off, electronic device, aid, paved roads, cargo, safe.

### III. Give

- a) **synonyms of the following words:** to overcome, vessel, block, threat, to avoid, safe, aid.
- b) **antonyms of the following words:** low, to avoid, bad, safe, modern.

**IV. Match words from columns A and B to make word combinations:**

A	B
1. to overcome	a) temperature
2. weather	b) sand
3. ocean	c) pole
4. muddy	d) place
5. low	e) liners
6. dense	f) climate
7. telegraph	g) bog
8. tropical	h) conditions
9. drifting	i) jungle
10. landing	j) problems

**V. Complete the following sentences:**

1. Transportation services must be able .... 2. In the days of sailing .... 3. In extreme northerly regions, it is difficult.... 4. In rainy tropical regions .... 5. Drifting sand blows .... 6. But weather is.... 7. All pilots consult weather reports .... 8. Modern transportation can operate .... 9. Ships require .... 10. Railroads have ....

**VI. Decide whether the statements are true or not. Correct the wrong ones:**

1. Transportation services must be able to operate day and night, the year round, in all kinds of climate and weather.
2. In the North Atlantic icebergs help ships.
3. In extreme northerly regions, it is easy to build railroads and highways.
4. In rainy tropical regions dense jungles must be cleared before railways and roads can be built.
5. Weather is not the threat to air transportation.
6. Modern transportation can operate swiftly and safely.
7. Bridges and tunnels help speed land vehicles across rivers, mountains and other barriers.
8. Airplanes could speed passengers throughout the world without airports conveniently located near cities.
9. Air, railroad, bus and ship transportation are remarkably safe today.
10. Radio puts ships in touch with shore and with other vessels.

**VII. Answer the following questions:**

1. What did transportation by water depend on in the days of sailing ships?
2. Why is weather conditions a problem to water transportation?
3. What do snow and ice often block?



4. Why is it difficult to build railroads and highways in extreme northerly regions?
5. Why must railroads use steel ties and telegraph poles in rainy tropical regions?
6. What is the greatest threat to air transportation?
7. What are aids to transportation?

### **VIII. Translate into English:**

1. Навіть сьогодні погодні умови – це проблема для перевезень водою. 2. У районах крайньої півночі важко будувати залізниці та дороги. 3. Погода також найбільша загроза для перевезень повітрям. 4. Сучасні перевезення швидкі та безпечні. 5. Перевезення водою стали безпечні завдяки радіо, радарам тощо.

### **IX. Speak about:**

- problems of transportation
- aids to transportation

### **X. Make up a plan of the text; prepare a short report on the text.**

## UNIT 4. TRANSPORTATION IN DEVELOPED COUNTRIES

### 4.1. U.S. Transportation

#### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1.	dweller		мешканець
2.	obliging		послужливий
3.	available		доступний, досяжний
4.	even		парний
5.	designate		визначати, вказувати
6.	resume		відновлювати
7.	apparent		очевидний, явний
8.	legislation		законодавство
9.	eliminate		ліквідувати, усувати
10.	identify		розпізнавати

#### II. Word combinations to remember:

to make an impact – впливати

to do marketing – торгувати

to bring great changes – приводити до великих змін

to make a real effort – робити справжні зусилля

to grant money – виділяти гроші

odd numbers – непарні числа

even numbers – парні числа

dual highway – дорога з двох смуг

a separating strip – розподільна смуга

opposing lanes – зустрічні смуги

cloverleaf intersection – перетин у різних рівнях типу «конюшиний

лист»

designated point – призначене місце

to ration gasoline – нормувати бензин

to be apparent – бути явним

a major effort – велике зусилля

interstate highway – федеральна дорога

to pass legislation – приймати закон

traffic lights- світлофор

running time – тривалість руху автомобіля

digit numbers – однозначні числа

alternate roads – переміжні дороги  
 to rejoin the main road – приєднуватися до головної дороги

### III. State the part of speech of the following words:

interstate, speed, when, odd, make, eliminating, with, resume, same, higher, first, the most.

### IV. While reading and translating the text keep in mind meanings of the following words:

map – 1. мапа, карта 2. план 3. відображати  
 permit – 1. дозволяти 2. надавати можливість 3. допускати  
 state – 1. держава 2. штат 3. стан 4. структура, форма 5. становище

## U.S TRANSPORTATION

An interstate highway system was built.

The automobile made an impact on the country farmer as well as the city dweller. He could go beyond the neighboring village to a larger town to do his marketing. Farm mechanization was speeded by developments in automotive engineering and manufacturing. The automobile brought great changes to country roads. Early motorists frequently stuck on muddy roads and usually had to get an obliging farmer to pull the car, out with a team of horses. As more motorists appeared, there were more demands for all-weather roads.

During the '1920' a several states were making a real effort to hard-surface their roads. The United States Government also granted money to the states to build federal highways. A numbering system began to be used on these highways, and road maps became available at service stations. In general, odd numbers were given to north-south highways and even numbers were given to east-west highways. For instance, U.S.1 was the major north-south highway along the Atlantic Coast; from Maine to Florida. U.S.30, the Lincoln Highway, was the first major transcontinental highway.

As automobiles became more powerful and traffic increased, paved roads alone were not enough. Dual highways patterned after the German Autobahnen provided a separating strip between opposing lanes of traffic. Cloverleaf intersections allowed cars to enter and leave express highways only at designated points. World War II brought about the reduction in highway travel as gasoline was rationed and automobile assembly lines turned to the production of tanks, jeeps, and other military equipment. Few new roads were built.

In the post-war period the race between the automobile builders and the road builders resumed. By 1956 it was apparent that a major effort at new highway construction was needed, that year, Congress passed legislation

whereby the federal government would pay 90 per cent of the cost of constructing a new Interstate Highway system. This law provided for the construction of over 40,000 miles of new highways over a period of about sixteen years. By eliminating traffic lights and permitting constant high speeds, these new roads have reduced the running time, between cities.

The Interstate Highways are identified by special signs. The numbers follow the same system as that of the federal system. Unlike the old system where the numbers become higher to the west and south, interstate numbers become higher to the east and north. Three digit numbers are used for alternate roads and if the first digit is even, it means that the alternate road will rejoin the main road.

## TEXT – BASED ASSIGNMENTS

### I. Translate into Ukrainian:

interstate highway, neighbouring village, city dweller, automotive engineering, to stuck on muddy road, all-weather roads, numbering system, service station, transcontinental highway, assembly line, military equipment, race, law, special signs, digit, main road.

### II. Give English equivalents:

торгувати, запряг коней, федеральний, дорожня мапа, наприклад, потужний, рух, скорочення, законодавство, світлофор, дозволяти, висока швидкість, розпізнавати, однозначний, приєднуватися, будівництво доріг, танк, устаткування.

### III. Match Ukrainian and English equivalents:

A	B
1. impact	a) знищувати
2. to speed	b) копіювати
3. to pull	c) число
4. demand	d) забезпечувати
5. available	e) витягувати
6. pattern	f) постійний
7. to provide	g) досяжний
8. constant	h) вплив
9. to eliminate	i) вимога
10. number	j) прискорювати

### IV. Find out synonyms of the given words among those in brackets:

1. impact 2. road 3. dweller 4. instance 5. to increase 6. traffic 7. equipment

a) transport b) enlarge c) influence d) highway e) inhabitant f) example  
g) machinery )

**V. Make the word combinations using the words in both columns:**

**A**

1. city
2. traffic
3. paved
4. running
5. cloverleaf
6. designated
7. opposing
8. to grant
9. odd
10. federal

**B**

- a) intersection
- b) system
- c) lane
- d) number
- e) money
- f) roads
- g) dweller
- h) point
- i) time
- j) lights

**VI. Complete the following sentences:**

1. The automobile made an impact on.... 2. Early motorists stuck on muddy roads and had to.... 3. A numbering system began to be used .... 4. As automobiles became more powerful and traffic increased.... 5. Cloverleaf intersections allowed cars .... 6. In the post-War period.... 7. By 1956 it was apparent.... 8. By eliminating traffic lights .... 9. The Interstate Highways are identified.... 10. Three digit numbers are used for....

**VII. Answer the following questions:**

1. What did automobile bring to country roads? 2. When did a numbering system begin to be used? 3. What were odd numbers given? 4. What were even numbers given? 5. What did dual highways provide? 6. What was it apparent by 1956? 7. How are the Interstate Highways identified?

**VIII. Find an appropriate word for each blank space using the following words:**

<b>lanes of traffic</b>	<b>World war II</b>	<b>special signs</b>	<b>money</b>
	<b>an obliging farmer</b>	<b>service station</b>	<b>traffic lights</b>

1. Early motorists stuck on muddy roads and usually had to get ... to pull the car out.

2. The United States Government also granted ... to the states to build federal highways.

3. Dual highways provided a separating strip between opposing ....

4 A numbering system began to be used on the highways and road maps became available at ....

5. ... brought about reduction in highway travel as gasoline was rationed.

6. By eliminating ... and permitting constant high speeds, these new roads have reduced the running time between cities.

7. The Interstate Highways are identified by ....

### **IX. Speak about:**

- pre-war period in U.S. transportation
- post-war period in U.S. transportation

### **X. Make up a plan of the text; prepare a short report on the text.**

## **4.2. Transportation in Great Britain**

### **PRE -TEXT EXERCISES**

#### **I. Mind the pronunciation of the following words:**

1. haulage	буксирування, доставка
2. trunk	магістраль, головна лінія
3. upkeep	утримання
4. exchequer	казна
5. authority	влада
6. borough	міський район
7. network	мережа
8. eliminate	ліквідувати
9. bottleneck	затор
10. outlet	вихід

#### **II. Word combinations to remember:**

coastal shipping – берегове судноплавство

inland waterways – внутрішній водний шлях

bulk cargoes – насипний вантаж

private enterprise – приватне підприємство

the highest density of road traffic – найвища щільність дорожнього руху

public highways – автомобільна магістраль

principal roads – магістральна дорога національного значення

trunk roads – магістральна дорога

the main arteries of national traffic – головні артерії національного руху

cost of the upkeep – вартість утримання

Exchequer funds – фонди казни

to eliminate bottlenecks – усувати дорожні затори

to give free outlet – давати вільний вихід

main sources of traffic – головні джерела руху

### **III. Translate the following international words:**

passenger, type, proportion, system, private, artery, national, transport, program.

### **IV. In each set of words find out the word that does not have a similar meaning with others:**

1. Highway, road, role, motorway, traffic.
2. Principal, main, basic, effective, major.
3. Obtain, receive, acquire, attain, issue.
4. Load, freight, cargo, ship, bulk.
5. Important, particular, significant, vital, grave.
6. Provide, supply, ensure, service, secure.
7. Fundamental, key, functional, cardinal, essential.
8. Perform, fulfill, do, restore, complete, work.

## **TRANSPORTATION IN GREAT BRITAIN**

Nowadays the dense passenger and freight traffic of Great Britain is carried mainly by road and rail, although coastal shipping and, to a lesser extent, inland water ways and pipelines are important in carrying certain types of freight, particular bulk cargoes. A small but increasing proportion goes by air.

Part of the inland transport system of Great Britain is nationalized; namely, the railways, passenger transport in the London are a large proportion of road passenger and some road haulage services, most of the inland waterways and some of the vessels on them. Road haulage is largely, and coastal shipping almost entirely, in the hands of private enterprise.

Roads. Britain has the highest density of road traffic in the world. Great Britain has public highways, trunk roads including motorways, principal roads and other roads. Trunk roads are the main arteries of national traffic and the whole cost of their upkeep is met from Exchequer funds. The Minister of transport is the highway authority for trunk roads in England. The highway

authority for principal roads is, in general, the council of the county or county borough in whose area the roads lie.

The motorways form part of a program designed to provide a national network of modern through routes. At the same time, work done under this programme is eliminating some of the worst bottlenecks in urban areas and thus helping to give free outlets from the big cities and from other main sources of traffic to the trunk routes.

## TEXT – BASED ASSIGNMENTS

### I. Translate into Ukrainian:

freight traffic, coastal shipping, waterways, pipeline, haulage, vessel, private, density, trunk roads, principal roads, public highways, cost, upkeep, authority, design, provide, network, eliminate, bottleneck, free, outlet, source, route, motorway, county borough.

### II. Choose English equivalents:

1. магістраль	a) trunk	b) truck	c) traffic
2. влада	a) author	b) authority	c) artery
3. забезпечувати	a) to increase	b) to provide	c) to carry
4. вантаж	a) highway	b) capacity	c) cargo
5. мережа	a) network	b) nation	c) name
6. ліквідувати	a) evaluate	b) eliminate	c) entire
7. вихід	a) upkeep	b) outlet	c) county
8. затор	a) density	b) proportion	c) bottleneck
9. казна	a) exchequer	b) exchange	c) haulage
10. приватний	a) program	b) private	c) principal

### III. Match words from columns A and B to make word combinations:

A	B
1. coastal	a) road
2. bulk	b) borough
3. inland	c) bottlenecks
4. passenger	d) funds
5. private	e) shipping
6. public	f) cargo
7. trunk	g) transport
8. Exchequer	h) waterways
9. county	i) highway
10. to eliminate	j) enterprise



**IV. Decide whether the statements are true or not. Correct the wrong ones:**

1. Part of the inland transport system of Great Britain is nationalized.
2. Britain has the smallest density of road traffic in the world.
3. Trunk roads are the main arteries of national traffic and the whole cost of their upkeep is met from Exchequer funds.
4. Road haulage is largely and coastal shipping almost entirely in the hands of the government.

**V. Choose the most appropriate answer to complete the sentence:**

1. Nowadays the dense passenger and freight traffic of Great Britain is carried mainly by:
  - a) shipping;
  - b) road and rail;
  - c) air.
2. The main arteries of national traffic are:
  - a) motorways;
  - b) principal roads;
  - c) trunk roads.
3. The highway authority for trunk roads is:
  - a) Minister of Transport;
  - b) Exchequer funds;
  - c) Minister of Finance.
4. The highway authority for principal roads is :
  - a) Minister of transport;
  - b) the council of the county;
  - c) government.

**VI. Answer the following questions:**

1. What is the dense passenger and freight traffic of Great Britain carried by?
2. What proportion goes by air?
3. What transport system of Great Britain is nationalized?
4. What kinds of roads does Great Britain have?
5. What are trunk roads?
6. What is the highway authority for principal roads?
7. What program is designed?

**VII. Translate into English:**

1. Частина внутрішньої транспортної системи Британії націоналізована.
2. Британія має найвищу щільність дорожнього руху у

світі. 3. Магістральні дороги – головні артерії національного дорожнього руху. 4. Ця програма ліквідує дорожні затори у міських районах.

**VIII. Identify types of roads:**

Public highways: .....

Trunk roads: .....

Principal roads: .....

**IX. Speak about:**

- trunk roads;
- principal roads;
- motorways.

**X. Make up a plan of the text; prepare a short report on the text.**

## UNIT 5. TRAFFIC CONTROL

### 5.1 Traffic Control

#### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1.	cybernetic	кібернетичний
2.	aerodrome	летовище
3.	dispatcher	диспетчер
4.	nervous	нервовий
5.	collide	зіткнутися
6.	obstacle	перешкода
7.	luminous	світлий
8.	deviation	відхилення
9.	loop	петля
10.	measurement	вимірювання

#### II. Word combinations to remember:

to tackle problems – торкатися проблем

information exchange – обмін інформацією

potential danger – потенційна небезпека

nervous strain – нервова напруга

to carry out research – проводити дослідження

to prevent the vehicle from colliding – попереджати зіткнення транспортного засобу

to adjust steering wheel – регулювати рульове колесо

road accidents – дорожні аварії

poor visibility – погана видимість

to apply brakes – застосовувати гальма

critical situation – критична ситуація

#### III. Translate words with the same root:

to inform – informer – information

to adjust – adjustment – adjustable

to respect – respectable - respectful

#### IV. While reading and translating the text keep in mind meanings of the following words:

idea - 1. ідея 2. поняття 3. думка, задум

solution – 1. розчин 2. розчинення 3. рішення 4. рідкі ліки  
 screen – 1. щит, екран 2. тин 3. сітка від комах 4. завіса 5. сито

### **AUTOMATIC TRAFFIC CONTROL: GUARANTEE OF SAFETY**

A large number of cybernetic problems are being tackled in air transport. The growing intensity of air traffic has called for the automation of its control. The world's biggest airports handle up more than 1,000 planes a day. The dangerous situations that often arise as a result tell on an aerodrome's capacity.

Tin automatic air traffic system takes over a large proportion of the work involved in the information exchange between dispatcher and pilot. At the same time, it carries out all sorts of calculations and warns the dispatcher of potential dangers, thus taking a lot of nervous strain and effort out of his work.

Fundamental research is being carried out into the automation of automobile driving. The "robot driver" system is called upon to do two things: to keep the vehicle on the road and to prevent it from colliding with the cars ahead or running into obstacles. The first problem was solved experimentally by tracing a luminous line on the road and fitting a car with a photocell which keeps an "eye" on tin line, and, through a set of actuating mechanisms, adjusts steering wheel in case of the slightest deviation from the present course.

The second problem is more complex, both technically and economically. Life itself insistently calls for its solution, for, according to international statistics, road accidents kill 250,000 people a year. Two ideas are considered the most practicable in this respect – the use of microwave radar which probes the stretch of the road lying ahead of the moving car and presents the road situation on a dashboard screen. In conditions of poor visibility, it can always take over the steering wheel and brake control. The other idea is to lay "loops" of current-carrying cable under the road surface. When a car passes over such a loop, the latter's magnetic characteristic changes, this being a source of information for the car following immediately behind. The latter's transducers pick up the signal and transmit continuous measurements of the distance to the leading car, its speed and the gain rate. In critical situations, the engine is stopped and the brakes are applied automatically.

### **TEXT – BASED ASSIGNMENTS**

#### **I. Choose English equivalents:**

- |                |               |               |              |
|----------------|---------------|---------------|--------------|
| 1. торкатися   | a) to tackle  | b) to take    | c) to keep   |
| 2. небезпечний | a) luminous   | b) dangerous  | c) fitting   |
| 3. обсяг       | a) control    | b) condition  | c) capacity  |
| 4. обмін       | a) change     | b) exchange   | c) engine    |
| 5. запобігати  | a) to prevent | b) to provide | c) to handle |

6. фотоелемент	a) radar	b) robot	c) photocell
7. відхилення	a) deviation	b) creation	c) motivation
8. щиток управління	a) wheel	b) dashboard	c) obstacle
9. поверхня	a) situation	b) surface	c) steering
10. приймач	a) transducer	b) loop	c) distance

### II. Translate into Ukrainian:

to grow, intensity, cybernetic, traffic system, vehicle, effort, to keep, obstacle, colliding, to adjust, to prevent, course, to present, road situation, to pass, to pick up, to transmit, to apply, visibility, measurement, leading car, loop, speed, steering wheel, dashboard.

### III. Find out synonyms:

A	B
1. to prevent	a) to transfer
2. to adjust	b) settlement
3. exchange	c) machinery
4. capacity	d) concept
5. calculation	e) interchange
6. obstacle	f) volume
7. idea	g) computation
8. to transmit	h) to avoid
9. solution	i) barrier
10. mechanism	j) to regulate

### IV. Match words from columns A and B to make word combinations:

A	B
1. to carry out	a) steering wheel
2. cybernetic	b) visibility
3. information	c) characteristics
4. automobile	d) accident
5. to adjust	e) control
6. road	f) exchange
7. dashboard	g) driving
8. poor	h) problems
9. brake	i) calculations
10. magnetic	j) screen

### V. Find an appropriate word for each blank space:

1. Tin automatic air traffic system takes over a large proportion of the work involved in the information exchange between ... and ....

2. The robot driver system is called upon to do two things: to keep...on the road and to prevent it from ... with the cars ahead.

3. According to international statistics road accidents kill ....

4. The problem was solved experimentally by tracing ... on the road and fitting a car with ... which keeps an eye on the line and adjusts ... in case of the deviation from the present course.

**VI. Decide whether the statements are true or not. Correct the wrong ones:**

1. A large number of cybernetic problems are being tackled in air transport.

2. The world's biggest airports handle up more than 2,000 planes a day.

3. Fundamental research is being carried out into the automation of automobile driving.

4. According to international statistics road accidents kill 500,000 people a day.

5. The microwave radar presents the road situation on a dashboard screen.

6. The automatic air traffic system takes over a large proportion of the work involved in the information exchange between dispatcher and pilot.

7. In critical situations the engine is stopped and the brakes are applied automatically.

**VII. Answer the following questions:**

1. Why has air traffic called for the automation of its control?

2. What is the robot driver system called upon?

3. How was the first problem solved?

4. Why is the second problem more complex?

5. How many people are killed in road accidents a year?

6. What two ideas are considered in this respect?

7. Where are cybernetic problems being tackled?

**VIII. Translate into English:**

1. Найбільші летовища світу приймають близько 1000 літаків щодня.

2. Згідно з міжнародною статистикою автокатастрофи забирають життя 250,000 людей щороку. 3. Авіатранспорт стосується великої кількості кібернетичних проблем. 4. У критичній ситуації двигун зупиняється та автоматично застосовуються гальма.

**IX. Speak about:**

- automatic air traffic system;

- automatic road traffic system

**X. Make up a plan of the text; prepare a short report on the text.**

## UNIT 6. TRANSPORTATION. LOOKING TO THE FUTURE

### 6.1. Looking to the future

#### PRE -TEXT EXERCISES

#### I. Mind the pronunciation of the following words:

1.	expert	експерт, фахівець
2.	adventurous	відчайдушний
3.	sidewalk	тротуар
4.	lightweight	легкий
5.	tyre	шина, покриття
6.	delivery	доставлення
7.	advance	прогрес
8.	friction	тертя
9.	cushion	подушка
10.	accommodate	постачати

#### II. Word combinations to remember:

to reach any point – досягати будь-якого місця

to be adventurous and exciting – бути відчайдушним та хвилюючим

remote-controlled electronic cars – електронні автомобілі з дистанційним керуванням

moving sidewalks – тротуари, що рухаються

to find a practical place – знаходити практичне застосування

to solve the complicated problem – вирішувати складну проблему

rubber tyres – гумові шини

to be available – бути доступним

to eliminate the friction of steel wheels – усувати тертя сталевих колес

drawing board – креслярська дошка

to overcome the friction barrier – подолати перешкоду тертя

air-cushion vehicles – транспортні засоби на повітряних подушках

#### III. Translate the following international words:

expert, rocket, problem, tunnel, electronic, express, airport, centre, system, service, minute, computer, limit, transport, vibration.

## LOOKING TO THE FUTURE

Experts estimate that by the year 2030 we will go by rocket from New York to Tokyo in 30 minutes. We will be able to reach any point on the globe from any other point through tunnels deep in the earth.

The prospect is adventurous and exciting. But most people are more interested in better ways to travel during their own lifetime. It's possible, that within the next two or three decades we will be riding in remote-controlled electronic cars.

We will travel over plastic-footed climate-controlled highways.

Trips through metropolitan areas will be made on quiet, swift buses travelling on separate express lines of city streets. Helicopters may carry whole buses loaded with passengers from point to point above city traffic.

But don't look for such developments in the next 30 years. Moving sidewalks still aren't moving, and won't for some time. What about monorails? Half a dozen are already operating.

Tokyo has one that runs from the suburbs of the city to the airport but few people use it. But for some reason, no monorail system has ever been able to find a practical place.

Flying crane helicopters soon may help solve the complicated problem of getting passengers from the centre to airport and back again. A new mass transit system particularly well suited to medium sized towns is being tested now. Lightweight automated vehicles operate singly or in trains on a lightweight aerial roadway. The cars look like buses and run on four pairs of rubber tyres. Service is round-the-clock with trains running every two minutes. The system is controlled by a central computer. Electric cars are under development in a number of countries. Experts say they expect electric cars to be available within the next ten years although they believe that their use will be limited almost total to city centre delivery vans and suburban shopping cars.

Most of the advances in air transportation expected before 2030 will materialize within the next few years. The largest airplane ever designed for commercial service, capable of seating nearly 500 passengers, is already being built. Supersonic transport prototypes now in development will be forerunners of a new generation of 1,800 miles per hour passenger jet-liners.

The "ideal" short-haul air transport probably will be a vertical or short take-off and landing aircraft that will fly 30 to 45 passengers right into the heart of a city or its suburbs on trips up to 260 miles.

If engineers could eliminate the friction of steel wheels against steel rails, they would have overcome the main reason why planes go faster than trains. They would also have solved the vibration problems caused by rails and wheels that presently limit a train's speed to about 200 miles per hour.



Such trains are already on the drawing boards and in experimental models, many with neither wheels nor rails.

The engineers are trying to overcome the friction barrier with rollers and by shaping the train like an airfoil. They are working on suspending trains on a cushion of air and flying them over the ground at high speeds.

Air-cushion vehicles are getting a lot of press these days, and there's little doubt that they will be in your future. The scheme "Tube flight" is one in which air-cushion-supported vehicles will travel inside tubes at air transport speeds.

Speeds of 300 to 400 miles per hour would be practical in the "Tube flight" system on runs of 25 to 250 miles. Intervals between trains would be as low as one minute, and the system could accommodate 10,000 to 12,000 passengers per hour per tube. Higher speeds, with longer intervals and lower capacities, would be practical over longer runs. The system would be fully automated.

Some ideas of rapid transportation are on the drawing boards, some may never get off. Some are already under way and operational, while others will see the light of day. Others may not take shape until nearly the year 2030. But changes are taking place, and there are more to come.

## TEXT – BASED ASSIGNMENTS

### I. Give English equivalents:

підраховувати, хвилюючий, подорож, терміновий, міський рух, розвиток, тротуар, передмістя, вирішувати, складна проблема, надзвуковий, тертя, подолати, потужність, прогрес, злітати, вміщати.

### II. Form nouns of the verbs by means of the following suffixes: - tion, - ion, - ment, - ation:

to decide, to develop, to accommodate, to estimate, to move, to operate, to expect, to eliminate, to automate, to transport.

### III. Match Ukrainian and English equivalents:

A

1. to reach
2. adventurous
3. lifetime
4. reason
5. helicopter
6. to overcome
7. available
8. to expect
9. prototype
10. to suspend

B

- a) прототип
- b) досяжний
- c) очікувати
- d) підвішувати
- e) причина
- f) досягати
- g) подолати
- h) відчайдушний
- i) гелікоптер
- j) життя

**IV. Match words from columns A and B to make word combinations:**

A	B
1. electronic	a) board
2. express	b) trains
3. moving	c) jet-liner
4. to solve	d) friction barrier
5. rubber	e) line
6. air	f) cars
7. passenger	g) problem
8. drawing	h) tyres
9. to overcome	i) sidewalks
10. suspending	j) transportation

**V. Complete the following sentences:**

1. Most people are more interested in.... 2. Trips through metropolitan areas will be made on.... 3. A new mass transit system particularly well suited to.... 4. Experts say.... 5. The ideal short-haul air transport will be.... 6. The engineers are trying to overcome the friction barrier by.... 7. They are working on suspending trains on.... 8. The scheme "Tube flight" is one in .... 9. Intervals between trains would be .... 10. Some ideas of rapid transportation on....

**VI. Decide whether the statements are true or not. Correct the wrong ones:**

1. Experts estimate that by the year 2040 we will go by rocket from New York to Tokyo in 20 minutes.
2. We will travel over plastic-footed climate-controlled highways.
3. Flying crane helicopters soon may help solve the complicated problem of getting passengers from the centre to airport and back again.
4. A new mass transit system particularly well suited to large cities is being tested now.
5. Most of the advances in air transportation expected before 2020 will materialize within the next few years.
6. The engineers are trying to overcome the friction barrier with rollers and by shaping the train like an airfoil. .
7. Speeds of 400 to 500 miles per hour would be practical in the "Tube flight" system on runs of 25 to 250 miles.

**VII. Answer the following questions:**

1. What do experts estimate?
2. What will trips through metropolitan areas be made on?
3. What can you say about monorails?
4. What are under development in a number of countries?
5. What are on the drawing board now?
6. How can engineers overcome friction barrier?
7. What is the scheme "Tube flight"?

**VIII. Translate into English:**

1. У майбутньому ми зможемо досягати будь-якого місця на земній кулі тунелями. 2. Підвісні залізниці вже працюють. 3. Система контролюється центральним комп'ютером. 4. Інженери намагаються подолати тертя за допомогою роликів.

**IX. Write down the main idea of the text and key words.****X. Make up a plan of the text; prepare a short report on the text.**

ЕЛЕКТРОННЕ НАВЧАЛЬНО-МЕТОДИЧНЕ ВИДАННЯ

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