

MINISTRY OF HEALTH OF UKRAINE  
ODESA NATIONAL MEDICAL UNIVERSITY  
DEPARTMENT OF FOREIGN LANGUAGES

**PROFESSIONAL ENGLISH IN USE  
FOR STUDENTS OF THE DEPARTMENT OF  
PHARMACY**

ODESA – 2021

## CONTENTS:

1. Package Inserts
2. Diseases of the Upper Respiratory Tract
3. Diseases of the Lower Respiratory Tract
4. Pulmonary Tuberculosis
5. Cholecystitis
6. Renal Diseases
7. Antibiotics
8. Hypertension
9. Myocardial Infarction
10. Cardiovascular Drugs
11. Diseases of the Stomach
12. Gastrointestinal Drugs
13. Neuroses
14. CNS Drugs

## PACKAGE INSERTS

### Exercise 1. Topic vocabulary:

approve, <i>v</i>	[ə'pru:v]	consider right or good
clinical trial	['klinikl 'traɪ əl]	an experiment or observations done in clinical research
dependence, <i>n</i>	[di'pɛn dəns]	the state of relying on or being controlled by someone or something else
drug abuse	[drʌg ə'bju:z]	drug abuse or substance abuse refers to the use of certain chemicals for the purpose of creating pleasurable effects on the brain
eliminate, <i>v</i>	[ɪ'lim ə,neɪt]	remove, get rid of something
impairment, <i>n</i>	[ɪm'peəmənt]	the state of being diminished, weakened, or damaged, especially mentally or physically
indications, <i>n</i>	[,ɪndi'keɪʃənz]	symptoms that suggest that certain medical treatment is necessary

### Exercise 2. Read the word combinations and explain them:

- 1. Approve:** approve for use; approved medication; approved for treatment of neurosis.
- 2. Dependence:** physical dependence; independence; alcohol dependence; insulin dependence.
- 3. Eliminate:** eliminate side effects; eliminate waste products out of the body; eliminate vitamins.
- 4. Impairment:** physical impairment; impairment of health; impairment of a body function.

### Exercise 3. Explain the following word combinations:

licensed medicines; clinical pharmacology; absorb and eliminate; clinical trials; medication's effect on various populations; physical impairments and drug interactions; cause physical dependence; results of an overdose; storage information.

### Exercise 4. Read the text and answer the questions below:

## PACKAGE INSERTS

Package inserts or drug leaflets are leaflets containing specific information about medical conditions, doses, side effects packed with medicines to give the user information about the product. Package inserts are written by the manufacturing pharmaceutical company. All licensed medicines need to carry such a leaflet.

Package inserts follow a standard format for every medication and include the same types of information. The first thing listed is usually the brand name and generic name of the product. The other sections are as follows:

**Clinical pharmacology** tells how the medicine works in the body, how it is absorbed and eliminated, and what its effects are likely to be at various concentrations. It may also contain results of various clinical trials (studies) and/or explanations of the medication's effect on various populations (e.g. children, women, etc.).

**Indications and usage** is the section which tells about uses (indications) for which the drug has been approved (e.g. migraines, seizures, high blood pressure).

**Contraindications** are the situations in which the medication should not be used, for example in patients with other medical conditions such as kidney problems or allergies.

**Warnings** is the section which covers possible serious side effects that may occur.

**Precautions** explain how to use the medication safely including **physical impairments** and **drug interactions**.

**Adverse reactions** include all **side effects** observed in all studies of the drug (as opposed to just the dangerous side effects which are separately listed in "Warnings" section)

**Drug abuse and dependence** is the section which provides information regarding whether **prolonged use of the medication** can **cause physical dependence** (only included if applicable).

**Overdosage** is the section which gives the results of an overdose and provides recommended action in such cases.

**Dosage and administration** include recommended dosage(s); may list more than one for **different conditions** or different patients (e.g., lower dosages for children)

**Physical properties** are the physical characteristics of the medication including color, shape, markings, etc., and **storage information** (e.g., "Do not store above 95°")

1. What is a package insert?
2. What are the main sections of an information leaflet?
3. What does the section Clinical Pharmacology contain?
4. What does the section Indications and Usage contain?
5. What does the section Contraindications list?
6. What does the section Warnings cover?
7. What does the section Precautions explain?
8. What does the section Overdosage give?

**Exercise 5. Agree or disagree with the statements below:**

1. Drug abuse and dependence tell how the medicine works in the body.
2. Physical properties are the physical characteristics of the medication.
3. Contraindications are the situations in which the medication should not be used.
4. Indications and usage is the section which tells about recommended dosage(s).
5. Overdosage is the section which gives the results of an overdose and provides recommended action in such cases.
6. Clinical pharmacology is the section which provides information regarding whether prolonged use of the medication can cause physical dependence.
7. Warnings is the section which covers possible serious side effects that may occur.
8. Adverse reactions include all side effects observed in all studies of the drug.

**Exercise 6. Match the terms with their definitions:**

1. package insert					a) the section of a package insert which covers possible serious side effects;
2. contraindications					b) a leaflet containing specific information about medical conditions, doses, side effects packed with medicines to give the user information about the product;
3. warnings					c) the section of a package insert including the physical characteristics of the medication including color, shape, markings, etc., and storage information;
4. precautions					d) the section of a package insert including the situations in which the medication should not be used
5. physical properties					e) the section of a package insert which explains how to use the medication safely including physical impairments and drug interactions
1.	2.	3.	4.	5.	

**Exercise 7. Here are some sentences taken from different package inserts, read them translate and decide which sections (indications, contraindications, physical properties, side effects, etc.) they refer to:**

1. Zaditen is an antiasthmatic drug with marked antianaphylactic properties and a specific antihistaminic effect.
2. Following oral administration, Fosiopril is absorbed slowly.
3. Daflon treats venous insufficiency and oedema of venous origin by reinforcing the walls of veins.
4. Atrovent is indicated as a bronchodilator for maintenance treatment of bronchospasm.
5. Eye drops may be used for the prevention of ocular infection after removal of a corneal or conjunctival foreign body.
6. Phenergan is indicated in many allergic disorders and anaphylactic reactions including hay fever, urticaria and sensitization reactions of various drugs.
7. Dosage should be adjusted according to blood pressure response.
8. If immediate action is required, the capsule could be chewed and held in mouth.

**Exercise 8. Put questions to the underlined words:**

1. Tablets Noroxin should be stored in a tightly closed container.
2. The expiration date is mentioned on the package.
3. Renal function should be closely monitored, as it may be further impaired by the use of antihypertensive drugs.
4. Prolonged use of antibiotics may give rise to overgrowth of nonsusceptible microorganisms and

fungi.

5. Pantrisin ophthalmic solution and ointment are incompatible with other preparations.
6. Kesalamine produces an acute intolerance syndrome characterized by acute abdominal pain and bloody diarrhea.
7. Tachycardia and blood pressure generally subside after a few days.
8. Zocar may cause fatal harm when administered to a pregnant woman.

**Exercise 9. Open the brackets using the verbs in the appropriate form, translate the sentences into Ukrainian:**

1. Isocard (to contraindicate) in patients sensitive to the drug.
2. Hypersensitivity to atropine or its derivatives (to report).
3. Mesalanine is 5-amino-2-hydroxybenzoic acid, and it (to classify) as an anti-inflammatory drug.
4. Benazepril hydrochloride (to be) soluble in water, in methanol.
5. Zocor is a cholesterol lowering agent that (to derive) synthetically from a fermentation product of *Aspergillus terreus*.
6. Cetax (to indicate) for the treatment of patient with genitourinary infections caused by susceptible strains of microorganisms.
7. Suppositories (to indicate) for the treatment of active ulcerative proctitis.
8. Weight gain occasionally (to report).

**Exercise 10. Fill in the gaps with prepositions from the table below:**

at; for(3); in; from; on; with
--------------------------------

1. Package inserts follow a standard format ... every medication.
2. Effects of the medicine can be different ... different concentrations.
3. This section explains the medication's effect ... various populations.
4. This drug has been approved ... migraine.
5. Adverse reactions include all side effects observed ... all studies of the drug.
6. ... children lower dosage is recommended.
7. This ointment is incompatible ... other preparations.
8. This drug is derived synthetically ... *Aspergillus terreus*.

**Exercise 11. Put the sentences into the correct order to explain the term “package insert”:**

     A standard package insert includes a number of sections such as: clinical pharmacology, indications, contraindications, warnings, physical properties, side effects and others.

     Package inserts or drug leaflets are leaflets containing specific information about medical conditions, doses, side effects.

\_\_ Package inserts are written by the manufacturing pharmaceutical company.

\_\_ All licensed medicines need to carry such a leaflet.

\_\_ They are packed with medicines to give the user information about the product.

**Exercise 12. Read the drug leaflet and answer the questions below:**

**THERAGRAN-M TABLETS**

**COMPOSITION**

Each THERAGRAN-M tablet supplies: Vitamin A 10 000 i.u.; Vitamin D 400 i.u.; Vitamin B110 mg; Vitamin B210 mg; Vitamin B65 mg; Vitamin B125 mcg; Niacinamide 100 mg; Calcium Pantothenate 20 mg; Vitamin C 200 mg; Vitamin E 15 i.u.; Iodine 0,15 mg; Iron 12 mg; Copper 2 mg; Manganese 1 mg; Magnesium 65 mg; Zinc 1,5 mg.

**PHARMACOLOGICAL CLASSIFICATION**

Category A 22.1 Multivitamins and multivitamins with minerals.

**INDICATIONS**

THERAGRAN-M is indicated in mixed vitamin deficiencies. THERAGRAN-M supplies high potency dosages of vitamins required in chronic vitamin deficiency states, and is of clinical importance when high potency nutritional support is indicated in special medical situations. THERAGRAN-M contains all the essential vitamins for an extended vitamin coverage of multiple deficiencies resulting from unbalanced diets, pregnancy, old age, infections. convalescence and adolescence.

**WARNINGS**

Not to be used by persons who are allergic to iodine.

**DOSAGE AND DIRECTIONS FOR USE**

Adult dosage is 1 tablet daily. Do not exceed the recommended dose unless prescribed by a doctor.

**KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT**

Treatment of overdosage should be symptomatic and supportive.

**IDENTIFICATION**

A maroon coloured, capsule shaped, sugar coated tablet with an odour of vanillin.

**PRESENTATION**

Bottles of 30 tablets.

**STORAGE INSTRUCTIONS**

Store at room temperature not exceeding 25°C.

Avoid excessive heat.

**KEEP OUT OF REACH OF CHILDREN.**

1. What kind of medical preparations is THERAGRAN-M?
2. What vitamins and minerals does it supply for the body?
3. In which cases is THERAGRAN-M indicated?
4. Who shouldn't use THERAGRAN-M?
5. What is the recommended dose for adults?
6. How should overdosage of THERAGRAN-M be treated?
7. What does THERAGRAN-M look like?
8. What are the recommendations as to storage of the preparation?

## TASKS FOR SELF-CONTROL

### Answer the questions:

1. What is pharmacology?
2. What is a package insert?
3. What are the main sections of an information leaflet?
4. What do the sections Indications and Usage contain?
5. What does the section Contraindications list?
6. What does the section Precautions explain?
7. What information does the section Overdosage include?
8. Which part of a leaflet explains physical characteristics of a medicine?

**Explain the term:** package insert

<b>DISEASES OF THE UPPER RESPIRATORY TRACT</b>
--

### Exercise 1. Topic vocabulary:

adenopathy, n	[ə'denə,pæθɪ]	large or swollen lymph nodes
aphonia, n	[æ'fəuniə]	loss of the voice
crypt, n	[kript]	any small recess, pit or cavity in the body
dysphagia, n	[dis'feɪdʒiə]	difficulty in swallowing
dyspnea, n	[disp'niə]	breathlessness or shortness of breath; labored or difficult breathing.
edema, n	[i'di:mə]	swelling of soft tissues as a result of excess fluid accumulation
erythema, n	[eri'θi(:)mə]	redness of the skin that results from capillary congestion
exudate, n	[ˈeksjuːdeɪt]	fluid that leaks out of blood vessels into nearby tissues
hoarseness, n	[ˈhɔːsnɪs]	abnormal voice changes manifested as a voice that sounds breathy, strained, rough, or has a higher or lower pitch; dysphonia
hyperemic, adj	[ˌhaɪpə'ri:mɪk]	denoting hyperemia - an excess of blood in the blood vessels in a specific part of the body
malaise, n	[mə'leɪz]	a general feeling of being unwell
purulent, adj	[ˈpjʊərələnt]	containing, discharging, or causing the production of pus

### Exercise 2. Read the word combinations and explain them:

**Membrane:** thin membrane, mucous membrane, cellular membrane, permeable membrane

**Treatment:** long-term treatment, in-patient treatment, surgical treatment, hormone treatment, ineffective treatment, adequate treatment

**Fever:** slight fever, persistent fever, fever subsided, to cause fever, to suffer from fever

**Inflammation:** joint inflammation, acute inflammation, chronic inflammation, to reduce inflammation, signs of inflammation

**Sign:** apparent sign, visible sign, early sign, external sign, unmistakable sign

### Exercise 3. Form nouns with the meaning of “process; action result” with the help of the suffix -ing. Use them in phrases or in sentences:

*Model:* water → watering

Find, act, smoke, walk, train, warm, cool, feel, understand, learn, swell, function, swallow, sweat, think,



sneeze.

**Exercise 4. Explain the following word combinations:**

Edematous and hyperemic tonsils, purulent exudate, symptomatic therapy, cervical adenopathy, frequent cause, inflammation, apparent dyspnea, laryngeal edema, marked erythema, the severity of the inflammation, to relieve discomfort

**Exercise 5. Read the text and answer the questions below:**

A **respiratory disease** is a medical term that encompasses [pathological](#) conditions affecting the [respiratory tract](#).

Infections can affect any part of the respiratory system. They are traditionally divided into upper respiratory tract infections and lower respiratory tract infections.

### DISEASES OF THE UPPER RESPIRATORY TRACT

The tonsils normally help to prevent infections. They act like filters to trap bacteria and viruses entering the body through the mouth and sinuses. The tonsils also stimulate the immune system to produce antibodies to help fight off infections

**Tonsillitis** is an acute inflammation of the palatine tonsils, usually due to streptococcal or, less commonly, viral infection. Tonsillitis is characterized by a sore throat and pain, most marked on swallowing and often referred to the ears. High fever, malaise, headache and vomiting are common. As a rule the tonsils are edematous and hyperemic. There may be a purulent exudate from the crypts and a white, thin membrane over the tonsils that is peeled away without bleeding.

Tonsillectomy is a surgical procedure in which each tonsil is removed from a recess in the side of the pharynx called the tonsillar fossa. Tonsillectomy should be considered if acute tonsillitis repeatedly develops after adequate treatment, or if chronic tonsillitis and a sore throat persist or are relieved only briefly by antibiotic therapy.

**Pharyngitis** is an acute inflammation of the pharynx. Usually viral in origin, it may also be due to a Group A or other bacteria. It is characterized by sore throat and pain on swallowing. The pharyngeal mucous membrane may be mildly red or severely inflamed and may be covered with a membrane and a purulent exudate. Fever, cervical adenopathy, and leukocytosis are present in both viral and streptococcal pharyngitis but may be more marked in the latter.

Treatment is symptomatic and includes a diet, scald foot baths, warm compresses on the anterior part of the neck, milk with honey, steam inhalations and gargling. Antibiotic therapy is usually administered in severe forms of pharyngitis.

**Laryngitis** is an inflammation of the larynx. The most frequent cause of acute laryngitis is a viral URI. Laryngitis may also occur in the course of bronchitis, pneumonia, influenza, whooping cough, measles, and diphtheria. Excessive use of the voice, allergic reactions, and inhalation of irritating substances such as cigarette smoke can cause acute or chronic laryngitis.

Unnatural change of voice is usually the most prominent symptom. Hoarseness and even aphonia, together with a sensation of tickling, a constant wish to clear the throat, and an irritating cough that does not go away may occur. Symptoms vary with the severity of the inflammation. Fever, malaise, dysphagia, and throat pain may occur in more severe infections; dyspnea may be apparent if laryngeal edema is present. Indirect laryngoscopy discloses a mild to marked erythema of the mucous membrane that may also be edematous.

There is no specific treatment for viral laryngitis. Voice rest and steam inhalations give symptomatic relief and promote resolution of acute laryngitis.

1. What is tonsillitis?
2. What are the symptoms of tonsillitis?
3. What kinds of pharyngitis are there?
4. What are the symptoms of pharyngitis?
5. What does the treatment of pharyngitis include?

6. What are the most frequent causes of laryngitis?
7. What are the symptoms of laryngitis?
8. What does the treatment of laryngitis include?

**Exercise 6. I. Memorize that *-itis [aitis]* means *inflammation of an organ, tissue, etc.* Give the terms using this term-element:**

1. Inflammation of the liver -....
2. Inflammation of the larynx and vocal folds - ... .
3. Inflammation of the stomach -....
4. Inflammation of the bronchi - ... .
5. Inflammation of the ear - ...
6. Inflammation of the nerve - ...
7. Inflammation of the peritoneum - ...
8. Inflammation of the pharynx - ...

**II. Explain the term meaning *excision (surgical removal)*. Translate it:**

*Model: tonsillectomy is excision of the tonsils*

Gastrectomy, pancreatectomy, nephrectomy, splenectomy, laryngectomy, hysterectomy, adenectomy, sclerectomy

**Exercise 7. Read the definition and fill in the blanks with the words given in brackets:**

(Pharyngoplasty, pharyngomycosis, pharyngotomy, pharyngoscope, pharyngolaryngitis, laryngopathy, laryngograph, laryngology, tracheostomy, tracheorrhagia, tracheitis)

1. Inflammation of the trachea	
2. Making an opening in the anterior part of the trachea for tube introduction in order to facilitate breathing	
3. Inflammation of both throat and voice box	
4. Invasion of the mucous membrane of the throat by fungi	
5. An instrument used for inspection of the throat mucous membrane	
6. A surgical procedure of making an incision into the throat to remove a tumor or anything obstructing the passage	
7. Systematized knowledge of the action and function of the voice box	
8. An instrument for making a tracing of movements of the vocal folds	
9. Trachea bleeding	
10. Any larynx pathology	
11. Plastic surgery of the throat	

**Exercise 8. Match the words in italics to their synonyms:**

<i>Bleeding</i>	leading
<i>Edematous</i>	pertussis
<i>Examination</i>	application
<i>Fever</i>	breathlessness
<i>Whooping cough</i>	hemorrhage

<i>Hoarseness</i>	reddened
<i>Prominent</i>	inspection
<i>Use</i>	temperature
<i>Dyspnea</i>	swollen
<i>Hyperemic</i>	dysphonia

**Exercise 9. Change the sentences into the Passive Voice according to the model:**

*Model:* I stick a label.

The label is stuck by me.

**A)**

1. The nurse sponges the patient's skin.
2. A poisonous remedy causes death.
3. The doctor checked up my kidneys
4. The child takes cod liver oil.
5. The surgeon rinses his hands.
6. The doctor administers healing ointments.
7. The patient takes sedatives.
8. The physician has filled in the case history.

**B)**

1. The nurse has put a new outer bandage on the patient's wound.
2. The doctor had determined dull heart sounds by percussion before the electrocardiogram was taken.
3. The surgeon on duty has arrested a profuse abdominal bleeding.
4. The nurses had laid the patient down on a stretcher when the doctor came into the ward.
5. The surgeon has just performed the operation for appendicitis.
6. The surgeon has taken out the stitches today.
7. The nurse has removed the dressing carefully.
8. The ENT doctor has examined the patient's throat.

**Exercise 10. Put questions to the underlined words:**

1. Catarrhal condition of the throat decreases the patient's work capacity.
2. Bad teeth and chronic inflammation of the tonsils should receive timely treatment.
3. Pain is most marked on swallowing.
4. Dyspnea may be apparent if laryngeal edema is present.
5. Chronic tonsillitis is relieved only briefly by antibiotic therapy.
6. Acute symptoms vary with the severity of the inflammation.
7. Indirect laryngoscopy discloses marked erythema of the mucous membrane.
8. Steam inhalations promote recovery from acute laryngitis.

**Exercise 11. Open the brackets and put the verbs in the correct tense and voice:**

1. Tonsillitis (to characterize) by sore throat and pain, often radiated to the ears.
2. If chronic tonsillitis and sore throat persist, the patient (to perform) tonsillectomy.
3. Pharyngitis (to characterize) by sore throat and pain on swallowing.
4. The most frequent cause of acute laryngitis (to be) a viral URI.
5. Symptoms (to vary) with the severity of the inflammation.
6. In tonsillitis the membrane (to peel away) without bleeding.
7. Indirect laryngoscopy (to disclose) a mild to marked erythema of the mucous membrane.
8. Most researchers (to suggest) that the most contagious time frame for laryngitis is when the infected person (to have) a fever.

**\* Exercise 12. Read the case presentation and fill in the table below with the appropriate**

**information:**

A 14-year-old girl is admitted to the hospital with a 3-week history of sore throat leading to significantly decreased oral intake. She reports progressive worsening of a painful sore throat resulting in avoidance of nearly all oral intake and an associated weight loss. She has presented to care twice, 2 weeks and 2 days earlier. During each of those visits, rapid group A streptococcal (GAS) antigen testing and follow-up GAS culture were negative. She was discharged with symptomatic care for presumed viral pharyngitis. She vomited twice but has not had fevers, cough, rash, or diarrhea.

On examination the patient is tachycardic to 150 beats/min, afebrile, and other vital signs are normal. Her mucous membranes are dry. She has posterior and anterior cervical lymphadenopathy and erythematous enlarged tonsils with mild exudates.

Patient	Symptoms/ complaints	Laboratory tests	Physical examination	Presumptive diagnosis

**Exercise 13. Explain the following terms (tonsillitis, pharyngitis, laryngitis) using the following plan:**

1. It is an inflammatory disease of ...
2. It is manifested by the following symptoms ...
3. It can be diagnosed by ... .
4. It can be treated by .... .
5. If untreated it may result in ... .

**TASKS FOR SELF-CONTROL****Answer the questions:**

- What upper respiratory diseases are there?  
 What are the symptoms of tonsillitis?  
 What are the manifestations of pharyngitis?  
 What does treatment for pharyngitis include?  
 What are the most frequent causes of laryngitis?  
 What are the symptoms of laryngitis?  
 What does the treatment of laryngitis include?

**Explain the medical terms:** tonsillitis, pharyngitis, laryngitis, tonsillectomy

**DISEASES OF THE LOWER RESPIRATORY TRACT****Exercise 1. Topic vocabulary:**

abundant, <i>adj</i>	[əˈbʌnd(ə)nt]	existing in plentiful supply
concomitant, <i>adj</i>	[kənˈkɔmit(ə)nt]	occurring or existing at the same time as something else
coryza, <i>n</i>	[kəˈraizə]	acute inflammation of the mucous membranes, marked by sneezing, lacrimation, and profuse secretion of watery mucus
myalgia, <i>n</i>	[maiˈældʒiə]	muscle pain

self-limiting, <i>adj</i>	[self-'lɪmɪtɪŋ]	in clinical medicine to refer to any disease whose natural history is to resolve without treatment
specimen, <i>n</i>	['spesɪmɪn]	a portion or quantity of material for use in testing, examination, or study
sputum, <i>n</i>	['spju:təm]	mucus and other matter brought up from the lungs by coughing
wheezing, <i>n</i>	['wi:zɪŋ]	a whistling sound associated with labored breathing

**Exercise 2. a) Read the word combinations, explain them and use in phrases or sentences:**

**Infection:** viral infection, fungal infection, primary infection, recurrent infection, rare infection, bacterial infection

**Sputum:** mucopurulent sputum, thick sputum, rusty sputum, blood streaked sputum

**Symptom:** common symptom, visible symptom, acute symptom, mental symptom

**Disease:** rare disease, curable disease, congenital disease, contagious disease, treatable disease

**Cough:** mild cough, persistent cough, chronic cough, dry cough, barking cough

**Exercise 3. Explain the following word combinations:**

Acute self-limited inflammation; weakened patients; a common cold; secondary bacterial infection; onset of bronchitis; abundant and mucoid sputum; a severe uncomplicated case; persistent fever; concomitant chronic pulmonary disease; purulent sputum; persistent chills; blood streaked or rusty sputum; lethal complications

**Exercise 4. Read the text and answer the questions below:**

**DISEASES OF THE LOWER RESPIRATORY TRACT**

Bronchitis is an **inflammation of the lining of the bronchial tubes**. The inflammation can be caused by an infection or by other factors that **irritate the airways**, such as cigarette smoking, allergies and exposure to fumes from some chemicals. Bronchitis can either be of **brief duration (acute)** or have a **long course (chronic)**.

**Acute bronchitis** is usually **caused by a viral infection**. It usually begins with the symptoms of a cold, such as a **runny nose, sneezing, and dry cough**. However, the cough soon becomes deep and painful. The cough produces **yellow or green sputum**. These symptoms may be **accompanied by a fever** of up to 38.8°C. **Wheezing** after coughing is common. There may also be pain behind the sternum (breastbone) and fever. Symptoms may be relieved by drinking plenty of fluids and inhaling steam or using a humidifier. **Cough suppressants** are used only when the cough is dry and produces no sputum.

Acute bronchitis is a clinical diagnosis based on history, past medical history, lung exam, and other physical findings.

Acute bronchitis is self-limiting and treatment is typically **symptomatic and supportive therapy**. For **cough relief**, nonpharmacological and pharmacological therapy should be offered. Nonpharmacological therapy includes hot tea, honey, ginger, **throat lozenges**, etc. Although most cases clear up without further treatment, acute bronchitis may be serious in people who already have lung damage. Antibiotics are indicated when there is **concomitant chronic obstructive pulmonary disease**, when purulent sputum is present, or when **high fever persists** and the patient is more than mildly ill.

**Pneumonia** is an acute infection of the lung parenchyma including alveolar spaces and interstitial tissue.

It is important to understand the different classifications of pneumonia.

- *Community-acquired pneumonia* (CAP) is lung parenchyma infection in a non-hospitalized patient.
- *Hospital-acquired pneumonia* (HAP) or nosocomial pneumonia is a new lung parenchyma infection that occurs after 48 hours of hospitalization.
- *Ventilator-associated pneumonia* (VAP) occurs in the subset of HAP patients that are mechanically ventilated.

The **most common causes** of pneumonia in adults are bacteria. Pneumococcal pneumonia is often preceded by an URI. The **onset is often sudden** with a single **shaking chill**; persistent chills suggest an

alternative diagnosis. This is ordinarily followed by fever, pain with breathing on the involved side (pleurisy), cough, **dyspnea, and sputum production**. The **temperature rises** rapidly to 38 to 40.5° C; the pulse is usually 100 to 140/min; and **respirations accelerate** to 20 to 45/min. Additional common findings are **nausea, vomiting, malaise, and myalgia**. The cough may be dry initially, but usually becomes productive with **purulent, blood-streaked or rusty sputum**.

Serious, **potentially lethal complications include overwhelming sepsis**, sometimes associated with the adult respiratory distress syndrome and/or septic shock.

Pneumococcal pneumonia should be **suspected** in anyone with an acute febrile illness associated with chest pain, dyspnea, and cough. A **presumptive diagnosis** can be based on the history, changes on chest x-ray, and culture of appropriate specimens. Treatment **depends on** the kind of pneumonia. Mild pneumonia can usually be treated at home with rest, antibiotics and by **drinking plenty of fluids**. More **severe cases** may need hospital treatment.

1. What is acute bronchitis often preceded by?
2. What is bronchitis?
3. What are the symptoms of bronchitis?
4. What is the treatment for bronchitis?
5. What is the most common cause of pneumonia?
6. What is pneumonia?
7. How can pneumonia be classified?
8. What are the symptoms of pneumonia?
9. What are the complications of pneumonia?
10. When should pneumococcal pneumonia be suspected?

**Exercise 6. Form adjectives using the suffix -al. Use them in phrases:**

Model: face →facial

Abdomen, accident, nature, function, norm, hormone, centre, experiment, biology, artery, bronchus, intestine.

**Exercise 7. Memorize the meaning of the following term-elements.**

**Bronch(o)**-[brɔŋkəʊ] - combining form of Greek origin denoting **bronchus**

**Pneum(o)**-[nju:məʊ] - combining form of Greek origin denoting **breathing, lung, air**

**Pulm(o)-, pulmon(o)**-[pʌlmə(nə)] - combining form of Greek origin denoting **lungs**

**Read the definition and fill in the blanks with the words given in brackets:**

(Bronchoedema, bronchoplasty, bronchogenic, bronchoconstriction, pneumoalveology, pneumobilia, pneumocardial, pneumodynamics, pneumoectomy, pulmonary, pulmonologist, pulmonohepatic)

1. Pertaining to the lungs and heart	
2. X-ray examination of the air sacs of the lungs	
3. A specialist in lung diseases	
4. Narrowing of the bronchus lumen	
5. Pertaining to the lungs	
6. Swelling of the mucosa of the bronchial tube	
7. Presence of air or other gases in the bile system	
8. Surgical alteration of the configuration of a bronchus	
9. Changes in breathing process	
10. Originating from the bronchi	
11. Pertaining to the lungs and liver	
12. Resection of lung tissue	

**Exercise 8. Match the terms to their definitions:**

1. hypoxemia	a. Inflammation of the lungs caused by bacteria, in which the alveoli become filled with the inflammatory cells and the lung becomes solid
2. pneumonia	b. A rise in body temperature above 36.6°C.
3. coryza	c. Reduction of the oxygen concentration in the arterial blood, recognized clinically by the presence of central and peripheral cyanosis.
4. leukocytosis	d. A catarrhal inflammation of the mucous membrane in the nose due to either a cold or hay fever
5. fever	e. an increase in the number of white blood cells in the blood

**Exercise 9. Fill in the correct form of the verb in the Active or Passive Voice:**

1. Considerable skill, patience and tact (to require) to examine a child.
2. Yesterday he (to awake) with a severe headache.
- 3 The doctor thought that the patient (to recover) from his illness but on the contrary he (to get) worse.
4. I (to feel) wretched for I (to catch) a severe cold the day before.
5. Infectious diseases (to transmit) by direct contact or through the respiratory route.
6. The medical students (to practise) in the clinic at patient's bed-side in order to learn to recognize and treat various diseases.
7. The man (to die) unless he (to operate on) without delay.
8. Infection (to occur) when the infected secretion (to come) in contact with your nose or eyes.

**Exercise 10. Put questions to the underlined words:**

1. Acute bronchitis may develop after a common cold.
2. Diagnosis is usually based on the symptoms and signs.
3. Oral fluids are advised during the febrile course.
4. Antibiotics are indicated when there is concomitant chronic obstructive pulmonary disease.
5. Persistent chills suggest an alternative diagnosis.
6. Lab studies usually show leukocytosis with a shift to the left.
7. A diagnosis can be based on the history, changes on the chest X-ray.
8. Symptoms are caused by inflammation of the mucous membranes in the upper respiratory tract.

**Exercise 11. Fill in the missing prepositions. Some of prepositions may be used more than once:**

by (2)    on    during    to (2)    for (2)    from
---

1. the bacteria can become resistant ... the antibiotic.
2. Pneumonia affects approximately 450 million people globally per year, and results ... about 4 million deaths
3. If the pneumonia is severe, the affected person is admitted ... hospital.
4. Acute bronchitis is characterized... the development of a cough or small sensation in the back of the throat, with or without the production of sputum.
5. Cigarette smoking is the most common cause of chronic bronchitis, followed ... exposure to air pollutants.
6. Treatment of pneumonia depends ... the underlying cause.
7. Acute bronchitis often develops ... an upper respiratory infection such as the common cold or influenza.
8. Most people with URIs may visit their doctor ... relief ... symptoms.

**Exercise 12. Open the brackets and put the verbs in the correct tense and voice.**

1. A chest radiograph frequently (to use) in diagnosis of lung diseases.

2. Pneumonia (to be) a common disease throughout human history.
3. The word pneumonia (to be) from Greek πνεύμων (pneúmōn) meaning "lung".
4. The symptoms of pneumonia (to describe) by Hippocrates (460–370 BC).
5. Sir William Osler, known as "the father of modern medicine", (to describe) pneumonia as "the old man's friend".
6. 12 November (to declare) as the annual World Pneumonia Day in 2009.
7. Hospital-acquired pneumonia (HAP) or nosocomial pneumonia (to refer) to any pneumonia contracted by a patient in a hospital at least 48–72 hours after being admitted.

**Exercise 13. Fill in the table “Bronchitis&Pneumonia”. Say about these diseases:**

	Common cause	Classification	Symptoms	Diagnosis	Treatment
Bronchitis					
Pneumonia					

**\* Exercise 13. Read the case presentation and fill in the table below with the appropriate information:**

CHIEF COMPLAINT: Cough and fever for four days

HISTORY: Mr. Alcot is a 68-year-old man who developed a harsh, productive cough four days prior to being seen by a physician. The sputum is thick and yellow with streaks of blood. He developed a fever, shaking chills, and malaise along with the cough. One day ago he developed pain in his right chest that intensifies with inspiration. Past history reveals that he had a chronic smoker's cough for "10 or 15 years" which he describes as being mild, non-productive and occurring most often in the early morning. He smoked 2 packs of cigarettes per day for the past 50 years.

COURSE OF ILLNESS: Following a chest x-ray which revealed acute pneumonia in the right middle lobe, the patient was treated with antibiotics as an outpatient. During the 10 days of treatment, the patient's fever abated and he felt somewhat better.

Patient	Complaints	Past history	Diagnosis	Treatment

### TASKS FOR SELF-CONTROL

**Answer the questions:**

1. What are the symptoms of bronchitis?
2. What is the treatment for bronchitis?
3. What is the most common cause of pneumonia?
4. How can pneumonia be classified?
5. What are the symptoms of pneumonia?
6. What are the complications of pneumonia?

**Explain the medical terms:** bronchitis, pneumonia

### PULMONARY TUBERCULOSIS

**Exercise 1. Topic vocabulary:**

BCG vaccine, <i>n phr</i>	[... bæ'siləs]	BCG stands for Bacille Calmette Guerin, a vaccine used to prevent tuberculosis (TB)
---------------------------	----------------	---



discharge, <i>n</i>	[dis'tʃɑ:dʒ]	a fluid that comes out of the body. Discharge can be normal or a sign of disease.
immunocompromised, <i>adj</i>	[i,mjʊ:nə'kɒmprəmaɪzd]	having a weakened immune system
lesion, <i>n</i>	['li:ʒn]	a region in an organ or tissue which has suffered damage through injury or disease
nodular, <i>adj</i>	['nɒdjʊlə]	relating to, characterized by, or occurring in the form of nodules - small knot-like masses of tissue or aggregation of cells
rales, <i>n pl.</i>	['ra:lz]	abnormal rattling sounds heard when examining unhealthy lungs with a stethoscope.
resurgence, <i>n</i>	['ri:sɜ:dʒəns]	the act or fact of rising again or returning
sputum, <i>n</i>	['spju:təm]	a mixture of saliva and mucus coughed up from the respiratory tract, typically as a result of infection or other disease
tubercle, <i>n</i>	['tju:bəkl]	a small, rounded nodule produced by the bacillus of tuberculosis
vulnerable, <i>adj</i>	['vʌlnərəbl]	easily injured, wounded. or affected by a disease

Exercise 2. a) Memorize the plural forms of nouns of the Latin and Greek origin:

Latin	
singular	plural
-us [əs] bacillus	-i [ai] bacilli
-a [ə] vertebra	-ae [i:] vertebrae
-um [əm] bacterium	-a [ə] bacteria
Greek	
-sis [sis] synthesis	-ses [siz] syntheses

b) Write the correct plural forms of the following nouns:

- Diagnosis -
- Stimulus -
- Datum -
- Formula -
- Nucleus -
- Analysis -
- Spirillum -

Exercise 3. Form nouns with the help of the suffix -(a)(t)ion. Use them in phrases or in sentences:

*Model: to infect – infection*

*інфікувати – інфекція*

to characterize, to form, to inhale, to fluctuate, to detect, to combine, to populate, to vaccinate, to examine, to auscultate, to palpate, to complete, to migrate.

Exercise 4. Explain the following word combinations/phrases:

the causative agent of the disease, nodular lesions, a primary tubercle, natural immune defenses, to

fluctuate with the patient's resistance, blood streaked sputum discharge, tuberculous rales in the lungs, a resurgence of pulmonary tuberculosis, immunocompromised patients

**Exercise 5. Read the text and answer the questions below:**

**PULMONARY TUBERCULOSIS**

Pulmonary tuberculosis (PT) is an infectious bacterial disease. The causative agent of the disease is *Mycobacterium tuberculosis* that was first identified by R. Koch in 1882. The lungs are primarily involved, then the infection can spread to other organs. The disease is characterized by the formation of nodular lesions (tubercles) in the mediastinum. These lesions are small rounded masses of cells, produced by bacteria. They are firm and spheroid. As a rule, PT is spread with tiny droplets that float in the air after sneezing or coughing by the infected person.

In pulmonary tuberculosis the bacillus is inhaled into the lungs where it sets up a primary tubercle and spreads to the nearest lymph nodes. Natural immune defenses may heal it at this stage. Alternatively, the disease may smoulder for months or years and fluctuate with the patient's resistance. Many people become infected but show no symptoms. Others develop a chronic infection and can transmit the bacillus by coughing and sneezing.

In the early stages of pulmonary tuberculosis the patient usually complains of general malaise, fatigue, loss of appetite and as a result loss of body weight, caused by tuberculous intoxication. The subfebrile fever persists for a long time. Then cough superadds.

Symptoms of the active form of pulmonary tuberculosis include high fever that ranges from 38° to 39°C, profuse night sweats, breathing difficulty, and cough with blood streaked sputum discharge.

Pulmonary tuberculosis is treated by various combinations of antibiotics. The treatment may last up to 6-8 months. Preventive measures must include the detection of cases by X-ray screening of vulnerable populations and vaccination with BCG vaccine of those with no immunity to the disease. Regular physical examinations are necessary as well: auscultation reveals characteristic tuberculous rales in the lungs; palpation identifies the swollen lymph nodes in the neck or other areas. Another method of detecting pulmonary tuberculosis is a yearly Mantoux test.

Recently, there has been a resurgence of pulmonary tuberculosis in immunocompromised patients (i.e. who have HIV or AIDS). The number of patients with the disease has also increased due to patients not completing drug courses.

In some cases the bacilli spread from the lungs to the blood-stream, setting up millions of tiny tubercles throughout the body (miliary tuberculosis), or migrate to the meninges to cause tuberculous meningitis. Entering by mouth bacilli may spread to abdominal lymph nodes, leading to peritonitis, and sometimes spread to other organs, joints, and bones.

Though pulmonary tuberculosis is curable, it is a terminal disease if not treated in time. So, if a person develops any signs slightly resembling pulmonary tuberculosis, he should immediately seek help from phthisiatrician.

1. What kind of disease is pulmonary tuberculosis?
2. What is pulmonary tuberculosis caused by?
3. What kind of formations is the disease characterized by?
4. How can a person become infected with pulmonary tuberculosis?
5. What are the symptoms of pulmonary tuberculosis at the early stage?
6. What are the symptoms of pulmonary tuberculosis in the active form?
7. What does the treatment of pulmonary tuberculosis consist of?
8. How can pulmonary tuberculosis be prevented?
9. What complications may pulmonary tuberculosis lead to?

**Exercise 6. Match the kinds of diagnostic testing procedures to their explanations:**

1. X-ray screening	a) a method of skin testing aimed at detecting tuberculosis, named after the French physician
2. Vaccination	b) examination by touch for the purpose of diagnosing disease
3. Mantoux test	c) the procedure during which a patient is thoroughly examined from head to toes
4. physical examination	d) the laboratory analysis of specimen taken from the patient for culturing the Mycobacterium tuberculosis organisms
5. Auscultation	e) laboratory examination of physical / chemical properties and the number of erythrocytes, leukocytes, etc.
6. Palpation	f) process of giving injections of a killed microbe in order to stimulate the immune system against it, thus, preventing disease
7. blood analysis	g) the act of listening, either directly or through a stethoscope or other instrument, to sounds within the body as a method of diagnosis
8. sputum analysis	h) a radiographic image of the body internal organs and structures, usually used for diagnostic purposes

**Exercise 7. Find the synonyms in the text to the words and word-combinations given below:**

therapy –	respiration –
inoculation –	excessive perspiration –
check-up –	productive cough –
nodular lesion –	cause of disease –

**Exercise 8. Insert the necessary preposition:**

at; by; due to; in (2); to (2); of
------------------------------------

1. In pulmonary tuberculosis there are a lot of nodular lesions ... the mediastinum.
2. Yesterday the patient complained ... general malaise, slight fatigue and headaches.
3. Profuse sweats ... night serve the grave sign of pulmonary tuberculosis.
4. Swollen lymph nodes ... the neck indicated the presence of infection in the body.
5. People having no immunity ... diseases often suffer from various infections.
6. TB spreads throughout the world ... patients not completing drug courses.
7. People with pulmonary TB can transmit it ... coughing and sneezing.
8. The bacilli of pulmonary TB can migrate ... the meninges and cause tuberculous meningitis.

**Exercise 9. Insert the appropriate modal verb can / could, may / might, must, should and explain your choice:**

1. She ... not go to the library because she has no time. (logical conclusion)
2. "You ... go for a walk every day," the doctor said. (obligation)
3. He ... go to the movies in the evening. (hypothetic possibility)
4. You ... work more at your pronunciation. (advice)
5. He ... invite you to the theatre. (hypothetic possibility)
6. The child ... not walk though he is 2 years old. (capability)
7. ... I take your pencil? (permission)
8. You ... follow his instructions. (certainty without fail)

**Exercise 10. Put questions to the underlined words:**

1. Mycobacterium tuberculosis causes pulmonary tuberculosis.
2. This disease may affect bones, joints, lymphatic glands, kidneys.
3. Coughing can become worse at night and in the morning.
4. A considerable elevation of temperature is observed in pneumonic forms.

5. Loss of body weight may be the typical sign of pulmonary tuberculosis.
6. Natural immune defenses can sometimes heal the disease in the early stages.
7. There is a resurgence of pulmonary TB among immunocompromised patients.
8. Millions of tiny tubercles are carried throughout the body by the blood stream.

**Exercise 11. Put the verb in brackets into the correct tense form. Translate them into Ukrainian:**

1. The causative agent of tuberculosis (to discover) by Koch in 1882.
2. The microscopic examination (to reveal) pus cells in sputum yesterday.
3. The patient states that the fever (to persist) at a level of 38°C for several months.
4. Profuse night sweats (to serve) the evidence of a severe form of tuberculosis.
5. Loss of body weight (can, to cause) by tuberculous intoxication.
6. Cough (to superadd) after the disease has been in progress for some time.
7. Mycobacterium tuberculosis (to produce) characteristic tuberculous changes in the mediastinum.
8. In the early stage of pulmonary TB the patient (may, to complain) of a general malaise, fatigue, loss of appetite and bodyweight.

**Exercise 12. Fill in the table and describe pulmonary tuberculosis:**

1.	Type of disease	
2.	Set of symptoms	
3.	Data of examinations	
4.	Treatment	
5.	Complications	

**\* Exercise 13. Read the case presentation and fill in the table below with appropriate information. Explain the terms in bold (you may need a dictionary):**

A 69-year-old male patient had come to the hospital twice with a diagnosis of **community-acquired bacterial pneumonia**. The patient was a smoker without family history of interest. Three weeks before admission to the hospital, he developed a fever accompanied by night sweats, a dry irritating cough, **asthenia**, **anorexia** and weight loss (10 kg in 2 months). In the three days prior to admission he noticed pain in his tongue radiating to the right ear. The pain was accentuated by chewing and made eating difficult.

Physical examination: The patient's **vital signs** were as follows: **respiratory rate** - 28/min, central heart rate - 100 beats/ minute, blood pressure - 110/70 mmHg. His general alterations in his skin nor palpable **lymphadenopathy** in any lymph node chain. Cardiopulmonary examination revealed a globally decreased vesicular **wheeze** with scattered **crackles** in both lungs especially in the upper 2/3 of the left lung...

Patient	Symptoms/ complaints	Physical examination findings	Presumptive diagnosis
			pulmonary and lingual tuberculosis

**TASKS FOR SELF-CONTROL**

**Answer the questions:**

1. What kind of disease is pulmonary tuberculosis?
2. What is pulmonary tuberculosis caused by?
3. What kind of formations is pulmonary tuberculosis characterized by?
4. How can a person become infected with pulmonary tuberculosis?

5. What are the symptoms of pulmonary tuberculosis at the early stage and in the active form?
6. What does the treatment of pulmonary tuberculosis consist of?
7. How can pulmonary tuberculosis be prevented?
8. What complications may pulmonary tuberculosis lead to?

**Explain the medical term:** pulmonary tuberculosis

## CHOLECYSTITIS

### Exercise 1. Topic vocabulary:

cholelithiasis, <i>n</i>	[,kɔləliθi'eɪsɪs]	жовчокам'яна хвороба
disability, <i>n</i>	[,dɪsə'bɪlɪtɪ]	непрацездатність
gangrene, <i>n</i>		death of body tissue due to a lack of blood flow or a serious bacterial infection
jaundice, <i>n</i>	[ˈdʒɔːndɪs]	yellow staining of the skin and sclerae by abnormally high blood levels of the bile pigment bilirubin
morbidity, <i>n</i>	[mɔː'bɪdətɪ]	the amount of disease within a population
mortality, <i>n</i>	[mɔː'tælɪtɪ]	a term used for death rate, or the number of deaths in a certain group of people in a certain period of time
perspiration, <i>n</i>	[pɜːspɪ'reɪʃ(ə)n]	the secretion of fluid by the sweat glands
tenderness, <i>n</i>	[ˈtendənəs]	pain or discomfort when an affected area is touched

### Exercise 2. Pronounce correctly:

Cholecystitis [ˌkɒlɪsɪs'taɪtɪs], catarrhal [kə'tɑːr(ə)l], gangrenous [ˈgæŋgrənəs], bilirubin [ˌbɪlɪ'ruːbɪn], alkaline phosphatase [ˈælkələm'fɒsfəteɪz], cholecystectomy [k,əʊlsɪst'ektəmi], hypochondrium [haɪpə'kɒndrɪəm]

### Exercise 3. Explain the following word-combinations:

obstruction of the cystic duct; accumulation of bile; swelling of the gallbladder; uncomplicated cholecystitis; insufficient oxygen; tender and distended; severe tenderness; slight jaundice of sclerae; surgical site infection

### Exercise 4. Read and answer the questions below:

#### Acute Cholecystitis

**Cholecystitis** ([Greek](#), *-cholecyst*, "gallbladder", combined with the suffix *-itis*, "inflammation") is [inflammation](#) of the [gallbladder](#), which occurs most commonly due to [gallstones](#) ([cholelithiasis](#)). Blockage of the [cystic duct](#) with [gallstones](#) causes accumulation of bile in the [gallbladder](#) and increased pressure within the gallbladder. Concentrated bile, pressure, and sometimes bacterial infection irritate and damage the gallbladder wall, causing inflammation. Inflammation and swelling of the gallbladder can be reduced to areas of the gallbladder, which can lead to cell death. The main forms of cholecystitis are the following: catarrhal, purulent and gangrenous.

Risk factors for [cholelithiasis](#) and cholecystitis are similar and include increasing age, female sex, pregnancy, certain medications, obesity, and rapid weight loss. Females are twice as likely to develop cholecystitis as males. Uncomplicated cholecystitis has an excellent prognosis; however, more than 25% of patients require surgery or develop complications such as infection, gangrene or perforation of the gallbladder. Complications of acute cholecystitis increases morbidity and mortality.

The patient with cholecystitis is known to complain of intense pain, localized in the right hypochondrium and in the umbilical area. The gallbladder may be tender and distended. During the

attack of pain the face is moist with cold perspiration, the skin is pale, and the tongue and lips are dry. Even a slight palpation reveals severe tenderness due to irritation of the peritoneum. Approximately in 50% of cases there is slight jaundice of sclerae. The pain grows much worse when the patient is lying on his right side. It may also correlate with eating greasy, fatty, or fried foods. Diarrhea, vomiting, and nausea are common.

**Diagnosis.** A doctor will normally ask if a patient has a history of cholecystitis because it often recurs. A physical examination will reveal how tender the gallbladder is.

The following tests may also be ordered:

*Ultrasound:* This can highlight any gallstones and may show the condition of the gallbladder.

*Blood test:* A high white blood cell count may indicate an infection. High levels of bilirubin, alkaline phosphatase, and serum aminotransferase may also help the doctor make a diagnosis.

*Computerized tomography (CT) or ultrasound scans:* Images of the gallbladder may reveal signs of cholecystitis.

*Hepatobiliary scan:* this scan creates pictures of the liver, gallbladder, biliary tract and small intestine.

A patient with cholecystitis will be hospitalized, and they will probably not be allowed to consume any solid or liquid foods for some time. They will be given liquids intravenously while fasting. Pain medications and antibiotics may also be given.

Surgery is recommended for acute cholecystitis because there is a high rate of recurrence from inflammation related to gallstones. However, if there is a low risk of complications, surgery can be done as an outpatient procedure.

If there are complications, such as gangrene or perforation of the gallbladder, the patient will need immediate surgery to remove the gallbladder. If the patient has an infection, a tube may be inserted through the skin into the gallbladder to drain the infection.

Removal of the gallbladder, or cholecystectomy, can be performed by open abdominal excision or laparoscopically.

Laparoscopic cholecystectomy involves several small incisions in the skin. A camera is inserted into one incision to help the surgeon see inside the abdomen, and tools for removing the gallbladder and inserted through the other incisions.

The benefit of laparoscopy is that the incisions are small, so patients usually have less pain after the procedure and less scarring as well as fewer long - term complications and less disability following the surgery. Additionally, laparoscopic surgery is associated with a lower rate of surgical site infection.

After surgically removing the gallbladder, the bile will flow directly into the small intestine from the liver. This does not normally affect the patient's overall health and digestive system. Some patients may have more frequent episodes of diarrhea.

Purulent form of cholecystitis is highly dangerous to life and requires an emergency operation. An even more severe course is observed in gangrenous cholecystitis. Recovery is achieved by surgical treatment, it being followed by prolonged antibiotic therapy and chemotherapy.

### **Exercise 5. Answer the questions to the text:**

1. What is cholecystitis?
2. What are the main forms of cholecystitis?
3. What are the manifestations of cholecystitis?
4. Where is the pain localized in attack of cholecystitis?
5. When does the pain grow worse in acute cholecystitis?
6. What are the risk factors of cholecystitis?
7. What are the complications of cholecystitis?
8. How is cholecystitis diagnosed?
9. How is cholecystitis treated?
10. What are the benefits of laparoscopic cholecystectomy?

**Exercise 6. Memorize the meaning of the following term-elements:**

**Chole-** [kɔli] - combining form of Greek origin denoting **bile**

**Hepato-** [hepatɔ] - combining form of Greek origin denoting **liver**

**Read the definition and fill in the blanks with the words given in brackets.**

1. A malignant tumour of the liver in newborns or children
2. A specialist in liver diseases
3. Any disease of the liver
4. The scientific study of liver diseases
5. Gallbladder
6. A malignant tumour of the liver
7. Inflammation of the liver
8. The surgical cutting (incision) of the gallbladder
9. Surgical removal of the gall-bladder
10. Any disease of the gallbladder
11. Originating in the liver
12. An abnormal enlargement of the liver caused by congestion, inflammation, or a tumour
13. Inflammation of the gallbladder, characterized by fever, jaundice and weakness
14. Radiography of the gallbladder after administration of a contrast medium

*(hepatology, hepatitis, hepatoblastoma, hepatoma, hepatologist, hepatopathy, hepatomegaly, hepatogenous, cholecystitis, cholecyst, cholecystectomy, cholecystopathy, cholecystotomy, cholecystography)*

**Exercise 7. Match the words to their definitions:**

1. A condition in which bowel evacuations occur infrequently and cause difficulty or pain.	a. inflammation
2. A yellow-orange compound that is produced by the breakdown of hemoglobin from red blood cells.	b. gall-bladder
3. The process of examining part of the body by careful feeling with the hands or fingertips.	c. constipation
4. Loose, watery stools three or more times a day.	d. palpation
5. The body's response to injury, which may be acute or chronic. It is characterized by five signs: swelling, pain, redness, warmth and dysfunction.	e. jaundice
6. A pear-shaped sac lying underneath the right lobe of the liver, in which bile is stored.	f. diarrhea
7. A yellowing of the skin or whites of the eyes, indicating excess bilirubin in the blood.	g. bilirubin

**Exercise 8. Open the brackets using the proper tense and voice form of the verbs:**

Laparoscopic cholecystectomy is a minimally invasive surgical procedure which (to use) for the removal of a diseased gallbladder. Since the early 1990s, this technique largely (to replace) the open technique for cholecystectomies. Laparoscopic cholecystectomy currently (indicate) for the treatment of acute or chronic cholecystitis, symptomatic cholelithiasis, biliary dyskinesia, acalculous cholecystitis, gallstone pancreatitis, and gallbladder masses or polyps.

Carl Langenbuch (to perform) the first successful cholecystectomy at the Lazarus hospital in Berlin on July 15, 1882. Before this, surgical therapy for symptomatic gallstones (to limit) to cholecystostomy, or gallstone removal.

Erich Mühe (to perform) the first laparoscopic cholecystectomy on September 12, 1985 in Böblingen, Germany. Mühe (to inspire) to develop a technique for laparoscopic cholecystectomy by the first laparoscopic appendectomy, performed by gynecologist Kurt Semm in 1980.

By 2014 laparoscopic cholecystectomy (to come) the gold standard for the treatment of symptomatic gallstones.

**Exercise 9. Put questions to the underlined words:**

1. Hydrochloric acid is greatly diminished or absent in untreated cases of chronic gastritis.
2. The timing of cholecystectomy depends on the severity of your symptoms.
3. The causes of acute cholecystitis can be grouped into 2 main categories: calculous cholecystitis and acalculous cholecystitis.
4. Removing the gallbladder may be recommended at some point after the initial treatment to prevent acute cholecystitis from coming back.
5. The blood analysis revealed moderate leukocytosis and an elevated ESR.
6. People with cholecystitis may experience serious complications.
7. Acalculous cholecystitis can be caused by accidental damage to the gallbladder during major surgery, serious injuries or burns, sepsis, severe malnutrition or HIV/AIDS.
8. Set of symptoms varies with the severity of the inflammation.

**Exercise 10. Fill in the table “Cholecystitis”:**

1	Definition	
2	Causes	
3	Symptoms	
4	Risk factors	
5	Examination	
6	Treatment	

**\*Exercise 11. Read the acute cholecystitis case presentation and fill in the table below with the appropriate information. Explain the terms in bold:**

Mrs. G.B. is a 38 year old female who presents to the emergency department with complaints of severe abdominal pain. G.B reports that she has had similar pain intermittently over the past week, however, tonight her pain has become constant and unbearable. She reports that the pain usually starts on the right side of her abdomen and radiates to her back. The pain makes it hard to take deep breaths and often occurs at night after eating dinner. G.B’s pain prevents her from sleeping and usually lasts several hours. She reports **nausea** but no **vomiting** with her pain tonight, and explains that she has taken ibuprofen and antacids but neither have helped her symptoms.

Physical Exam

Upon exam, G.B.’s vitals are found to be as follows:

**HR:** 106

**RR:** 16

**BP:** 148/95

Temp: 38.1° C (100.6° F)

G. B. appears uncomfortable and is sweating. G.B. reports it feels better for her to lie in bed and not move. When G.B. is assessed, the right side of her abdomen below her rib cage is palpated during inspiration. She reports increased pain to the point that she gently pushes the examiner’s hands away.

Laboratory Tests

*Abnormal Laboratory Values*

**WBC** – 15.4

**CRP** – 18.3                      **\*\*C-reactive protein**

Normal Laboratory Values



Hgb, Hct, Platelets  
 AST, ALT, ALP, GGT  
 Amylase, Lipase  
 serum HCG – not present

Patient	Complaints, character of pain	Vital signs	Inspection/palpation	Laboratory findings (abnormal)

### TASKS FOR SELF-CONTROL

**Answer the questions:**

- What are the causes of cholecystitis onset?
- What are the main forms of cholecystitis?
- What are the manifestations of cholecystitis?
- Where is the pain localized in the attack of cholecystitis?
- How is cholecystitis diagnosed?
- How is cholecystitis treated?

**Explain the terms:** cholecystitis, cholecystectomy

<b>RENAL DISEASES</b>
-----------------------

**Exercise 1. Topic vocabulary:**

albuminuria, <i>n</i>	[æ'l'bjʊ:mi'nju:riə]	more than the normal amount of albumin in the urine
ascending, <i>adj</i>	[ə'sendɪŋ]	rising upward
bacteriuria, <i>n</i>	[,bæktiri'ju:əriə]	the presence of bacteria in the urine
calculus, -i (pl.), <i>n</i>	['kælkjʊləs, -lai]	a stone
concomitant, <i>adj</i>	[kən'kɒmitənt]	occurring during the same time period
haematuria, <i>n</i>	[,hemə'tjuəriə]	any condition in which urine contains blood or red blood cells
penetrate, <i>v</i>	['penitreit]	to enter by force; to infiltrate
persistent, <i>adj</i>	[pə'sistənt]	existing or remaining in the same state for an indefinitely long time

**Exercise 2. Form the plural of the following nouns. Pronounce the pairs of words correctly:**

*E.g. calculus – calculi [...ai]*

glomerulus, alveolus, bronchus, nucleus, bacillus, stimulus, terminus, ramus, fungus, coccus, focus.

**Exercise 3. a) Match the term element with its meaning:**

1. pyel(o)	a. heart
2. hepato	b. lung
3. cardio	c. nerve
4. angio	d. liver
5. pulm(o)	e. chest
6. neuro	f. brain
7. pector	g. kidney pelvis
8. cerebr(o)	h. vessel

#### Exercise 4. Explain the following word-combinations:

Renal failure, the non-functional tissue, an ascending infection of the kidney, concomitant diseases, resultant stasis, frequency of urination, urgency of urination.

#### Exercise 5. Read the text and answer the questions below:

##### RENAL DISEASES

Kidneys are the organs of the urinary system. They serve as the body's filters that remove waste products from the body and regulate the water balance. If the kidneys' function is seriously damaged, this causes the development of various renal diseases such as nephritis, pyelonephritis, nephrolithiasis, pyonephrosis (purulent inflammation of the kidney), hydronephrosis ("water inside the kidney"), renal failure, kidney cancer.

**Nephritis** (*nepbro* – combining form denoting *kidney*) is a group of inflammatory renal diseases. The most common type of nephritis is **glomerulonephritis**. It is the inflammation of the glomeruli, small round filters located in the kidney. Glomerulonephritis usually develops a few weeks after a streptococcal infection of the throat or skin. The symptoms of glomerulonephritis are fatigue, high blood pressure, swelling of the face, hands, ankles and feet. With proper medical treatment, symptoms usually subside within a month.

**Pyelonephritis** (*pyel(o)* – combining form denoting *the pelvis of the kidney*) is an ascending infection of the kidney, caused by bacteria that penetrates into the urinary tract from outside through the urethra. It may also ensue in the course of such concomitant diseases as cystitis in women, glomerulonephritis, or urinary stone disease (urolithiasis). Pyelonephritis can be acute or chronic.

**Acute pyelonephritis** often begins suddenly with chills. The patient has the general set of symptoms: malaise, headache, profuse sweating, nausea and vomiting. Then, the fever raises rapidly up to 39-40 °C. It is usually accompanied with the dull pain in the loins on the side of the affected kidney. The urine is cloudy and bloody due to the presence of bacteria, protein, and erythrocytes in it. **Chronic pyelonephritis** results from the undertreated acute form of the disease. It is often asymptomatic and can be detected only by means of urinalysis or if the patient has persistent hypertension. In chronic pyelonephritis, the normal renal tissue is replaced by the connective non-functional one. The kidney becomes small and scarred that leads to renal failure. Among other complications are pyonephrosis and urosepsis (presence of urine waste products throughout the body).

**Nephrolithiasis** (*nepbro* – meaning *kidney*, *lithi* – meaning *stone*), or renal calculi, is another renal disease. Its manifestations are extremely variable. In many cases, stones are carried in the kidneys for years without producing any symptoms. Sometimes, a mild infection develops in the pelvis around a tiny stone. If the stone is large, or several are present, the infection may result in the destruction and ultimate loss of the kidney. The size of a calculus varies from very small gravel to a large stag-horn stone which can fill the renal pelvis. The biggest risk factor for kidney stones is not drinking enough fluids. Kidney stones are more likely to occur when less than 1 liter of urine is produced during a day.

Migration of a stone can cause obstruction with resultant stasis and infection. Persistent or repeated obstruction leads to pyonephrosis or hydronephrosis. When a stone enters and obstructs the ureter, renal colic occurs. There may also appear nausea, vomiting, perspiration, frequency or urgency of urination, etc. Depending on the situation, a patient may need nothing more than to take pain medication and drink a lot of water to pass a kidney stone. In other instances — for example, if stones become lodged in the urinary tract, are associated with a urinary infection, or cause complications — surgery may be needed.

To reveal any renal disease, a full urological investigation must be carried out. It includes urinalysis that detects such signs of urinary tract infection as haematuria, albuminuria, bacteriuria, etc.; a urine test strip that reveals the presence of leukocytosis; blood tests; microbiological culture of the urine and antibiotic sensitivity testing.

If timely revealed and treated, renal diseases can be successfully cured with the return of the normal kidney function.

1. What is the main function of the kidneys?
2. What does the renal damage cause?
3. How is a group of inflammatory renal diseases called?
4. What is glomerulonephritis? What are its manifestations?
5. What are the causes of pyelonephritis?
6. How are the acute and chronic forms of pyelonephritis manifested?
7. What are the complications of pyelonephritis?
8. What is nephrolithiasis? What is the risk factor of the disease?
9. What does the migration of a renal calculus lead to?
10. How can renal diseases be revealed?

**Exercise 6. Complete the sentences with the appropriate words / word-combinations:**

urgency of urination, perspiration, hematuria, bacteriuria, cloudy,  
renal colic, swelling, albuminuria,

1. When a renal calculus enters the ureter and obstructs it, \_\_\_\_\_ appears.
2. Presence of bacteria in urine is called \_\_\_\_\_.
3. Abnormal enlargement of face, hands or feet due to excess water in the body is known as \_\_\_\_\_.
4. The excretion of fluid through the sweat glands of the skin is called \_\_\_\_\_.
5. When urine is not transparent or clear, it is \_\_\_\_\_.
6. When the urine contains a large amount of proteins, it is called \_\_\_\_\_.
7. The constant need to pass urine is also known as \_\_\_\_\_.
8. Presence of blood cells in urine is a sign of \_\_\_\_\_.

**Exercise 7. Guess the renal / urinary disease:**

1. malignant tumour of a kidney that leads to death;
2. purulent inflammation of a kidney;
3. presence of stones in the kidney;
4. inflammation of small round filters, located in the kidneys;
5. accumulation of fluid in the renal pelvis due to outflow obstruction;
6. ascending renal infection caused by bacteria that penetrate through the urethra;
7. inability of the kidneys to perform their functions;
8. penetration of urine waste products into the blood.

**Exercise 8. Insert the preposition where necessary:**

1. Following ... a strict diet means to avoid spicy and fatty food.
2. The patient experienced dull pain ... the side of the affected kidney.
3. The presence of urine waste products ... the body leads ... urosepsis.
4. Some of genitourinary diseases are accompanied ... painful urination.
5. The urinalysis was carried ... yesterday, so you'll find out your results soon.
6. The treatment of pyelonephritis consists ... removing the underlying cause.
7. He bent forward to pick up the pill and suddenly felt burning pain ... the loins.
8. To prevent the disease ... recurrence, it is necessary to complete the course of treatment.

**Exercise 9. Put questions to the underlined words:**

1. Chronic pyelonephritis leads to kidney failure.
2. Two forms of pyelonephritis are distinguished.
3. Pyelonephritis implies an ascending urinary tract infection.
4. Bacteria causing the UTI penetrate into the body through urethra.
5. Cystitis, glomerular nephritis, urolithiasis may result in pyelonephritis.

6. The signs of urinary tract infections are haematuria, albuminuria, bacteriuria.
7. Appropriate antibiotics relieve the inflammatory process in the kidney.
8. The urine is cloudy and bloody as there are bacteria, protein, and erythrocytes in it.

**Exercise 10. Re-write sentences using the appropriate tense form. Translate them:**

1. Purulent inflammation of kidney (to know) as pyonephrosis.
2. Persistent hypertension (to indicate) the problems with kidneys.
3. He (to suffer) from obtuse pain in the loins since last month.
4. People with renal pathology (should, to avoid) spicy and fatty food.
5. The detection of pyelonephritis (to be) always possible due to urinalyses.
6. During the previous examination the patient (to complain) of painful urination.
7. The patient (to recover) quickly from pyelonephritis, if he (to complete) his treatment.
8. The onset of pyelonephritis (to accompany) with malaise, profuse sweating, nausea and vomiting.

**Exercise 11. Role-play the dialogue. What are the patient's complaints? What is the possible diagnosis?**

- Doctor: Are you having any trouble with your waterworks?  
 Mr. Jones: Well, I do seem to have to go to the toilet more often than I used to.  
 Doctor: How often is that?  
 Mr. Jones: It depends, but sometimes it's every hour or even more often.  
 Doctor: What about at night? Do you have to get up at night?  
 Mr. Jones: Yes. Nearly always two or three times.  
 Doctor: Do you get any burning or pain when you pass water?  
 Mr. Jones: No, not usually.  
 Doctor: Do you have any trouble getting started?  
 Mr. Jones: No.  
 Doctor: Is the stream normal? I mean is there still a good strong flow?  
 Mr. Jones: Perhaps not quite so good as it used to be.  
 Doctor: Do you ever lose control of your bladder? Any leaking or dribbling?  
 Mr. Jones: Well, perhaps a little dribbling from time to time.  
 Doctor: Have you ever passed blood in the urine?  
 Mr. Jones: No, never.

**Exercise 12. a) Describe the terms *glomerulonephritis, pyelonephritis, nephrolithiasis* using the plan below:**

1.	General characteristics	
2.	Symptoms	
3.	Investigations / Analyses	
4.	Treatment	
5.	Complications	

**b) Describe the terms *bacteriuria, haematuria, albuminuria* completing the sentences below.**

- 1) ... is a sign of urinary tract infection.
- 2) It can be observed in such renal diseases as ... and....
- 3) ... is presence of ... in the urine.
- 4) ... is detected by urinalysis.

**\*Exercise 13. Read the case description and fill in the table below with the appropriate information. Explain the terms in bold:**

A 69-year-old woman with 25-year history of renal insufficiency with hypertension was

hospitalized for worsening renal function, back pain and fever on September 21, 2017. Her past history included extracorporeal shock wave lithotripsy for left renal stone and percutaneous nephrolithotomy for right ureteral stone. In addition, 5 years earlier she had been admitted to our department for anemia, high level of serum creatinine. At that time, serum creatinine was 160  $\mu\text{mol/l}$ , hemoglobin was 80 g/l, 24-h proteinuria 0.65 g, Urine leukocytes were 2-3 per high power field and urine culture was negative. Kidney ultrasonic showed right kidney was smaller than the left. The patient was discharged with the diagnosis of chronic renal insufficiency and hypertensive nephropathy. At the time of this admission, the blood pressure 129/77 mmHg, temperature 38.5°C, physical examination was unremarkable. Laboratory data revealed ESR 98 mm/h, CRP 51 mg/l, urine osmotic pressure 388 mosm/kg, Hb 74 g/l, serum creatinine 410  $\mu\text{mol/l}$ , Urine leukocytes 2-3/HP and urine culture was negative. Kidney MRI showed enlargement of renal pelvis and distortion of calyces and scarring of the overlying of two kidneys. On the basis of clinical history and kidney MRI, we diagnosed primary chronic pyelonephritis with active episode. Antibiotics and support treatment were administered. The temperate went back to normal and serum creatinine decreased to 314  $\mu\text{mol/L}$ .

Patient	Past history	This admission
	<i>Laboratory data:</i>	<i>Vital signs:</i>
	<i>Instrumental studies:</i>	<i>Laboratory data:</i>
	<i>Surgical interventions:</i>	<i>Instrumental studies:</i>
	<i>Diagnosis:</i>	<i>Diagnosis:</i>

### TASKS FOR SELF-CONTROL

#### Answer the questions:

1. What is a group of inflammatory renal diseases called?
2. What are the manifestations of glomerulonephritis?
5. What are the causes of pyelonephritis?
6. How are the manifestations of acute and chronic forms of pyelonephritis?
7. What are the complications of pyelonephritis?
8. What are the risk factors of nephrolithiasis?
9. What does the migration of a renal calculus lead to?
10. How is nephrolithiasis treated?

**Explain the terms:** glomerulonephritis, pyelonephritis, nephrolithiasis, hydronephrosis, pyonephrosis, bacteriuria, haematuria, albuminuria

### ANTIBIOTICS

#### Exercise 1. Topic Vocabulary:

cure, <i>v</i>	[kjʊə]	eliminate a disease from the body by medical or other treatment; cause recovery
decline, <i>v</i>	[di'klaɪn]	deteriorate gradually; fail
drastically, <i>adv</i>	['dræstɪkəlɪ]	extremely in effect; severely or radically
fungus, <i>n</i> , (pl.	['fʌŋgəs/- dʒaɪ]	any member of the kingdom Fungi (or division Thallophyta of the kingdom Plantae), comprising single-

fungi)		celled or multinucleate organisms that live by decomposing and absorbing the organic material in which they grow: includes the mushrooms, molds, mildews, smuts, rusts, and yeasts.
growth, <i>n</i>	[grəʊθ]	an increase, as in size, number, value, or strength
harmful, <i>adj</i>	['hɑ:mfʊl]	causing or capable of causing harm; injurious

**Exercise 2. Form adverbs from the given adjectives and explain what they mean:**

Model: *slow* (повільний) + *ly* = *slowly* (повільно)

Complete, quick, rapid, obvious, hard, easy, quiet, bright, correct, dangerous, cautious, late, absolute, serious, chief, intramuscular, intravenous, oral, subcutaneous.

**Exercise 3. Read and the following word combinations and explain their meaning:**

Antibiotic substances; to fight various diseases; harmful to the cells; bacterial diseases; streptococcal bacteria; attack human cells; process of dividing; treat infectious diseases; complete the course; consume with certain foods and drinks; pathogenic microbes.

**Exercise 4. Read the text and answer the questions below:**

**ANTIBIOTICS**

Antibiotic is a drug produced by certain microbes. Antibiotic substances are obtained from bacteria and fungi that live in the air, soil, and water. Most antibiotics are used by physicians to fight various diseases caused by harmful microbes. A few are used to treat certain types of cancer.

Antibiotics are selectively toxic – that is, they damage certain types of cells, but do not damage others. Many antibiotics are harmful to the cells of pathogenic (disease-causing) microbes, but they do not normally damage human cells. Physicians use these types of antibiotics to treat a variety of bacterial diseases, including gonorrhoea, syphilis, and tuberculosis, and infections caused by staphylococcal and streptococcal bacteria. A small number of antibiotics, however, were developed to attack human cells. Some of these are used to treat cancer. They are selectively toxic mostly because they only damage cells that are in the process of dividing.

Antibiotics are sometimes called "wonder drugs" because they can cure many diseases that once were often fatal. The number of deaths that are caused by meningitis, pneumonia, and scarlet fever has declined drastically since people began using antibiotics.

Antibiotics are usually taken by mouth (orally); however, they can also be administered by injection, or applied directly to the affected part of the body.

Most antibiotics start having an effect on an infection within a few hours. It is important to remember to complete the whole course of the medication to prevent the infection from coming back. If you do not complete the course, there is a higher chance the bacteria may become resistant to future treatments – because the ones that survive when you did not complete the course have had some exposure to the antibiotic and may consequently have built up a resistance to it. Even if you are feeling better, you still need to complete the course.

Some antibiotics should not be consumed with certain foods and drinks. Others should not be taken with food in your stomach – these would normally be taken about an hour before meals, or two hours after. It is crucial that you follow the instructions correctly if you want the medication to

be effective, for example, if you are taking metronidazole do not consume alcohol. Dairy products should not be consumed if you are taking tetracyclines, as they might affect the absorption of the medication.

1. How are antibiotics obtained?
2. What diseases may antibiotics be used in?
3. What cells are many antibiotics normally harmful to?
4. What is selective toxicity?
5. Why do we call some antibiotics as "wonder drugs"?
6. What are the routes of taking antibiotics?
7. How long does it take most antibiotics to have an effect on an infection?
8. Why is it necessary to complete the whole course of antibiotics?

**Exercise 5. Agree or disagree with the following statements:**

1. Antibiotic is a drug produced by certain viruses.
2. Antibiotics damage all kinds of cells in the human body.
3. Antibiotics are sometimes called "wonder drugs" because they can cure many diseases that once were often fatal.
4. Antibiotics can be administered in different ways.
5. Most antibiotics start having an effect on an infection within a few seconds.
6. Dairy products should be consumed if you are taking tetracyclines.
7. Some antibiotics are used to treat cancer.
8. Antibiotics are selectively toxic mostly because they only damage cells that are in the process of dividing.

**Exercise 6. Match the words or word combinations with the definitions:**

1. fungus	a) any of various chemical substances, such as penicillin or streptomycin, produced by various microorganisms, esp. fungi, or made synthetically and capable of destroying or inhibiting the growth of microorganisms, esp. bacteria;
2. antibiotic	b). any microscopic organism too small to be visible to the naked eye;
3. microbe	c) a very large group of microorganisms comprising one of the three domains of living organisms. They are prokaryotic, unicellular, and either free-living in
4. bacteria	
5. meningitis	
6. scarlet fever	
7. cancer	

				soil or water or parasites of plants or animals; d) any member of a kingdom of organisms that lack chlorophyll, leaves, true stems, and roots, reproduced by spores, and live as saprotrophs or parasites. The group includes moulds, mildews, rusts, yeasts, and mushrooms; e) a malignant tumour which is caused by the uncontrolled division of cells that then invade and destroy the surrounding tissues; f) a highly infectious disease caused by Streptococcus bacteria; one of the prominent symptoms is a strawberry-coloured tongue; g) an inflammation of the brain membranes due to infection by viruses, bacteria, or fungi.			
1.	2.	3.	4.	5.	6.	7.	

**Exercise 7. Fill in the gaps with the prepositions from the table:**

eo(2); in; of(2); by(2); on
-----------------------------

1. The first antibiotic was discovered ... Alexander Fleming in 1928 in a significant breakthrough (против) in medical science.
2. Some antibiotics are “bactericidal”, meaning that they work ... killing bacteria.
3. Some antibiotics can be used to treat a wide range ... infections and are known as “broad-spectrum” antibiotics.
4. The most common side effects ... antibiotics are diarrhea, nausea, vomiting.
5. Some people are allergic... antibiotics, particularly penicillin.
6. Allergic reactions cause swelling of the face, itching and a skin rash and, ... severe cases, breathing difficulties.
7. The type of antibiotics you take depends ... the type of infection you have and what kind of antibiotics are known to be effective.
8. Bacteria may become resistant ... future treatment.

**Exercise 8. Put questions to the underlined words:**

1. The discovery of antibiotics greatly improved the quality of human life in the twentieth century.
2. Antibiotic drugs are made from living organisms such as fungi, molds.



3. Antibiotics can also be produced synthetically (artificially).
4. Prontosil was discovered in 1935 by German chemist Gerhard Domagk.
5. Bacterial resistance occurs when some bacteria survive attack by the antibacterial drug.
6. In 1928, British bacteriologist Alexander Fleming discovered the bacteria-killing property of penicillin.
7. The antibiotic works by blocking the formation of the bacterial cell wall, thus killing the bacteria.
8. Most antibiotics start having an effect on an infection within a few hours.

**Exercise 9. Put the sentences into the correct order to explain the term “antibiotic”:**

\_\_ Antibiotics are selectively toxic – that is, they damage certain types of cells, but do not damage others.

\_\_ It is important to remember to complete the whole course of antibiotics to prevent the infection from coming back.

\_\_ Most antibiotics are used by physicians to fight various diseases caused by harmful microbes.

\_\_ Antibiotic is a drug produced by certain microbes.

\_\_ Antibiotics are usually taken by mouth (orally); however, they can also be administered by injection, or applied directly to the affected part of the body.

**Exercise 1. Read the package insert for the drug and answer the questions below:**

**BACTOX Amoxicillin**

powder for oral suspension

**PRESENTATION : .**

**BACTOX 250 mg** : powder for oral suspension :

**THERAPEUTICAL INDICATIONS** : This medicine is an antibiotic of the penicillin type A family. This medicine is recommended for bacterial infections due to sensitive germs, especially for respiratory, urinary infections and all infections of the nose, throat and ears.

**CONTRAINDICATIONS** : This medicine **MUST NOT BE USED** in the following cases :

- a) Known allergy to penicillin
- b) Glandular fever. In case of doubt it is essential to ask for your doctor's or chemist's advice.

**WARNING:** Because of possible allergy always inform your doctor about your present or past diseases.

It is necessary to inform your doctor of all renal diseases due to the necessity of adapting the treatment.

**OTHER POSSIBLE EFFECTS OF THE MEDICINE** : Like any other active product this medicine may present following secondary effects to some people. The most usual are : digestive outbreaks : nausea, vomiting, diarrhea, urticaria. In case of diarrhoea during the treatment with

Bactox, immediately inform your doctor. Never start an anti diarrhoea treatment without medical prescription.

#### **METHOD OF USE:**

Fill the bottle with plain water up to the circular mark.

Shake it several times until obtaining an homogeneous liquid. If necessary add some water up to the mark.

Fill the standard spoonful to get a full measure.

Shake the bottle well before each use.

Bactox can indifferently be taken on an empty stomach, before, during or after the meals.

**POSOLOGY AND ADMINISTRATION WAY :** The usual posology is 25 to 50 mg per kilo and per day.

To be efficient this antibiotic must be used regularly according to the prescribed posology and as long as recommended by your doctor. Fever or any other symptom when disappeared doesn't mean that you have completely recovered. The possible sensation of fatigue is not linked with the antibiotic treatment, but with the infection itself.

**DURATION OF STABILITY :** DO NOT EXCEED THE LIMIT DATE OF USE INDICATED ON THE PACKING

**PARTICULAR WARNINGS FOR CONSERVATION :** this medicine must be kept at room temperature. The prepared suspension cannot be kept more than 7 days.

1. What type of drugs is Batox?
2. In what form is Batox manufactured?
3. How is Batox administered?
4. In what cases is Batox indicated?
5. What are the contraindications of Batox?
6. Should Batox be taken after or before meals?
7. What are the doses of Batox?
8. What symptoms may appear during Batox intake?
9. How long should the prepared suspension be kept?

#### **TASKS FOR SELF-CONTROL**

##### **Answer the questions:**

1. How are antibiotics obtained?
2. What diseases may antibiotics be used in?
3. What cells are many antibiotics normally harmful to?
4. What is selective toxicity?
5. Why do we call some antibiotics "wonder drugs"?
6. What are the routes of taking antibiotics?
7. How long does it take most antibiotics to have an effect on an infection?
8. Why is it necessary to complete the whole course of treatment with antibiotics?

**Explain the medical term:** antibiotic

**HYPERTENSION**

**Exercise 1. Topic vocabulary:**

asymptomatic, <i>adj</i>	[æ, sɪmptə' mæɪtɪk]	without symptoms
confusion, <i>n</i>	[kən' fju:ʒ(ə)n]	change in mental status in which a person is not able to think with his or her usual level of clarity; feeling disoriented
drowsiness, <i>n</i>	['draʊzɪnəs]	a feeling of being sleepy and lethargic; sleepiness
failure, <i>n</i>	['feɪljə]	the state of insufficiency or nonperformance; dysfunction of body systems or organs
life expectancy, <i>n</i>	[ɪk' spekt(ə)nsɪ]	the number of years a person can expect to live
moderate, <i>adj</i>	['mɒdərɪt]	average in amount, intensity, quality, or degree
persistent, <i>adj</i>	[pə'sɪstənt]	continuing to exist or occur over a prolonged period
potassium, <i>n</i>	[pə'tæsiəm]	a chemical element with the symbol K (from Neo-Latin kalium) and atomic number 19
sedentary, <i>adj</i>	['sedntəri]	characterized by much sitting and little physical exercise
stroke, <i>n</i>	[strəʊk]	when a blockage or bleed of the blood vessels either interrupts or reduces the supply of blood to the brain

**Exercise 2. Pronounce correctly:**

Hydrargyrum [hai 'drɑ:dʒɪrəm], [thiazide-diuretics](#) ['θaɪəzɪ:(aɪ)d ,daiju'retɪks], [calcium channel blockers](#) ['kalsiəm 'tʃænl 'blɒkəs], beta blockers ['bi:tə 'blɒkəs], vasodilators [veɪzəʊ daɪ 'leɪtəs], angiotensin-converting enzyme (ACE) inhibitors [ændʒiəʊ'tensɪn kən'vɔ:tɪŋ 'enzaim ɪn 'hɪbɪtəs], [angiotensin receptor blockers](#) [ændʒiəʊ'tensɪn ri 'septə 'blɒkəs].

**Exercise 3. Form new words adding the prefixes *hyper-*(above) and *hypo-*(under). Explain them:**

**Model:** tension – hypertension

Activity, function, genesis, metabolism, secretion, sensitivity, thyroidism

**Model:** tension – hypotension

Hydration, mobility, nutrition, toxicity, vitaminosis, uresis, salivation, glycemia

**Exercise 4. Read and explain the following word-combinations:**

systemic arterial blood pressure; obvious medical cause; persistent hypertension; chronic kidney failure; shortened life expectancy; accelerated hypertension; sedentary lifestyle; potassium deficiency; inherited genetic mutations; family history of hypertension, managing stress

**Exercise 5. Read the text and answer the questions below:****HYPERTENSION**

Hypertension or high blood pressure is a long term medical condition in which the systemic arterial blood pressure is elevated. It happens when blood flows through the blood vessels with a force greater than normal, when the force of the blood pumping through the arteries is too strong. The more pressure the blood exerts on the artery walls, the higher the blood pressure will be.

Blood pressure involves two measurements, systolic and diastolic. Normal blood pressure is 120 over 80 mm of Hg (Hydrargyrum, mercury). The first figure is the systolic blood pressure, the pressure there is in the arteries when your heart is contracting. The second, or lower figure, is the

diastolic blood pressure, which is the pressure in your arteries between heart beats. High blood pressure is anything above 140/90 mm/Hg. Hypertension is the opposite of hypotension. Hypertension is classified as either primary hypertension or secondary hypertension. About 90–95% of cases are categorized as "primary hypertension," which means high blood pressure with no obvious medical cause. The remaining 5–10% of cases (secondary hypertension) is caused by other conditions that affect the kidneys, arteries, heart or endocrine system.

Persistent hypertension is one of the risk factors for stroke, myocardial infarction and heart failure, and is a leading cause of chronic kidney failure. Moderate elevation of arterial blood pressure leads to shortened life expectancy. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of associated health complications, although drug treatment may prove necessary in patients for whom lifestyle changes are ineffective or insufficient.

Mild to moderate essential hypertension is usually asymptomatic. Accelerated hypertension is associated with headache, drowsiness, confusion, vision disorders, nausea, and vomiting.

Although no direct cause for hypertension has been identified, there are many factors such as sedentary lifestyle, smoking, stress, obesity, potassium deficiency, salt sensitivity, alcohol intake, and vitamin D deficiency that increase the risk of developing hypertension. Risk also increases with aging, some inherited genetic mutations, and having a family history of hypertension.

Lifestyle changes and medications can lower blood pressure and decrease the risk of health complications. Lifestyle changes include:

- salt intake reduction
- fat intake reduction
- weight loss
- getting regular exercise
- quitting smoking
- reducing alcohol consumption
- managing stress

If lifestyle changes are not sufficient blood pressure medications are used. First line medications for hypertension include thiazide-diuretics, calcium channel blockers, beta blockers, vasodilators, angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers.

Diuretics. Diuretics, sometimes called water pills, are medications that help your kidneys eliminate sodium and water from the body. These drugs are often the first medications tried to treat high blood pressure.

Angiotensin-converting enzyme (ACE) inhibitors. These medications (e.g. benazepril) help relax blood vessels by blocking the formation of a natural chemical that narrows blood vessels.

Calcium channel blockers. These medications (e.g. amlodipine) help relax the muscles of your blood vessels. Some slow your heart rate.

Beta-blockers (e.g. bisoprolol) reduce blood pressure by blocking the effects of certain stress hormones, such as epinephrine.

These drugs may be used alone or in combination. The majority of people require more than one medication to control their hypertension.

1. What is hypertension?
2. What is systolic blood pressure?
3. What is diastolic blood pressure?
4. What blood pressure is considered to be normal?
5. What may persistent hypertension lead to?
6. What is accelerated hypertension associated with?
7. What increases the risk of developing hypertension?
8. What medicines do the first line medications for hypertension include?

**Exercise 6. Find the opposites to the following words:**

1. effective	a) shortened
--------------	--------------

2. prolonged	b) secondary
3. decreased	c) hypotension
4. hypertension	d) ineffective
5. deteriorate	e) elevated
6. sufficient	f) insufficient
7. primary	g) congenital
8. inherited	h) improve

**Exercise 7. Match the words to their definitions:**

1. diuretic	a) drug, agent, or nerve that can cause dilatation of the walls of blood vessels
2. calcium	b) any of a group of complex proteins or conjugated proteins that are produced by living cells and act as catalysts in specific biochemical reactions
3. vasodilator	c) a peptide of physiological importance that is capable of causing constriction of blood vessels, which raises blood pressure
4. angiotensin	d) a substance that inhibits a metabolic or physiological process
5. enzyme	e) a sensory nerve ending that changes specific stimuli into nerve impulses
6. receptor	f) a malleable silvery-white metallic element of the alkaline earth group
7. inhibitor	g) an agent that blocks a physiological function
8. blocker	h) acting to increase the flow of urine

**Exercise 8. True or false?**

1. Systolic blood pressure is pressure between heart beats.
2. Primary hypertension means hypertension without any predisposing reasons.
3. Persistent hypertension may lead to heart failure.
4. There are many symptoms accompanying hypertension.
5. Losing weight helps to treat hypertension.
6. Moderate elevation of blood pressure doesn't influence life expectancy.
7. Primary hypertension is more spread than secondary one.
8. Drugs are prescribed when hypertension is very high.

**Exercise 9. Put questions to the underlined words:**

1. The heart has to work harder to pump the blood around the body on physical exertion.
2. Blood pressure involves two measurements.
3. Normal blood pressure is 120/80 mm/Hg.
4. Hypertension is classified as either primary hypertension or secondary hypertension.
5. Moderate elevation of arterial blood pressure leads to shortened life expectancy.
6. Dietary and lifestyle changes can improve blood pressure control.
7. Accelerated hypertension is associated with headache, drowsiness, confusion, vision disorders, nausea, and vomiting.
8. The first line of treatment for hypertension includes some lifestyle changes.

**Exercise 10. Open the brackets put the verbs into the appropriate tense (Active or Passive):**

1. Occupation (not to play) an important role in the etiology of hypertension.
2. Hypertension in the older age group (to associate) with loss of elasticity of the aorta and its main branches.

3. Hypertension (to be) more common in the female than in the male.
4. Hypertension (to tolerate) better during the child-bearing years in the female than hypertension in male.
5. Lifestyle changes (to recommend) together with medications.
6. Accelerated hypertension (to associate) with headache, drowsiness, confusion, vision disorders, nausea, and vomiting.
7. Dietary and lifestyle changes (to decrease) the risk of associated health complications.
8. No direct cause for hypertension (to identify) yet.

**Exercise 11. Complete the following sentences choosing suitable words or words combinations from the box:**

At home; decisions ; at least; measurement; drug stores; readings; in the past 30 minutes; health care provider; at night

**Blood pressure measurement**

Blood pressure is a ... of the force on the walls of your arteries as your heart pumps blood through your body.

You can measure your blood pressure... . You can also have it checked at your health care provider's office, a fire station, or with blood pressure machines in ... and other places.

***How to Prepare for the Test***

Before you measure your blood pressure:

- Rest for ...5 minutes before blood pressure is taken.
- Do not take your blood pressure when you are under stress, have had caffeine or used a tobacco... , or have exercised recently.
- Take two or three ... at a sitting. Take the readings 1 minute apart. Remain seated. When checking your blood pressure outside the doctor's office, note the time of the readings. Your ... may suggest that you do your readings at certain times.
- You may want to take your blood pressure in the morning and ... for a week.
- This will give you at least 12 readings and will help your health care provider make ... about your blood pressure treatment.

**Exercise 12. Put the sentences into the correct order to measure your blood pressure:**

**How the Blood pressure measurement is performed**

1. As the air continues to be let out, the sounds will disappear. The point at which the sound stops is recorded. This is the diastolic pressure.
2. You or your health care provider will wrap the blood pressure cuff snugly around your upper arm. The lower edge of the cuff should be 1 inch above the bend of your elbow.
3. The cuff will be inflated quickly. This is done either by pumping the squeeze bulb or pushing a button. You will feel tightness around your arm.
4. Next, the valve of the cuff is opened slightly, allowing the pressure to slowly fall.
5. Your arm should be supported so that your upper arm is at heart level.
6. Sit in a chair with your back supported. Your legs should be uncrossed, and your feet on the floor.
7. As the pressure falls, the reading when the sound of blood pulsing is first heard is recorded. This is the systolic pressure.
8. Roll up your sleeve so that your arm is bare.

**Exercise 14. a) fill in in the table; b) describe the term *hypertension* using the information of the table:**

1.	General characteristics	
2.	Symptoms	
3.	Analyses	
4.	Treatment	

5.	Complications	
----	---------------	--

**\*Exercise 14. Read the case presentation and fill in the table below with appropriate information. Explain the clinical terms in bold:**

A 50 year-old-female teacher visited Services Hospital Lahore with the complaints of **headache**, nausea, **drowsiness**, **blurred vision**, and **fatigue**. She was experiencing those symptoms last 2 months. She was also suffering from diabetes mellitus type 2 since 2. She had recently diagnosed with hypertension.

Medication Therapy

Bisoprolol Fumarate 5mg OD (*daily*)

Amlodipine 5 mg OD

Sitamet Sitagliptin + Metformin HCl 50mg +1000mg BD (*twice a day*) to lower blood sugar

Care Plan

*Lifestyle modifications:*

Exercise and walk to reduce body weight

Proper diet rich in fruits, vegetables, whole grains, low fat poultry and fish

Low dietary salt and sugar intake

Avoid red meat, fats and alcohol

Patient	Symptoms/ complaints	Past medical history	Diagnosis	Recommended lifestyle changes

**TASKS FOR SELF-CONTROL**

**Answer the questions**

- 1.What is hypertension?
- 2.What is systolic blood pressure?
- 3.What is diastolic blood pressure?
- 4.What blood pressure is considered to be normal?
- 5.What may persistent hypertension lead to?
- 6.What are the symptoms of accelerated hypertension?
- 7.What increases the risk of developing hypertension?
- 8.What medicines do the first line medications for hypertension include?

**Explain the terms**

- hypertension
- primary hypertension
- secondary hypertension
- systolic blood pressure
- diastolic blood pressure

**MYOCARDIAL INFARCTION**

**Exercise 1. Topic vocabulary:**

angina (pectoris)	[an'dʒaɪnə 'pektərɪs]	the medical term for chest pain or discomfort due to
-------------------	-----------------------	--

		coronary heart disease
consciousness, <i>n</i>	['kɒŋʃəsnɪs]	the state of being conscious; fully alert, aware, oriented, and responsive to the environment
indigestion, <i>n</i>	[ɪndɪ'dʒɛstʃən]	a condition of impaired digestion
ischemia, <i>n</i>	[ɪs'ki:mɪə]	inadequate blood supply to a local area due to blockage of blood vessels leading to that area
palpitation, <i>n</i>	[pælprɪ'teɪʃ(ə)n]	an abnormally rapid or irregular beating of the heart
plaque, <i>n</i>	[plɑ:k]	a semi-hardened accumulation of substances, e.g cholesterol plaque
recurrent. <i>adj</i>	[rɪ'kʌr(ə)nt]	appearing or occurring again
rupture, <i>n</i>	['rʌptʃə]	a break or tear in any organ or soft tissue

**Exercise 2. Pronounce correctly:**

Myocardial infarction [maɪə'kɑ:dɪəl m'fɑ:kʃ(ə)n ], blood supply [blʌd sə'plʌɪ ], epigastrium [ˌepɪ'gɑstriəm], echocardiography [ˌɛkəʊkɑ:dɪ'ɒgrəfi], dispnea [dɪsp'ni:ə], erythrocyte [ɪ'rɪθrə(ʊ)saɪt], thrombus ['θrɒmbəs], accelerated heartbeat [ək'seləreɪtɪd 'hɑ:tbɪ:t].

**Exercise 3. Remember roots, suffixes, and prefixes related to the heart and blood vessels:**

component	meaning	example
<b>CARDIO-</b>	heart	echocardiogram = sound wave image of the heart.
<b>CYTE-</b>	cell	thrombocyte = clot forming cell.
<b>HAEM-</b>	blood	haematoma - a tumour or swelling filled with blood.
<b>THROMB-</b>	clot, lump	thrombocytopenia = deficiency of thrombocytes in the blood
<b>ERYTHRO-</b>	red	erythrocyte = red blood cell
<b>LEUKO-</b>	white	leukocyte = white blood cell
<b>VAS-</b>	vessel / duct	cerebrovascular = blood vessels of the cerebrum of the brain.
<b>-EMIA</b>	condition of blood	anaemia = abnormally low levels of red blood cells.

**Exercise 4. Read and explain the following word-combinations:**

Interruption of blood supply; rupture of an atherosclerotic plaque; chronic kidney disease, heart failure; sensation of tightness, pressure, or squeezing; angina pectoris; feeling of indigestion; a recurrent myocardial infarction.

**Exercise 5. Read and translate the text:**

**MYOCARDIAL INFARCTION**

Myocardial infarction, commonly known as a heart attack, is an interruption of blood supply to a part of the heart causing heart cells to die. This is most commonly due to occlusion of a



coronary artery after the rupture of an atherosclerotic plaque. The resulting ischemia, if left untreated for a sufficient period of time, can cause damage or death of the heart muscle tissue.

Heart attack rates are higher in intense exertions, such as psychological stress or physical exertion. Acute severe infection, such as pneumonia, can trigger myocardial infarction. Important risk factors are previous cardiovascular disease, older age, tobacco smoking, diabetes, high blood pressure, obesity, chronic kidney disease, heart failure, excessive alcohol consumption.

The onset of symptoms in myocardial infarction is usually gradual, over several minutes. Chest pain is the most common symptom of acute myocardial infarction and is often described as a sensation of tightness, pressure, or squeezing. Chest pain due to ischemia of the heart muscle is termed angina pectoris. Pain radiates most often to the left arm, but may also radiate to the lower jaw, neck, right arm, back, and epigastrium.

Other symptoms include weakness, nausea, vomiting, and palpitation. Loss of consciousness and sudden death can occur in myocardial infarction. Women may experience fewer typical symptoms than men, most commonly shortness of breath, weakness, a feeling of indigestion, and fatigue. Approximately one quarter of all myocardial infarctions are “silent”, without chest pain or other symptoms.

Among the diagnostic tests available to detect heart muscle damage are an electrocardiogram (ECG) and echocardiography. Various blood tests can also be used to check for proteins that are associated with heart damage, such as troponin.

Heart attacks require immediate treatment, so most treatments begin in the emergency room. A minimally invasive procedure called percutaneous coronary intervention or angioplasty may be used to unblock the arteries that supply blood to the heart.

A number of different medications can also be used to treat a heart attack:

- Blood thinners, such as aspirin, are often used to break up blood clots and improve blood flow through narrowed arteries.
- Thrombolytics are often used to dissolve clots.
- Antiplatelet drugs, such as clopidogrel, can be used to prevent new clots from forming and existing clots from growing.
- Sublingual nitroglycerin can be used to widen your blood vessels.
- Beta-blockers lower your blood pressure and relax the heart muscle. This can help limit the severity of damage to your heart.
- ACE (angiotensin-converting enzyme) inhibitors can also be used to lower blood pressure and decrease stress on the heart.
- Pain relievers may be used to reduce any discomfort a patient can feel.

The risk of a recurrent myocardial infarction decreases with blood pressure control and lifestyle changes, regular exercise, a certain diet for patients with heart disease, and limitation of smoking and alcohol intake.

1. What is myocardial infarction?
2. What can untreated ischemia lead to?
3. What is the most common cause of myocardial infarction?
4. What are the important risk factors for myocardial infarction?
5. List all possible symptoms of myocardial infarction.
6. What diagnostic tests are used to detect heart muscle damage?
7. What does the treatment for acute myocardial infarction include?
8. What should people do to decrease the risk of a recurrent myocardial infarction?

**Exercise 6. What do these medical terms mean (find the match)?**

1. dyspepsia	a) gases
2. thrombus	b) vomiting
3. flatulence	c) shortness of breath
4. emesis	d) eating disorder

5. palpitation	e) nausea
6. retching	f) accelerated heartbeat
7. dyspnea	g) indigestion
8. anorexia	h) clot

**Exercise 7. What clinical term is described?**

Malaise, angina, heartburn, murmurs, dyspnea, sweating, arrhythmia, indigestion

1. Difficulty in breathing;
2. Process of eliminating fluid through the pores of the skin;
3. Burning sensation beneath the breastbone caused by irritation of the esophagus;
4. Feeling of unease or a mild sickness;
5. Difficulty in digesting food, accompanied by abdominal pain, belching, etc.;
6. Pressure in the chest;
7. Abnormal sound heard through a stethoscope over the region of the heart;
8. Any deviation from the normal rhythm in the heartbeat.

**Exercise 8. What disease is described?**

Heart attack, atherosclerosis, hypertension, diabetes, hypoxia, pneumonia, obesity, cholecystitis
---

- |  |
|--|
| <ol style="list-style-type: none"> <li>a) high pressure (tension) in the arteries;</li> <li>b) a medical condition when a patient has too much body fat;</li> <li>c) an inflammation of one or both lungs which is usually caused by bacteria, viruses, or fungi;</li> <li>d) a process of progressive thickening and hardening of the artery walls as a result of fat deposits on their inner lining;</li> <li>e) chest discomfort that occurs when there is decreased blood oxygen supply to an area of the heart muscle;</li> <li>f) a chronic condition associated with abnormally high levels of sugar (glucose) in the blood;</li> <li>g) the death of heart muscle from the sudden blockage of a coronary artery by a blood clot;</li> <li>h) inflammation of the gall bladder due to bacterial infection or the presence of gallstones.</li> </ol> |
|--|

**Exercise 9. Fill in the table “Myocardial Infarction”:**

1	Definition	
2	Causes	
3	Symptoms	
4	Risk factors for recurrent MI	
5	Examinations	
6	Treatment	

**Exercise 10. Read the passage on heart transplantation and fill in the gaps with appropriate prepositions:**

After, in, for, as, to, of, from
----------------------------------

One of the most important advances ..... heart surgery during the 1960s was the transplantation of the heart immediately ..... the death of an individual (the donor) ..... a recipient suffering ..... incurable heart disease. In the 1980s new advances in the design and construction ..... an artificial heart – both the entire organ and such parts as the valves and large blood vessels – showed some promise in treating cardiovascular disease. The artificial heart has often been used ..... a temporary measure until a permanent human donor heart can be located. In addition, it is often unclear how long the recipient will have to wait ..... a donor.

**Exercise 11. Open the brackets, using the proper tense and voice form of the verbs:**

Last year the patient Green, aged 65, (to admit) to the hospital with acute chest pain. He (to experience) shortness of breath and pain that (to radiate) to the left arm. The doctor immediately (to suspect) a heart attack and (to make) the patient (to take) an ECG. The diagnosis (to confirm) by the abnormal reading of the ECG. The blood analyses (to reveal) a number of cardiac enzymes. The cardiologist (to administer) his patient an adequate treatment. To relieve pain he (to give) nitroglycerin. Fortunately, the patient (not to have) any complications, because the doctor's help (to be) prompt and thorough. Very soon patient Green's condition (to improve).

**Exercise 12. Put questions to the underlined words:**

1. A myocardial infarction is also known as a heart attack.
2. A MI means the death of heart muscle.
3. A MI is caused by the sudden blockage of a coronary artery by a blood clot.
4. Coronary arteries supply the heart muscle with blood and oxygen.
5. Blockage of a coronary artery deprives the heart muscle of blood and oxygen.
6. The onset of symptoms in myocardial infarction is usually gradual.
7. Acute severe infection, such as pneumonia, can trigger myocardial infarction.
8. In MI pain radiates most often to the left arm.

**TASKS FOR SELF-CONTROL****Answer the questions:**

1. What is myocardial infarction?
2. What can untreated ischemia lead to?
3. What is the most common cause of myocardial infarction?
4. What are the important risk factors for myocardial infarction?
5. List all possible symptoms of myocardial infarction.
6. What diagnostic tests are used to detect heart muscle damage?
7. What does the treatment for acute myocardial infarction include?
8. What should people do to decrease the risk of a recurrent myocardial infarction?

**Explain the terms:** myocardial infarction, angina pectoris

**CARDIOVASCULAR DRUGS****Exercise 1. Topic vocabulary:**

anticoagulant <i>n.</i>	['æntikəu'ægjulənt]	a substance that slows or prevents the clotting of blood
blood clotting <i>n.</i>	['blʌd, klɒtɪŋ]	a process in which a blood clod is changed into a semi-solid mass (a blood clot)
constrict <i>v.</i>	[kən'strɪkt]	cause to contract or shrink
digitalis glycosides <i>n.</i>	[,dɪdʒɪ'teɪlɪs 'glɑɪkəʊ, saɪd]	a drug prepared from the dried leaves of <i>Digitalis purpurea</i> , used as a cardiac stimulant.
excretion <i>n.</i>	[ɪk'skri:ʃ(ə)n]	the act or process of discharging waste matter from the blood, tissues, or organs
heart failure <i>n.</i>	['hɑ:t 'feɪljə]	a condition in which the heart pumps inadequate amounts of blood, characterized by edema, esp. of the lower legs, and shortness of breath.

involuntary <i>adj.</i>	[ɪn'vɒlənt(ə)ri]	unintentional; unconscious
potent <i>adj.</i>	[ˈpəʊt(ə)nt]	strong, mighty, powerful

**Exercise 2. Form words with the help of negative prefixes explain what they mean:**

**Model:** consciousness– unconsciousness

**un-:** treated, experienced, human, hurt, bearable, believable;

**in-:** visible, different, curable, variable, voluntary, soluble;

**mis-:** understand, translate, pronounce, diagnose, read, count;

**mal-:** nutrition, formation, position, treatment, occlusion, absorption.

**Exercise 3. Explain what the following word combinations mean:**

Contract with sufficient force, prevent blood clotting, preserved blood, stop local bleeding, smooth (involuntary) muscles in the body, promote excretion of fluid, well tolerated drugs, depress unwanted myocardial impulses, to constrict muscle fibers.

**Exercise 4. Read the text and answer the questions below:**

**Cardiovascular drugs.**

Cardiovascular drugs may be divided into three groups: drugs that affect the heart; drugs that affect blood pressure and drugs that prevent blood clotting.

Drugs, that affect the heart, change the rate and force of the heartbeat and they are called cardiac glycosides. These drugs are used to treat patients in heart failure (when the heart is not contracting with sufficient force). Most of the digitalis glycosides are obtained from the leaf of the plant.

Drugs that correct an irregular heartbeat and slow a heart that is beating too fast are called **anti-arrhythmics**. These drugs help to restore the heart rhythm to a regular cycle by depressing unwanted myocardial impulses. The compounds used to treat heart rhythm disorders are very potent medications. So, patients should never take more than prescribed.

**Vasodilators** are drugs which relax the muscles of vessels walls, thus increasing the size of blood vessels. These drugs are used in treating blood vessel diseases, heart conditions and high blood pressure (hypertension).

**Nitrites** are drugs which are also used as vasodilators. They dilate all smooth (involuntary) muscles in the body, but have a greater effect on the muscles of the coronary blood vessels.

Another type of the drug used to lower blood pressure is called **a diuretic**. These drugs promote excretion of fluid and which in turn reduces the volume of blood. Diuretics are highly effective, generally well tolerated, and less expensive than most other antihypertensive medications. They are the medications used in the long-term hypertension treatment.

**Vasoconstrictors** are drugs which constrict muscle fibers around blood vessels and narrow the size of the vessel opening. Vasoconstrictors are needed to raise blood pressure, increase the force of heart action, and stop local bleeding.

Drugs that prevent blood clotting are called **anticoagulants**. They are used to prevent the formation of clots in the veins and arteries. These clots may cause occlusion (thrombosis) of the blood supply to a vital organ, such as the brain or may travel from their point of origin to a new site and produce a sudden occlusion of a distant organ (embolism). Anticoagulant drugs are also used to prevent coagulation in preserved blood stored for transfusions.

1. What are the main groups of cardiovascular drugs?
2. How may the drugs affect the heart?
3. What are the most common drugs used to change the rate and force of the heartbeats?
4. What are the important effects of the digitalis glycosides?
5. What drugs are used to increase heart rate and the force of contraction?
6. What drugs are used in treating blood vessel diseases, heart conditions, and high blood pressure?
7. What is the cause of thrombosis?
8. What drugs are used to low blood pressure?
9. What is the action of anticoagulants on the human body?
10. What drugs stop local bleeding?

**Exercise 5. Say whether the sentences are true or false to the text:**

1. The most common drugs used to change the rate and force of the heartbeat are the anti-convulsants.
2. Vasoconstrictors are drugs which relax the muscles of vessels walls, thus increasing the size of blood vessels.
3. Cardiac glycosides will slow down his heart rate.
4. Anticoagulants are used to prevent the formation of clots in veins and arteries.
5. Vasoconstrictors lower blood pressure by excreting fluid out of the body.
6. We need vasoconstrictors to raise blood pressure, increase the force of heart action, and stop local bleeding.
7. Diuretics lower blood pressure by increasing the kidney's excretion of sodium and water.
8. By increasing the force of heart contractions, digitalis preparations increase the amount of blood pumped with each beat.

**Exercise 6. Guess what type of drugs is it said about:**

1. \_\_\_\_\_ inhibit the growth of microorganisms.
2. \_\_\_\_\_ are used to prevent the formation of clots in veins and arteries.
3. \_\_\_\_\_ are used to raise blood pressure, increase the force of heart action, and stop local bleeding.
4. \_\_\_\_\_ strengthen the myocardium and slow the rate of contraction of the heart.
5. \_\_\_\_\_ produce substances, which are called antibodies that fight a particular disease.
6. \_\_\_\_\_ facilitate or increase bowel movements and are mostly used to treat constipation.
7. \_\_\_\_\_ despite antibiotics are produced synthetically.
8. Penicillin was the first \_\_\_\_\_ to be produced and it still assumes a position of major importance in this field.

**Exercise 7. Change the Active voice into Passive:**

**Model:** Anti-arrhythmic drugs **restore** the heart rhythm. – The heart rhythm **is restored** by the antiarrhythmic drugs.

1. These drugs change the rate and forcefulness of the heartbeat.
2. They used cardiac glycosides to treat patients with heart failure.
3. This preparation will correct abnormal heart rhythm.
4. Vasodilators relax the muscles of vessel walls.
5. We will use these drugs in treating blood vessel diseases and high blood pressure.
6. We need vasoconstrictors to raise blood pressure, increase the force of heart action, and stop local bleeding.
7. They called drugs that prevent blood clotting anticoagulants.
8. Anticoagulants prevent the formation of clots in veins and arteries.

**Exercise 8. Put questions to the underlined words:**

1. An excessive dose of narcotic analgesics produced unconsciousness in this patient.
2. Loss of sensation will be produced by anesthetics.
3. This drug should be used with caution in patients with elevated intra-ocular pressure.
4. Sedatives are used to quiet and relax the patient without necessarily producing sleep.
5. The patient has just been given an intravenous injection.
6. Blood pressure involves two measurements.
7. Symptoms vary with the severity of the inflammation.
8. The excessive use of this drug may occasionally cause a rise in blood pressure.

**Exercise 9. Open the brackets:**

1. This drug (to produce) drowsiness if it is taken in excessive doses.
2. The patient was restless, irritable; he (to suffer) from nightmare, and (to become) delirious.
3. The formation of clots in arteries already (to prevent) by the administration of this drug.
4. Eye drops (to use) for the prevention of ocular infection after removal of a foreign body.
5. The patients (to examine) by a doctor in charge now.
6. Diuretics (to excrete) fluid and (to low) high blood pressure an hour ago.
7. Last morning an old woman (to make) an X-ray of the right side of the neck.
8. The patient, who has had a replaced heart valve, (to require) anticoagulants in order to prevent formation of clots.

**Exercise 10. Make a summary of the package insert below, comment on the properties, composition, mechanism of action, indication, dosage and use, contraindications, side effects, storage and term of validity of the drug.**

**DILTIAZEM HYDROCHLORIDE TABLETS 60mg**

## **Qualitative and quantitative composition**

Each tablet contains 60mg Diltiazem Hydrochloride.

Excipient(s) with known effect: Each tablet contains 111.50mg lactose and 42.00mg hydrogenated castor oil.

## **Pharmaceutical form**

White uncoated modified-release tablets.

## **Clinical particulars**

### **Therapeutic indications**

- 1) Prevention and long term treatment of angina pectoris. NOT indicated for acute attacks of angina.
- 2) Treatment of mild to moderate arterial hypertension.

### **Posology and method of administration**

#### Posology

##### *Adults:*

The usual dose is one tablet (60mg) three times daily. However, patient responses may vary and dosage requirements can differ significantly between individual patients. If necessary the divided dose may be increased to 360mg/daily. Higher doses of up to 480mg/daily have been used with benefit in some patients, especially in unstable angina. There is no evidence of any decrease in efficacy at these high doses.

##### *Elderly and patients with impaired hepatic or renal function:*

The recommended starting dose is one tablet (60mg) twice daily. The heart rate should be measured regularly in these groups of patients and the dose should not be increased if the heart rate falls below 50 beats/minute.

#### Method of Administration

For oral administration. Tablets should be swallowed whole with a little water.

### **Contraindications**

- Sick sinus syndrome, 2<sup>nd</sup> or 3<sup>rd</sup> degree AV block in patients without a functioning pacemaker
- Lactation
- Severe bradycardia (less than 50 beats per minute)
- Left ventricular failure with pulmonary stasis
- Concurrent use with dantrolene infusion (see section 4.5)
- Hypersensitivity to diltiazem or to any of the excipients listed in section 6.1
- Combination with ivabradine (see section 4.5).

### **Pharmacological properties**

#### **Pharmacodynamic properties**

Pharmacotherapeutic group: Calcium channel blockers; Benzothiazepine derivatives

Diltiazem is a calcium antagonist. It restricts the slow channel entry of calcium into the cell and so reduces the liberation of calcium from stores in the sarcoplasmic reticulum. This results in a reduction of the amount of available intracellular calcium reducing myocardial oxygen consumption. It increases exercise capacity and improves all indices of myocardial ischaemia in the angina patient.

Diltiazem relaxes large and small coronary arteries and relieves the spasm of vasospastic (prinzmetals) angina and the response to catecholamines but has little effect on the peripheral vasculature. There is therefore no possibility of reflex tachycardia. A small reduction in heart rate occurs which is accompanied by an increase in cardiac output, improved myocardial perfusion and reduction of ventricular work.

### Pharmacokinetic properties

Diltiazem hydrochloride is effective in angina, protecting the heart against ischaemia, vasodilating coronary arteries and reducing myocardial oxygen requirements. It is well tolerated and does not generally give rise to side effects associated with peripheral vasodilators, nor cause significant myocardial depression.

Diltiazem is well absorbed (90%) in healthy volunteers following oral administration.

Peak plasma concentrations occur 3 to 4 hours after dosing.

Due to a first pass effect, the bioavailability of the 60 mg tablet is about 40 %. The mean apparent plasma half-life is 4- 8 hours.

Less than 5% of diltiazem is excreted unchanged in the urine.

## TASKS FOR SELF-CONTROL

### Answer the questions:

1. What are the main groups of cardiovascular drugs?
2. How may drugs affect the heart?
3. What are the most common drugs used to change the rate and force of heartbeats?
4. What are the important effects of the digitalis glycosides?
5. What drugs are used to increase heart rate and the force of heart contraction?
6. What drugs are used in treating high blood pressure?
7. What drugs used in the long-term hypertension treatment?
8. What drugs are used to lower blood pressure?
9. What is the action of anticoagulants on the human body?
10. What drugs stop local bleeding?

**Explain the medical terms:** cardiovascular drugs, anti-arrhythmics, vasodilators, diuretics, vasoconstrictors, anticoagulants.

## DISEASES OF THE STOMACH

### Exercise 1. Topic vocabulary:

antacid <i>n</i>	[,ænt'æsɪd]	any substance used to counteract or neutralize gastric acids and relieve the discomfort caused by gastric acidity
belching <i>n</i>	[belʃɪŋ]	voluntary or involuntary, sometimes noisy, release of air from the stomach or esophagus through the mouth.
bloating <i>n</i>	[bloʊtɪŋ]	retention of gas in the stomach or GI tract
cytoprotective, <i>adj</i>	['saitə(u)prə'tektɪv]	descriptive of a drug or agent protecting cells from damage expected to occur
gastroscopy <i>n</i>	[gæ'strɔːskəpi]	examination of the inside of the stomach using a gastroscope passed through the mouth and esophagus
heartburn <i>n</i>	['hɑːtbɜːn]	a burning sensation behind the sternum due to



		spasmodic reflux of acid from the stomach into the esophagus
pernicious anaemia <i>n</i>	[pə'niʃəs ə'ni:mɪə]	a decrease in red blood cells that occurs when the intestines cannot properly absorb vitamin B12
reflux <i>n</i>	['ri:flʌks]	a backward or return flow

**Exercise 2. Using adjective ending – *ic* or –*al* write a word for each of the following definitions:**

*E.g. Pertaining to the caecum - caecal*

1. Pertaining to the intestines –
2. Pertaining to the duodenum –
3. Pertaining to the epigastrium –
4. Pertaining to the rectum –
5. Pertaining to the anus –
6. Pertaining to the pancreas -
7. Pertaining to the esophagus -

**Exercise 3. Explain the following word-combinations:**

chronic bile reflux; blood-streaked vomiting; complete blood count test; over-the-counter antacids, life-threatening consequences of the disease; ulcer recurrence; to aggravate the pain

**Exercise 4. Read and translate the text:**

**The diseases of the Stomach**

The stomach is an important [organ](#) in the body that plays a vital role in [digestion](#) of foods, releases various [enzymes](#) and also protects the lower intestine from harmful organisms.

Most common disorders affecting the stomach are gastritis and gastric ulcer.

Gastritis is an inflammation of the lining of the stomach. Gastric (peptic) ulcer is a sore (lesion) in the stomach lining, which contains special cells producing acids and enzymes, that help break down food, and mucus protecting the stomach lining from acid. When the stomach lining is inflamed, it produces less acid, enzymes, and mucus.

The causes of these two diseases are very much alike.

The main acute causes are extensive alcohol consumption or prolonged use of non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin, traumatic injury or severe infections. Chronic causes are chronic bile reflux. But the primary cause is the infection caused by bacteria, *Helicobacter pylori*. The bacteria produce substances that weaken the stomach's protective mucosa and make it more susceptible to the damaging effects of acid and pepsin.

Gastritis and gastric ulcers are often linked to heavy alcohol consumption. Caffeine stimulates acid secretion in the stomach aggravating the pain and contributes to recurrence.

People with gastritis and peptic ulcers experience dull, burning, sharp or gnawing abdominal pain between the breastbone and the navel. The patient may suffer from nausea, belching, bloating and heartburn.

Patients with gastritis suffer from vomiting that may be clear, green or blood-streaked, depending on the severity of the inflammation. Other symptoms typical for gastritis are indigestion and pernicious anemia.

A diagnosis of gastric disease is made on the basis of the symptoms, complete blood count test, presence of *H. pylori*, urinalyses, stool samples, endoscopy, stomach biopsy, etc.

Once the cause of the disease is identified, exposure should be avoided. If some food is triggering the inflammation, you should exclude it. Over-the-counter antacids in liquid or tablet forms treat mild gastritis and peptic ulcer. Antacids neutralize stomach acid and can provide fast pain relief. Proton pump inhibitor appears to inhibit *H.pylori* activity. Cytoprotective agents protect the tissues lining the stomach. Consumption of hot or spicy food is contraindicated. Patients with pernicious anemia are given B<sub>12</sub> injections. Most patients use a combination of antibiotics and a

proton pump inhibitor to treat H.pylori infection.

If left untreated, gastritis may lead to stomach ulcers and stomach bleeding. Life-threatening consequences of the disease can be stomach cancer.

1. What are the functions of the stomach?
2. What is the function of stomach lining?
3. What are the diseases of the stomach?
4. What similar symptoms do gastritis and peptic ulcer have?
5. What are the causes of gastritis and peptic ulcer?
6. How are gastric diseases treated?
7. What is the diagnosis of gastric diseases based on?
8. What are the complications of gastritis?

**Exercise 5. Match the following terms to their definition:**

1. Gastritis	a. Expelling the wind from the stomach noisily through the mouth
2. Belching	b. An adjunct to diagnosis that involves removing a small sample of living tissue from the body for examining under the microscope
3. Peptic ulcer	c. is a <u>Gram-negative, microaerophilic bacterium</u> found in the <u>stomach</u> , and may be present in other parts of the body, such as the <u>eye</u>
4. Gastrectomy	d. A flexible instrument, comprising fiber optics or a miniature video camera, that permits internal visual examination of the stomach
5. Biopsy	e. painful sore in the lining of the <u>stomach</u>
6. Gastroscope	f. Non-steroidal anti-inflammatory drugs
7. NSAIDs	g. An inflammation of the stomach lining (mucosa)
8. Helicobacter pylori	h. The surgical removal of a part of the stomach

**Exercise 6. Complete the following sentences choosing suitable words from the box:**

Alcohol, spicy foods, infection, perforate, H.pylori, pernicious aneamia, bile reflux, NSAIDs

1. .... or smoking can make gastritis worse.
2. Consumption of ..... and alcohol should be strictly prohibited in patient with gastritis.
3. You're more likely to develop gastritis if you're at risk of .....
4. You may need surgery if your ulcers ....., bleed or obstruct the stomach.
5. .... weakens the lining so acid can reach the stomach and duodenal wall.
6. .... are a class of drugs that provides analgesic (pain-killing) and antipyretic (fever-reducing) effects, and, in higher doses, anti-inflammatory effects.
7. Chronic cause of gastritis may be ..... that is a backflow of bile into the stomach.
8. .... occurs when the stomach lacks red blood cells or hemoglobin needed to properly absorb and digest vitamin B12.

**Exercise 7. Look through the text and find out expressions synonymous to the given ones:**

The major cause, to make pain worse, acid production, alcohol intake, hemorrhage, dangerous results, drugs sold without prescription, the return of the disease.

**Exercise 8. Choose the correct word that completes each of the following sentences:**

1. Ulcer and cirrhosis are not (rare, rear) diseases among those who are prone to alcohol.
2. The animal insulin can (course, cause, coarse) allergic reactions.
3. At later stages gastric cancer can be treated but rarely can be (diagnosed, cured).

4. When gastric cancer is found at an early stage, there is better chance of (convalescence, premature death).
5. Smokers, who have stopped smoking, (lower, increase) their risk of getting gastritis.
6. Stomach cancer is a disease in which (malignant, benign) cells appear in the stomach.
7. Chemotherapy is a treatment that uses (chemical drugs, rays) to stop the growth of cancer cells.
8. After the stomach surgery the patient should take vitamin (supplements, addition) and injections of vitamin B<sub>12</sub>.

**Exercise 9. Learn the following Greek and Latin term elements used in medicine. Give your examples of medical terms with these term elements:**

- \_\_\_\_\_ algia – pain in an organ  
 \_\_\_\_\_ scope – denotes a viewing instrument, used for examining smth  
 \_\_\_\_\_ itis - denotes inflammation of an organ  
 \_\_\_\_\_ logy – denotes a branch of science  
 \_\_\_\_\_ tomy - combining form meaning “cutting, incision” of an organ  
 \_\_\_\_\_ ectomy - meaning “excision” of the part specified by the initial element  
 \_\_\_\_\_ rrhagia – means “profuse discharge,” “abnormal profuse flow”  
 \_\_\_\_\_ malacia – means softening, or loss of consistency, of an organ or tissue

**Exercise 10. Add the missing part of the clinical terms pertaining to the pathology of the stomach:**

1. Gastro \_\_\_\_\_ (an instrument inserted through the mouth to inspect the inside of the stomach)
2. Gastr \_\_\_\_\_ (the surgical removal of a part of the stomach)
3. Gastr \_\_\_\_\_ (inflammation of the stomach lining)
4. Gastro \_\_\_\_\_ (softening of stomach lining due to poor blood supply or an inflammation)
5. Gastroentero \_\_\_\_\_ (the branch of medicine that is concerned with the disorders of the gastrointestinal tract)
6. Gastros \_\_\_\_\_ (surgical incision into the stomach)
7. Gastro \_\_\_\_\_ (a bleeding from the blood vessels and the stomach lining)
8. Gastr \_\_\_\_\_ (pain in the stomach or abdominal region)

**Exercise 11. Put questions to the underlined words:**

1. Stomach acids contribute to ulcer formation.
2. Slight elevation of temperature is observed in acute gastritis.
3. A diagnosis can be based on the history changes of the chest X-ray.
4. The patient has noticed that her gastric pains appear after eating.
5. The pain often occurs between meals and early in the morning.
6. The bacteria have produced substances that weaken the stomach's mucosa.
7. The patient felt much relief after having taken this drug.
8. You should talk to your doctor before stopping any medicine or starting any gastritis treatment on your own.

**Exercise 12. Open the brackets using the verbs correctly:**

1. Next Monday the patient suffering from severe liver damage (to make) a dialysis.
2. Preventive measures already (to carry) out to prevent early signs of gastric cancer.
3. The patient (to feel) relief after he (to take) this medicine 2 hours before.
4. While the doctor (to examine) the patient, he (to notice) the enlargement of lymphatic glands.
5. If gastritis (not to treat) properly, it will lead to even cancer of the stomach.
6. The patient (to suffer) from chronic gastritis for over 3 years.
7. This patient (to become) ambulatory 2 weeks ago.

**Exercise 13. Fill in the table “Gastritis&Gastric Ulcer”:**

1	Definition	1) Gastritis 2) Gastric ulcer
2	Causes	
3	Symptoms	
4	Risk factors	
5	Examination	
6	Treatment	
7	Complications	

**\*Exercise 14. Read the case presentation and fill in the table below with the appropriate information. Explain the terms in bold:**

A 47-year-old man presented with four days of subjective fevers, abdominal pain, and **vomiting**. Past medical history was remarkable for **hypertension** and uncontrolled type 2 diabetes mellitus. There was no history of nonsteroidal anti-inflammatory drugs or alcohol use. No prior endoscopies were available for review. On admission, the patient was **tachycardic** to 122 beats/min. Physical examination was remarkable for **epigastric tenderness**. Admission laboratory studies revealed a **leukocytosis** of 30.3 K/mcL (normal: 3.4-10.4 K/mcL). Blood cultures were obtained, and the patient was started on piperacillin/tazobactam within five hours of presentation to the emergency department. Contrast-enhanced abdominal computed tomography (CT) revealed diffuse gastric wall thickening up to 1.6 cm with mucosal enhancement extending to the proximal duodenum.

Esophagogastroduodenoscopy (EGD) redemonstrated gastric thickening with diffuse **erythema** and a 6-mm nonbleeding ulcer.

Blood cultures returned positive for group A beta-hemolytic streptococcus and antibiotics were de-escalated to ampicillin/sulbactam.

Patient	Symptoms	Past history	Examinations	Treatment
			- physical exam - laboratory studies - instrumental studies	

**TASKS FOR SELF-CONTROL**

**Answer the questions:**

1. What are the diseases of the stomach?
2. What symptoms do gastritis and peptic ulcer have?
3. What are the causes of gastritis and peptic ulcer?
4. How are gastric diseases treated?
5. What is the diagnosis of gastric diseases based on?
6. What are the complications of gastritis?

**Explain the terms:** gastritis, gastric ulcer

**GASTROINTESTINAL DRUGS**

**Exercise 1. Topic Vocabulary:**

antacid, <i>n</i>	[ænt'æsid]	a substance, such as magnesia or sodium bicarbonate, that neutraliz
-------------------	------------	---

		es acid
heartburn, <i>n</i>	[ˈhɑːt bɜːn]	a burning sensation, usually centered in the middle of the chest near the sternum, caused by the reflux of acidic stomach fluids that enter the lower end of the esophagus
inhibit, <i>v</i>	[ɪnˈhɪbɪt]	stop or hinder
promote, <i>v</i>	[prəˈməʊt]	contribute to the progress or growth of smth
recur, <i>v</i>	[rɪˈkɜː]	happen or occur again or repeatedly
resist, <i>v</i>	[rɪˈzɪst]	withstand or oppose

**Exercise 2. Read the word combinations and explain what they mean:**

- 1. Inhibit:** inhibit growth; inhibit development; inhibit the process; inhibit desire to do smth.
- 2. Promote:** promote healing; promote metabolism; promote good health; promote a healthy lifestyle.
- 3. Recur:** a problem which recurs; recur periodically; recurring heartburns.
- 4. Resist:** resist gastric acidity; resist antibacterial action; resist cold; hard to resist.

**Exercise 3. Read and the following word combinations and explain what they mean:**

Lining of the esophagus; irritate peptic ulcer; promote healing of the ulcers; cause harmful side effects; purchase prescribed drugs; cause diarrhea; extensive use of antacids; lead to kidney damage; available without a prescription; inhibit production of enzymes.

**Exercise 4. Read the text and answer the questions below:**

**GASTROINTESTINAL DRUGS**

Antacid (aluminum hydroxide, magnesium hydroxide, aluminum carbonate, calcium carbonate, sodium bicarbonate, bismuth subsalicylate) is any of a group of drugs that neutralize acid in the digestive system. Hydrochloric acid, produced in the stomach, is important to digestion. However, this acid can cause pain when it comes in contact with peptic ulcers, sores that can occur in the lining of the esophagus, stomach, or duodenum. Antacids help relieve or prevent pain associated with peptic ulcers by neutralizing this acid. People also take antacids to stop the pain of heartburn and indigestion.

Many antacid products contain compounds of aluminum, magnesium, or, often, both. These chemicals react with acids to form more neutral compounds that do not irritate peptic ulcers. By relieving irritation, antacids can also help promote healing of the ulcers. Many doctors recommend their use along with other antiulcer drugs, such as antibiotics and histamine H<sub>2</sub>-receptor antagonists (for example, cimetidine).

Antacids come in tablet, capsule, and liquid form. Commonly used antacids include such brand-name products as Maalox and Mylanta. Turns, another common antacid, contains a compound of calcium that is helpful for digestion but not recommended for ulcer treatment. These drugs ordinarily do not cause harmful side effects, and a doctor's prescription is not needed to purchase them. However, antacids that contain magnesium hydroxide can cause diarrhea, while those with aluminum hydroxide can cause constipation. Problems also may develop when antacids are used for long periods. For example, extensive use of antacids that contain calcium carbonate can cause too much calcium to accumulate in the body. High calcium levels can lead to kidney damage and other problems.

H-2 antagonists (cimetidine, ranitidine, famotidine, and nizatidine) promote ulcer healing by reducing the acid and digestive enzymes in the stomach and duodenum. These highly effective drugs are taken only once or twice a day. Most cause few serious side effects, and several are now available without a prescription.

Omeprazole and lansoprazole are very strong drugs that inhibit the production of the enzymes needed for the stomach to make acid. These drugs can completely inhibit acid secretion and have long-lasting effects. They promote healing in a greater percentage of people in a shorter period of time than H-2 antagonists do. They are particularly useful in treating people with esophagitis and people who have other conditions that affect gastric acid secretion.

Antibiotics (bismuth subsalicylate, tetracycline, metronidazole, amoxicillin) are being increasingly used when the bacterium *Helicobacter pylori* is the major underlying cause of ulcers. The treatment consists of one or more antibiotics and a drug to reduce or neutralize stomach acid. Combinations of bismuth subsalicylate, tetracycline, and metronidazole or aifloxycillin are most commonly used. Omeprazole and an antibiotic are also an effective combination. Such treatment may relieve ulcer symptoms even if ulcers have resisted previous treatment or have recurred repeatedly.

1. When can hydrochloric acid cause pain in the stomach?
2. How do antacids help relieve or prevent pain associated with peptic ulcers?
3. What do antacids contain?
4. What problems may result from the long-term use of antacids?
5. How can H-2 antagonists promote ulcer healing?
6. How often are H-2 antagonists taken a day?
7. What drugs can completely inhibit acid secretion?
8. When are antibiotics prescribed for gastrointestinal disorders?

**Exercise 5. Complete the sentences below:**

1. Hydrochloric acid is important ....
2. ... can cause pain when it comes in contact with peptic ulcers.
3. People take antacids to stop ....
4. Many antacid products contain compounds of ...
5. By relieving irritation, antacids can help promote ...
6. Antacids come in ... form.
7. Antacids ordinarily do not cause ...
8. ... promote ulcer healing by reducing the acid and digestive enzymes in the stomach and duodenum.

**Exercise 6. Match each word from column A with its opposite from column B:**

A	B
important	to disapprove
to relieve	to hinder
to prevent	rarely
to promote	to permit
commonly	to diffuse
to recommend	to aggravate
to accumulate	minor
to inhibit	to enable

**Exercise 7. Correct the sentences below:**

1. People take antibiotics to stop the "pain of heartburn and indigestion.
2. Antacid products irritate peptic ulcers.
3. Antacids come in the form of injections.
4. Turns, another common antacid, contains a compound of calcium, that's why it is helpful for ulcer treatment.
5. H-2 antagonists cause many serious side effects.
6. Omeprazole and lansoprazole are more effective than H-2 antagonists.
7. Antibiotics aren't usually prescribed in combination with other drugs.
8. H-2 antagonists promote ulcer healing by stimulating the acid production in the stomach and duodenum.

**Exercise 8. Fill in the gaps with the prepositions from the table:**

<b>of(2), over, without, for, by, with, in</b>
--

1. ... relieving irritation, antacids also can help promote healing of the ulcers.
2. These drugs cause few serious side effects, so they are now available ... a prescription.
3. Omeprazole and lansoprazole promote healing of a greater percentage of people ... a shorter period of time than H-2 antagonists do.
4. Hydrochloric acid, produced in the stomach, is important ... digestion.
5. The pharmacist will advise which medicines are safe to take and how to cope ... problems like heartburn.

6. Brand names such as Coca-Cola and Sony are recognized all ... the world.
7. People also take antacids to stop the pain ... heartburn and indigestion.
8. The treatment consists ... one or more antibiotics and a drug to reduce or neutralize stomach acid.

**Exercise 9. Open the brackets using the verbs in the correct form:**

1. Hydrochloric acid (to produce) in the stomach.
2. This acid (to cause) pain when it comes in contact with peptic ulcers.
3. Antacids help (to relieve) pain associated with peptic ulcers by neutralizing hydrochloric acid.
4. He (to take) that drug to relieve heartburn an hour ago.
5. The doctor (to recommend) him antacids with other antiulcer drugs, when he goes to see him tomorrow.
6. High calcium levels (to lead) to kidney damage and other problems.
7. Antacids (to help) promote healing of his ulcer last year.
8. Maalox and Mylanta (to use) all over the world.

**Exercise 10. Put the sentences into the correct order to explain the term “antacid”:**

- \_\_\_ Many doctors recommend their use along with other antiulcer drugs.
- \_\_\_ Many antacid products contain compounds of aluminum, magnesium, or, often, both.
- \_\_\_ People also take antacids to stop the pain of heartburn and indigestion.
- \_\_\_ Antacid is any of a group of drugs that neutralize acid in the digestive system.
- \_\_\_ Antacids help relieve or prevent pain associated with peptic ulcers by neutralizing hydrochloric acid.

**Exercise 11. Read the package insert for the drug and make a summary of it commenting on the properties, composition, mechanism of action, indication, dosage and use, contraindications, side effects, storage and term of validity of the drug:**

**MAGASIL (MIXTURE)**

**COMPOSITION:**

Each 10 ml of mixture contains:

- Magnesium carbonate**, light 500 mg
- Magnesium trisilicate**            500 mg
- Sodium bicarbonate**            500 mg



**PHARMACOLOGICAL CLASSIFICATION:**

Antacids (acid neutralizers)

**PHARMACOLOGICAL ACTION:**

Acid neutralising, diminish activity of pepsin in gastric secretion.

**INDICATIONS:**

For the relief of acid ingestion, heartburn, hyperacidity, dyspepsia, gastritis and reflux oesophagitis

**CONTRA-INDICATIONS:**

Sensitivity to any of the active ingredients

**WARNINGS:**

Do not use this product if you are on a sodium-restricted diet, or suffer from hypertension, of heart failure, except under the advice and supervision of a doctor.

**DOSAGE AND DIRECTIONS FOR USE:**

Adults: two to four medicine measurefuls every four hours.

Do not use the maximum dosage of this product for more than 2 (two) weeks, except under the advice and supervision of a medical practitioner, or use as directed by a doctor.

**SIDE EFFECTS AND SPECIAL PRECAUTIONS:**

May cause diarrhoea. Release of carbon dioxide may cause discomfort. MAGASIL may interfere with the absorption of other medicines if taken concomitantly.

Sodium bicarbonate can cause stomach cramps and flatulence. Excessive administration of sodium bicarbonate may lead to metabolic alkalosis, especially in patients with impaired renal function.

Symptoms may include shortness of breath, muscle weakness and mental disturbances such as restlessness, convulsions and coma. Sodium bicarbonate should be administered extremely cautiously to patients with congestive heart failure, renal impairment, and cirrhosis of the liver or hypertension and to patients receiving corticosteroids.

**IDENTIFICATION:**

A white homogenous mixture with a slight peppermint flavour

**PRESENTATION:**

Brown plastic containers of 100 mL, 200 mL, 500 mL, and 2.5 litres

**STORAGE INSTRUCTIONS:**

Store in a cool, dark place below 25°C.

KEEP OUT OF REACH OF CHILDREN

**TASKS FOR SELF-CONTROL****Answer the questions:**

1. When can hydrochloric acid cause pain in the stomach?
2. How do antacids help relieve or prevent pain associated with peptic ulcers?
3. What do antacids contain?
4. What problems may result from the long-term use of antacids?
5. How can H-2 antagonists promote ulcer healing?
6. How often are H-2 antagonists taken a day?
8. When are antibiotics prescribed for gastrointestinal disorders?
9. What is an antacid?

**Explain the medical terms:** antacids, H-2 antagonists

**NEUROSES**
**Exercise 1. Topic vocabulary:**

apprehension, <i>n</i>	[,æpri'hɛnʃn]	fearful or uneasy anticipation of the future
distress, <i>n</i>	[di'strɛs]	anxiety or mental suffering

hypochondria, <i>n</i>	[haɪpə'kɒndrɪə]	a condition in which a person often believes that he is ill without actually being ill
incapacitate, <i>v</i>	[,ɪnkə'pæsɪteɪt]	deprive of strength or ability; disable.
psychosis, <i>n</i>	[saɪ'kɒʊ sɪs]	an acute or chronic mental state marked by loss of contact with reality, disorganized speech and behavior, and often hallucinations or delusions
pyromania, <i>n</i>	[,paɪrəʊ'meɪniə]	a persistent compulsion to start fires
somatoform disorder	[sɒ'matəfɔ:m dɪs'ɔ:dəz]	psychiatric disorders in which patients present with a myriad of clinically significant but unexplained physical symptoms

**Exercise 2. Explain the following word combinations:**

A mild mental illness; an umbrella term; to disrupt the brain activity; feelings of apprehension; strong unreasonable fear; to be focused on an imagined illness; to lose all self-control; consuming fear; loss of touch with reality; intrusive thoughts; substantial feeling

**Exercise 3. Write the given words in Singular (remember the words of the Latin and Greek origin) and use them in sentences:**

Neuroses, activities, bacteria, crises, children, atria, alveoli, lives, analyses, ganglia, fungi, diagnoses, laboratories, cocci, curricula, bacilli, mice, phenomena, vertebrae, criteria, metastases.

**Exercise 4. Read the text and answer the questions below:**

**NEUROSES**

Neuroses are relatively mild mental illnesses that are not caused by organic diseases. They involve symptoms of distress but not radical loss of touch with reality. Though the term neuroses is no longer used formally within the medical community, it is still a common umbrella term used for mental illnesses such as anxiety, pyromania, obsessive-compulsive disorder, hysteria, and phobias.

The work capacity of the nerve cells in the cerebral cortex is limited, so over-excitation, over-inhibition, or simultaneous overstimulation of both processes and their mobility may disrupt brain activity resulting in neurosis.

Neuroses include anxiety, depression, or other feelings of unhappiness or distress that are out of proportion to the circumstances of a person's life. They may impair a person's functioning in any area of his life, relationships, or external affairs, but they are not severe enough to incapacitate the person. Neurotic patients generally do not suffer from the loss of the sense of reality compared to people with psychoses.

One of the common types of neuroses is anxiety. A person suffering from anxiety may experience feelings of apprehension, worry, and fear. Physical symptoms are also common with this form of neurosis, including nausea, palpitations, chest pains, and shortness of breath. The person may also experience elevated blood pressure and heart rate, sweating pale skin, dilated pupils, and trembling.

Phobia is a type of anxiety disorder, characterized by strong unreasonable fears of specific objects, people, situations, or activities. Some common objects of phobias are open or closed spaces, fire, high places, dirt, and bacteria.

Pyromania is another type of neuroses. A person suffering from pyromania is fixated on fire. A pyromaniac is not the same as an arsonist, as a person suffering from pyromania gains a sense of happiness from fires, whereas an arsonist may set fire for revenge or for personal gain. In general, there are no other symptoms associated with this type of neurosis.

Another neurosis is obsessive-compulsive disorder. Individuals with obsessive-compulsive disorder generally suffer from intrusive, repetitive, and disturbing thoughts. In an attempt to get rid themselves of these thoughts, they engage in certain rituals or tasks. Compulsive behaviour includes rituals such as repetitive hand washing or door locking. This leads to a cycle of thoughts and behaviors over which the person feels he or she has little or no control.

Somatoform disorders which include the so-called hysterical, or conversion neuroses, manifest themselves in physical symptoms such as blindness, paralysis, or deafness that are not caused by organic disease. Hysteria is one of the common forms of neuroses. A person suffering from hysteria experiences substantial feelings of fear or other emotions that he or she cannot seem to handle. Often the fear is focused on an imagined illness or other problem of a specific body part. The person may lose self-control as a result of the consuming fear.

Psychoneurotic disorders are formed in children more easily than in adults.

Treatment of neuroses can include psychotherapy, psychoactive drugs, and relaxation exercises, such as deep breathing. Other methods include cognitive behavioral therapy, which adjusts the faulty psychological mechanisms that respond to the environment to react as they should.

1. When may the brain activity be disrupted?
2. What are the most common symptoms of neuroses?
3. What is the principal difference between the neurotic patients and those with psychoses?
4. What physical symptoms are common in anxiety?
5. What are phobias characterized by?
6. What phobias do you know?
7. What do individuals with obsessive-compulsive disorder generally suffer from?
8. What group of neuroses does hysteria belong to?
9. What are the common kinds of treatment for neuroses?

**Exercise 5. Find the wrong usage of words and change them by the proper ones:**

1. Sweating, enlarged blood pressure, and trembling may not be caused by organic diseases.
2. The changes in the bones resulted from calcium insufficiency.
3. The normal palpitation of the adult is 72-80 beats per min.
4. Psychoneurotic disorders are relatively easy mental illnesses that are not caused by organic diseases.
5. He had to visit his dentist to extract an ill tooth.
6. Blindness, paralysis, and deafness are the often symptoms in hysteria.
7. Elevated heart rate, sweating, pale skin, increased pupils may be the manifestations of neuroses.
8. The neurotic people can't hand their emotions and feelings.

**Exercise 6. Find a grammar mistake in each sentence and correct it:**

1. Children may to form serious neurotic disorders.
2. Neurosis is characterized by feelings of unhappiness or distress.
3. What kinds of fear people with phobias experience?
4. A person's functioning in virtually any area of his life may be impair by psychoneurotic disorders.
5. Does elevated blood pressure may be symptom of anxiety?
6. People with psychoses suffers from the loss of the sense of reality.
7. The patients who suffers from conversion neuroses may be focused on an imagined illness.
8. What do a pyromaniac gains a sense of happiness from?

**Exercise 7. Put questions to the underlined words:**

1. A person suffering from pyromania is fixated on fire.
2. The term *neurosis* was coined by the Scottish doctor William Cullen.
3. A person with an inborn strong type of nervous activity may become unbalanced or in active due to faulty upbringing.
4. William Cullen coined the term *neurosis* in 1769.
5. Neuroses impair a person's functioning not enough to incapacitate the person.
6. The patient has been suffering from elevated blood pressure and heart rate, sweating, and

trembling for three month.

7. Revealing the causes of neuroses will facilitate their rapid cure.

8. Over-excitation and over-inhibition of the cortex cells may influence the brain activity unfortunately.

9. Neurosis in children is most frequently observed at the age of 2 to 4, 7 to 8, and the period of puberty development.

10. When the causes of somatoform disorders are determined the neurotic symptoms will be controlled.

**Exercise 8. Open the bracket, put the verbs in the proper tense form:**

1. The non-biological basis of neurosis (to maintain) with Sigmund Freud at the beginning of the psychoanalytic movement.

2. Carl Jung (to see) collective neuroses in politics: "Our world is, so to speak, dissociated like a neurotic".

3. Neurotic tendencies (to manifest) themselves as depression, acute or chronic anxiety, obsessive-compulsive tendencies, specific phobias.

4. The origin of the term hysteria commonly (to attribute (приписывать) to Hippocrates.

5. Hippocrates (to think) that the cause of hysteria was irregular movement of blood from the internal genitalia to the brain.

6. During the mid-19th century the term neurosis (to use) as a key to characterize disorders that (to be) neurological in origin.

7. Neurotic people (to tend) to have more negative feelings such as depression, anxiety, insecurity.

8. The prescribed anti-depressants (to take) by the end of the next month.

**Exercise 9. a) Read about fears and phobias in famous people and tell about other similar facts you've heard:**

George Washington, the first president of the United States of America, had a very serious fear of premature burial. This was clearly expressed on his deathbed, in 1799, where he made his attendants promise that his body would be left out for two days, in case he was still alive.

Woody Allen has taken fear to an extreme. The 74-year-old actor and screenwriter is afraid of practically everything. Although he has normal phobias that cause him to fear heights, enclosed spaces and insects, he also has more abnormal fears. Among his weirder terrors are fears of bright colours, animals, elevators and peanut butter sticking to the roof of his mouth!

Alfred Hitchcock, a famous Hollywood director and producer, had an extreme fear of eggs. He said that they are revolting (вызывают отвращение) to him! He stated that he never tasted an egg in his whole life, and he refused to even be around them.

Madonna's always been a fearless femme fatale in our eyes. But even kickboxing, leather corset-wearing megastars are afraid of thunderstorms: Madonna is apparently a sufferer of brontophobia, the fear of thunder.

**b) Make up sentences using the words in the right order:**

1) Jennifer Aniston, all, a fear, Michael Jackson, and, Whoopi Goldberg, have, of flying.

2) The, excessive, 34<sup>th</sup>, of, had, an, president, fear of hospitals, the United States, Richard Nixon.

3) the, Orlando Bloom, a, phobia, strange, actor, has, British, pigs, fear, of, the.

4) feared, Sigmund Freud, who, the, neurologist, founded, the, school, psychoanalyst, ferns (папоротники), of, psychiatry.

**Exercise 10. Define the type of phobia (social phobia, simple phobia, agoraphobia, panic disorders):**

1. The fear of something with an unexplained reason comes under this category of phobias. Phobias

for bees, odor, illness, and storms are some of the example of this phobia. Such phobias are more common in children but they can occur in all ages. Statistics says that between 5-12 percent of the population have phobic disorders in any 6 months. These phobias often do not interfere with the daily life of a phobic person. When these phobias get intense, they require proper treatment.

2. This is a bit serious kind of phobia. The person who has this phobia is afraid of being judged by others around him. Such person avoids gatherings and social get-togethers because of these kinds of apprehensions. In these phobias, a person becomes over conscious about his/her image in the society. He will feel very much embarrassed if he is not able to control the fear in front of anyone. He feels degraded and humiliated. These phobias begin between the ages of 15-20 years and if they are not treated they continue all through the lives.

3. People falling in this category have devastating episodes of fear attacks. The symptoms of the attacks are breathlessness, nausea, increased heart rate, dizziness, change in body temperature and blood pressure. A person who has such a disorder, fears of death, being insane, and of losing control.

4. This can be called an extension to panic disorders. People who suffer panic attacks can develop it. People suffering from this phobia will rarely leave their place if they do not have a company.

### TASKS FOR SELF-CONTROL

#### Answer the questions:

1. What are the most common types of neuroses?
2. What are the common symptoms of neuroses?
3. What is the principal difference between the neurotic patients and those with psychoses?
4. What physical symptoms are common in anxiety?
5. What does "phobia" mean? Give examples.
6. What do patients with obsessive-compulsive disorder suffer from?
7. What group of neuroses does hysteria belong to?
8. What are the common kinds of treatment for neuroses?

**Explain the medical terms:** neurosis, psychosis, phobia, hysteria, anxiety, obsessive-compulsive disorder

### CENTRAL NERVOUS SYSTEM DRUGS

#### Exercise 1. Topic vocabulary:

analgesic <i>n.</i>	[æn(ə)'dʒɪ:zɪk]	a remedy that relieves pain
hypnotic <i>n.</i>	[hɪp'nɒtɪk]	an agent that causes sleep; a soporific
insomnia <i>n.</i>	[ɪn'sɒmniə]	chronic inability to fall asleep or remain asleep for an adequate length of time
restlessness <i>n.</i>	['restləsnəs]	the inability to rest or relax as a result of anxiety
seizure <i>n.</i>	['si:ʒə]	a sudden attack, spasm, or convulsion, as in epilepsy or another disorder.
stupor <i>n.</i>	['stju:pə]	a state of near-unconsciousness or insensibility
suppress <i>v.</i>	[sə'pres]	stop or arrest
unconsciousness <i>n.</i>	[en'kɒn(t)ʃəsnəs]	temporarily lacking consciousness

#### Exercise 2. Read the following word combinations and explain their meanings:

depress the nerves, relieve seizures, state of unconsciousness, feeling of euphoria (well-being), relieve lethargy, excessive dose, addictive and habit-forming, loss of the appreciation of pain.

**Exercise 3. Read the text and answer the questions below:**

**CENTRAL NERVOUS SYSTEM DRUGS**

**Central Nervous System Drugs** affect the central nervous system and are of two main types: those which stimulate the nerves in the brain and spinal cord, **stimulants**, and those which depress the nerves in the brain and spinal cord, **depressants**. Stimulants produce a temporary feeling of euphoria (well-being) and help to relieve lethargy. Examples of drug stimulants are caffeine and amphetamine. Amphetamines are much more powerful than caffeine and can produce restlessness, insomnia and nervousness as well as hypertension (high blood pressure) and gastrointestinal disorders when given in high doses. Used in excessive doses, such side effects as convulsions can appear.

There are several types of central nervous system **depressants**. These include analgesics, hypnotics, sedatives and barbiturates, tranquilizers, anticonvulsants, alcohol and anesthetics.

**Analgesics** are used to relieve pain. They are divided into two categories: narcotic and nonnarcotic. Aspirin and Tylenol are antipyretics (agents against fever) as well as analgesics. These are non-narcotic analgesics while opium, morphine, heroin, codeine are narcotic ones. They can suppress the central nervous system and relieve pain, but in excessive doses produce unconsciousness, stupor, coma, and possibly death. Most of narcotic analgesics are additive and habit-forming.

**Hypnotic drugs** are those which depress the central nervous system and produce sleep.

**Sedatives** are used to quiet and relax the patient without necessarily producing sleep. Some drugs act as sedatives in small doses and in large doses as hypnotics that produce sleep.

**Anticonvulsants** are used to treat epilepsy and relieve seizures.

**Anesthetics** can be local or general. General anesthetics produce temporary state of unconsciousness and muscle relaxation. Anesthetics also produce loss of sensation and loss of the appreciation of pain.

1. What is a drug?
2. What types are CNS drugs subdivided into?
3. What drugs are used before surgery to stop appreciation of pain?
4. What are depressants used for?
5. What are the side effects of amphetamines?
6. What are the main types of central nervous system depressants?
7. What can narcotics produce?
8. What are the hypnotic drugs used for?
9. What is the action of anticonvulsants?

**Exercise 4. Agree or disagree with the following statements:**

1. Depressants stimulate the nerves in the brain and spinal cord.
2. Stimulants produce a temporary feeling of euphoria (well-being).
3. Used in excessive doses, amphetamines produce such side effects as convulsions.
4. Barbiturates are used to relieve pain.
5. Aspirin and Tylenol are antipyretics as well as analgesics.
6. Most of narcotic analgesics are additive and habit-forming.
7. Sedatives are used to produce sleep.
8. Hypnotic drugs are used to treat epilepsy and relieve seizures.

**Exercise 5. Match the words and word-combinations with their definitions:**

1. anesthetics	a. mild purgative (promoting defecation)
2. antacids	b. drugs producing the loss of sensation like lidocaine

3. antibiotic	c. drugs relieving nausea and vomiting
4. vasodilators	d. drugs used to prevent or abolish seizures
5. anticonvulsant agents	e. drugs inhibiting the growth of bacteria
6. antiemetics	f. drugs relieving constipation
7. purgatives	g. drugs neutralizing acids in the stomach
8. laxatives	h. relax the muscles of vessel walls

**Exercise 6. Find synonyms to the text to the phrases given below:**

Loss of the appreciation of pain, sleeplessness, to relieve convulsions, anxiety, to soothe and calm down, loss of consciousness, adverse effects, illness, additive.

**Exercise 7. Insert the missing prepositions:**

1. If this drug is used ... excessive doses, it can produce convulsions.
2. Alcohol is central nervous system depressant which affects ..... the cerebral cortex of the brain.
3. Most of these drugs are extracted ... plant leaves.
4. These drugs restore the heart rhythm ... depressing myocardial impulses.
5. These drugs are used ... treating blood vessel diseases.
6. This drug is easily absorbed ... the blood stream and is also easily excreted ... the body.
7. Sedatives are used to quiet and relax the patient ... necessarily producing sleep.
8. Central nervous system stimulants are used to speed up vital processes ... cases of shock and collapse.

**Exercise 8. Put questions to the underlined words:**

1. Gastrointestinal drugs are used to relieve uncomfortable and potentially dangerous symptoms.
2. The patient suffering from nausea and vomiting will be administered antiemetics.
3. Antiserum gave only temporary protection against the disease.
4. This antibiotic was obtained from naturally occurring microorganisms.
5. Most antibiotics nowadays are prepared synthetically.
6. The lobular pneumonia has successfully been treated with antibiotics.
7. Unlike vaccines, antiserums contain antibodies rather than substances that cause the body to produce antibodies.
8. Before the patient went to Africa he had been vaccinated against malaria.

**Exercise 9. Open the brackets:**

1. Antiserums usually (to give) only temporary protection.
2. Antihistamines (not to cure) the allergic reaction, but they (to relieve) its symptoms. (refers to the future)
3. The patient never (to suffer) so much from an acute pain before so he (to prescribe) potent drugs.
4. The doctor stated, that insomnia (to cause) by stress at work.
5. If you take this drug regularly the formation of clots in veins and arteries (to prevent).
6. Heart rhythm (to control) by antiarrhythmics after a long treatment. (refers to the past)
7. Amphetamines already (to produce) restlessness and insomnia.
8. The loss of the appreciation of pain in this patient (to produce) by hypnotic drugs. (refers to the past)

**Exercise 10. Read the package insert and answer the questions below:**

## PHENOBARBITAL- phenobarbital tablet

### DESCRIPTION

Phenobarbital is a barbituric acid derivative for oral administration and occurs as a white, odorless, slightly bitter powder that is soluble in chloroform, freely soluble in alcohol or ether, and slightly soluble in water. Its saturated solution has a pH of about 5.6. Chemically, it is 5-ethyl-5-phenylbarbituric acid with the molecular formula C<sub>12</sub>H<sub>12</sub>N<sub>2</sub>O<sub>3</sub> (232.24).

Each Phenobarbital Tablet, USP contains 15 mg, 30 mg, 60 mg or 100 mg of phenobarbital. Inactive ingredients are as follows:

15 mg, 30 and 60 mg: Calcium Stearate, Colloidal Silicon Dioxide, Corn Starch, and Microcrystalline Cellulose.

100 mg: Anhydrous Lactose, Colloidal Silicon Dioxide, Corn Starch, Docusate Sodium, Lactose Monohydrate, Magnesium Stearate, Microcrystalline Cellulose, and Sodium Starch Glycolate.

### CLINICAL PHARMACOLOGY

Phenobarbital, a long-acting barbiturate, is a central nervous system depressant. In ordinary doses, the drug acts as a sedative and anticonvulsant. Its onset of action occurs within 30 minutes, and the duration of action ranges from 5 to 6 hours. It is detoxified in the liver.

### INDICATION AND USAGE

Phenobarbital Tablets, USP are indicated for use as a sedative or anticonvulsant.

### CONTRAINDICATIONS

Phenobarbital is contraindicated in patients who are hypersensitive to barbiturates. In such patients, severe hepatic damage can occur from ordinary doses and is usually associated with dermatitis and involvement of parenchymatous organs. A personal or familial history of acute intermittent porphyria represents one of the few absolute contraindications to the use of barbiturates. Phenobarbital is also contraindicated in patients with marked impairment of liver function, or respiratory disease in which dyspnea or obstruction is evident. It should not be administered to persons with known previous addiction to the sedative/hypnotic group, since ordinary doses may be ineffectual and may contribute to further addiction.

### WARNINGS

In small doses, the barbiturates may increase the reaction to painful stimuli. Taken by themselves, the barbiturates cannot be relied upon to relieve pain or even to produce sedation or sleep in the presence of severe pain.

### PRECAUTIONS

#### General Precautions:

Barbiturates induce liver microsomal enzyme activity. This accelerates the biotransformation of various drugs and is probably part of the mechanism of the tolerance encountered with barbiturates. Phenobarbital, therefore, should be used with caution in patients with decreased liver function. This drug should also be administered cautiously to patients with a history of drug dependence or abuse.

Phenobarbital may decrease the potency of coumarin anticoagulants; therefore, patients receiving such concomitant therapy should have more frequent prothrombin determinations. As with other



sedatives and hypnotics, elderly or debilitated patients may react to barbiturates with marked excitement, depression, or confusion.

The systemic effects of exogenous hydrocortisone and endogenous hydrocortisone (cortisol) may be diminished by phenobarbital. Thus, this product should be administered with caution to patients with borderline hypoadrenal function, regardless of whether it is of pituitary or of primary adrenal origin.

#### Drug Interactions:

Phenobarbital in combination with alcohol, tranquilizers, and other central nervous system depressants has additive depressant effects, and the patients should be so advised. Patients taking this drug should be warned not to exceed the dosage recommended by their physician. Toxic effects and fatalities have occurred following overdoses of phenobarbital alone and in combination with other central nervous system depressants. Caution should be exercised in prescribing unnecessarily large amounts of phenobarbital for patients who have a history of emotional disturbances or suicidal ideation or who have misused alcohol and other CNS drugs.

#### OVERDOSAGE

The signs and symptoms of barbiturate poisoning are referable especially to the central nervous system and the cardiovascular system. Moderate intoxication resembles alcoholic inebriation. In severe intoxication, the patient is comatose, the level of reflex activity conforming in a general way to the intensity of the central depression. The deep reflexes may persist for some time despite coexistent coma. The Babinski sign is often positive. The EEG may be of the "burst-suppression" type, with brief periods of electrical silence. The pupils may be constricted and react to light, but late in the course of barbiturate poisoning they may show hypoxic paralytic dilatation. Respiration is affected early. Breathing may be either slow or rapid and shallow; Cheyne-Stokes rhythm may be present. Respirator minute volume is diminished, and hypoxia and respiratory acidosis may develop. The blood pressure falls, owing partly to depression of medullary vasomotor centers; partly to a direct action of the drug on the myocardium, sympathetic ganglia, and vascular smooth muscle; partly to hypoxia.

The patient thus develops a typical shock syndrome, with a weak and rapid pulse, cold and clammy skin, and a rise in the hematocrit. Respiratory complications (atelectasis, pulmonary edema, and bronchopneumonia) and renal failure are much dreaded and not infrequent concomitant of severe barbiturate poisoning. There is usually hypothermia, sometimes with temperatures as low as 32°C.

#### DOSAGE AND ADMINISTRATION

Oral Sedative Dose, Adults - 30 to 120 mg daily in 2 or 3 divided doses. Children - 6 mg/kg of body weight daily in 3 divided doses.

Oral Hypnotic Dose, Adults - 100 to 320 mg.

Oral Anticonvulsant Dose, Adults - 50 to 100 mg 2 or 3 times daily.

Children - 15 to 50 mg 2 or 3 times daily.

- 1) What are the physical characteristics of the drug?
- 2) What group of drugs does phenobarbital belong to?
- 3) What is the drug used for?
- 4) What can it cause in patients hypersensitive to barbiturates?
- 5) What is the action of phenobarbital on the liver?
- 6) What are the signs and symptoms of barbiturate poisoning?
- 7) How is the drug administered for sedation?
- 8) What is the oral hypnotic dose for adults?

## TASKS FOR SELF-CONTROL

### Answer the questions:

1. What types are CNS drugs subdivided into?
2. What drugs are used before surgery to stop appreciation of pain?
3. What are depressants used for?
4. What are the side effects of amphetamines?
5. What are the main types of central nervous system depressants?
6. What can narcotics produce?
7. What are hypnotic drugs used for?
8. What is the action of anticonvulsants?
9. What can excessive doses of narcotic analgesics produce?
10. What is the effect of sedatives on the body?

**Explain the medical terms:** CNS drugs, stimulants, depressants, analgesics, sedatives, anticonvulsants, anesthetics