МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
«ВИТЕБСКИЙ ГОСУДАРСТВЕННЫЙ ОРДЕНА ДРУЖБЫ НАРОДОВ
МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»

КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ

И.С. Андреева

АНГЛИЙСКИЙ ЯЗЫК

PROFESSIONAL ENGLISH

Методические рекомендации для студентов фармацевтического факультета и магистрантов

(часть III)

Витебск
ВГМУ

2019

УДК 811.111 (075.8)
ББК 81.432.1я73
А 65

Рецензенты: кафедра иностранных языков УО «Витебская государственная академия ветеринарной медицины»;
заместитель директора Витебского филиала Учреждения образования Федерации профсоюзов Беларуси «Международный университет «МИТСО»», кандидат филологических наук, доцент Костырева С.С.

Андреева И.С.

А 65 Английский язык. Professional English: метод. рекомендации по англ. языку для студентов фармацевтического факультета и магистрантов: в 3 ч./ метод. реком. И.С. Андреева. – Витебск: ВГМУ, 2019. – Ч. 3. – 63 с.

Методические рекомендации по английскому языку предназначены для студентов фармацевтического факультета (факультативный курс) и магистрантов, освоивших обязательный курс по учебной дисциплине «Иностранный язык» (английский) для специальности «Фармация». Представленная в рекомендациях тематика подготовит студентов и магистрантов к чтению, переводу и интерпретации аутентичных профессиональных текстов и аннотаций к лекарствам.

Методические рекомендации соответствуют учебному плану и Типовой учебной программе и могут быть использованы как для аудиторной, так и для управляемой самостоятельной работы студентов и магистрантов.

УДК 811.111 (075.8)
ББК 81.432.1я73

PREFACE

Методические рекомендации по английскому языку “Professional English” предназначены для студентов фармацевтического факультета, продолжающих изучение профессионального английского языка на факультативном курсе, и магистрантов.

Целью данных рекомендаций является развитие навыков чтения и перевода аутентичных текстов, обработки полученной информации, а также формирование умения обобщать и презентовать информацию в тезисном виде в устной и письменной форме.

Рекомендации состоят из 4 разделов: “Counterfeit drugs”, “Pharmaceutical formulations”, “Pharmacists as primary health professionals”, “Drug scene in the US and Great Britain”, что отражает профессиональную и познавательную направленность языкового материала.

Каждый раздел рекомендаций состоит из следующих частей: 1. Vocabulary and grammar learning. 2. Reading comprehension. 3. Rendering. 4. Follow-up activity.

Лексический материал отобран исходя из частотности употребления общей и научно-профессиональной лексики с последующим закреплением её при выполнении серии упражнений.

Выбор грамматического материала основывался на необходимости изучения тех грамматические явлений, которые широко используются в научно-популярных текстах и представляют трудность в переводе их на родной язык, а именно: “Infinitive as a subject and an attribute”, “Complex Subject”, “Complex Object”, “Modals with Perfect Infinitive”, “Participial Constructions”, “Gerund and Gerundial constructions”.

Текстовой материал подобран из аутентичных источников путём компиляции. Интерпретация текстов с русского языка на английский по тематике устных тем, представленных в рекомендациях, способствует как совершенствованию языковых навыков, так и углублению профессиональных знаний студентов и расширению их кругозора.

В разделе “Follow-up activity” представлены упражнения на развитие навыков монологической, диалогической речи и проектной деятельности студентов.

TOPIC “COUNTERFEIT DRUGS”

I. *VOCABULARY LEARNING.*

Exercise 1. *Memorize the following words.*

1.	authorization [ˌɔːθ(ə)raɪˈzeɪʃ(ə)n] *n*. – уполномочивание, санкция, разрешение;
2.	alert [əˈlɜːt] *v*. – предупреждать;
3.	alter [ˈɔːltə] *v*. – изменять; менять; видоизменять, вносить изменения, переделывать;
4.	assess [əˈses] *v*. – оценивать;
5.	available [əˈveɪləbl] *adj*. – доступный, имеющийся в распоряжении, наличный; пригодный, полезный;
6.	background [ˈbækgraund] *n*. – предпосылка, данные, объяснение, истоки; подготовка, квалификация;
7.	benefit [ˈbenɪfɪt] (treatment) *n*. – выгода, польза; пенсия, пособие (по болезни);
8.	collaboration [kəˈlæbəreɪʃn] *n*. – сотрудничество, совместная работа;
9.	consequence [ˈkɒnsɪkwəns] *n*. – следствие, вывод; значение, важность;
10.	estimate [ˈestɪmeɪt] *v*., *n*. – оценивать, давать оценку; оценка, наметка;
11.	fake [feɪk] *n*., *v*. – подделка, фальшивка, плутовство; подделывать, мошенничать;
12.	familiarize [fəˈmɪlɪ(ə)raɪz] *v*. – ознакомлять; ~ oneself with smth. – освоиться, ознакомиться с чем-л;
13.	hazard [ˈhæzəd] *n*. – риск, опасность;
14.	hazardous [ˈhæzədəs] *a*. – рискованный;
15.	highlight [ˈhaɪlaɪt] *v*. – ярко освещать; выдвигать на первый план, придавать большое значение;
16.	implement [ˈɪmplɪmənt] *v*. – выполнять, осуществлять; обеспечивать выполнение;
17.	issue [ˈɪʃuː], [ˈɪsjuː] *v*. – издавать(ся), выпускаться; выходить, исходить; кончаться, завершаться;
18.	penalty [ˈpen(ə)ltɪ] *n*. – наказание, взыскание, штраф;
19.	prevalence [ˈprevələns] *n*. – широкое распространение, распространенность;
20.	quantify [ˈkwɔntɪfaɪ] *v*. – определять количество;
21.	retailer [ˈriːteɪlə] *n*. – розничный торговец, лавочник;
22.	suit [s(j)uːt] *v*. – удовлетворять требованиям, устраивать, быть полезным, пригодным;
23.	up-date [ʌpˈdeɪt] *v*. – модернизировать;
24.	verify [ˈverɪfaɪ] *v*. – проверять, подтверждать;

25.	versatile ['vɜ:sətaıl] *a*. – многосторонний, непостоянный, гибкий, изменчивый;
26.	vigilant ['vıʤılənt] *a*. – бдительный, неусыпный;
27.	wholesale ['həulseıl] *n*. – оптовая торговля.

Exercise 2. *Translate word combinations from English into Russian:*
extent of the problem, hazardous ingredients, to familiarize oneself with counterfeit medications, updated information, altered containers, radio frequency chips, to assign individual serial number to the product, to stiffen penalty, preliminary assessment, versatile technology, to verify the drugs identity, primary health care stations, drug distribution system, people of unknown background, to alert the public, dangerous health consequences.

Exercise 3. *Translate word combinations from Russian into English:*
фальсификация лекарств; содержать вредные ингредиенты; размещать самую последнюю информацию на веб-сайте; ухудшение состояния здоровья; осуществлять новые подходы; потребители товаров; измененная упаковка продукции; предупреждать появление фальсифицированных лекарств; присвоение индивидуального серийного номера продукту; обеспечивать снабжение лекарствами высокого качества; существующие надежные методы тестирования; применять простые физические и химико-аналитические способы определения фальшивых лекарств; некачественная продукция; неправильные условия хранения; препараты, имеющиеся в наличии.

Exercise 4. *Choose the synonymous words.*

1. a benefit	a) profit;	b) promotion;
	c) assistance;	d) advantage.
2. hazard	a) incident;	b) misfortune;
	c) danger;	d) risk.
3. to conceal	a) cover;	b) shelter;
	c) hide;	d) keep dark.
4. alert *adj*.	a) active;	b) careful;
	c) watchful;	d) lively.
5. to suit	a) correspond;	b) accommodate;
	c) adapt;	d) adjust.
6. available	a) at hand;	b) obtainable;
	c) handful;	d) accessible.
7. consequence	a) effect;	b) outcome;

	c) side-effect;	d) affect.
8. to verify	a) to investigate;	b) confirm;
	c) to prove;	d) probe.
9. to alter	a) to adjust;	b) rebuild;
	c) modify;	d) reshape.
10. to implement	a) accomplish;	b) carry out;
	c) fulfil;	d) perform.
11. fake	a) counterfeit;	b) fabricate;
	c) copy;	d) repeat.
12. background	a) circumstances;	b) culture;
	c) environment;	d) surroundings.
13. penalty	a) punishment;	b) fine;
	c) charge;	d) fee.
14. to highlight	a) emphasize;	b) light;
	c) focus on;	d) accentuate.

II. *GRAMMAR LEARNING.*

The usage of Perfect Active and Passive Infinitive with Modals

Modals *can*, *may*, *must*, *should* with *Perfect Infinitive* express the following:

- With *may/might + Perfect Infinitive* one makes a speculation which seems rather unlikely to be true.
  Mode of translation: *может быть, возможно* + гл. в прошедшем времени; *мог (могли)* + инфинитив.
- With *must + Perfect Infinitive supposition /assurance* is expressed.
  Mode of translation: *должно быть, вероятно* + гл. в прошедшем времени.
- With *can/could + Perfect Infinitive* one can make assumptions about the Past, express doubt or reproach about something someone did or didn't do.
  Mode of translation: in negative sentences – *не мог* + инфинитив; in interrogative sentences – *неужели*, *не может быть*, *чтобы*.
- With *should/ought + Perfect Infinitive* we say that one now thinks a decision one took was a wrong one. One can also criticize the decision of others.
  Mode of translation: *(не) нужно было, (не) следовало, (не) следовало бы*.

Exercise 1. *Read and translate the following sentences, analyzing the usage of modals with Perfect Infinitive.*

1. Can he have done it?
2. They cannot have done it.
3. She must have lost the prescription.

4. He may have dispensed drugs.
5. She might have come to proper decision.
6. You could at least have called me, couldn't you?
7. He shouldn't have given so much medicine to the child.
8. You should have told me about it a week ago.
9. From time to time this medicine may have been used with less or greater extent.
10. After a two-month stay in hospital your grandfather must have improved his health.
11. For many centuries opium poppy may have been the best medicine relieving pain.
12. Such substances cannot have been used by millions of people world over.
13. The nature of the drug action must have been considered in term of interaction between the drug and the individual.
14. She may have forgotten that the lecture begins 10 minutes earlier than usually.

Exercise 2. *Transform the underlined parts of the sentences as in the model to express* ***certainty***, ***uncertainty reproach***, ***supposition***, ***doubt***, *etc.*

Model:	Patients <u>may experience</u> unexpected side effects, allergic reactions or a worsening of their medical condition. Patients <u>might have experienced</u> … … (<u>supposition</u>).

1. Counterfeit medications <u>may contain</u> hazardous ingredients.
2. Pharmacists <u>should familiarize themselves</u> with the drugs which may be counterfeited.
3. Healthcare professional <u>should contact</u> the FDA immediately, if he (she) believes that a patient has received a counterfeit drug.
4. Any irregularity in packaging or labeling of a drug <u>should be reported</u> to FDA and the manufacture immediately.
5. Consumers <u>can protect</u> themselves from the risk associated with counterfeit drugs by purchasing all prescription and over-the-counter medications from state licensed pharmacies.
6. There are several technologies that <u>may be</u> helpful to detect counterfeits.
7. Consumers <u>must be</u> vigilant when examining their personal medication.
8. Differences in the physical appearance of the product, taste, and side- effects experienced <u>should alert</u> the patients to contact their physician or pharmacist.
9. Patients <u>may experience</u> unexpected side effects, allergic reactions, or a worsening of their medical condition.

Exercise 3. *Open the brackets using Modals with Perfect Active or Passive Infinitives.*

1. The instructor is very disappointed. He believes the assignment (should/give) to someone else.
2. Yes, there were two copies of the article on my desk yesterday morning. No, I don't have any idea where they are now. They (must/take away).
3. You are sure to remember the event. It was great, it (can't /forget).
4. You (should/call) me, and I (could/drop in).
5. We are sorry to disturb you. We (must/ misinform).

Exercise 4. *Paraphrase the sentences using the phrases* ***to be likely***, ***to be sure***, ***to be certain***, *etc. instead of the verb* ***must****. Translate the paraphrased sentences.*

1. He must have passed the examinations successfully.
2. She must have been unaware of being impolite.
3. They must have failed to prove their supposition.
4. You must not be upset of being ignored.
5. She must have every chance to defend the research project.
6. He must be telling the lie.

Exercise 5. *Express supposition, doubt, uncertainty or hesitation using modal verbs with Perfect Infinitive.*

Model:	1) <u>miss the bus/ late</u> He must have missed the bus that's why he is late. 2) <u>break the leg</u> She could have broken the leg. 3) <u>manage to do the work on time</u> They may have managed to do the work on time.

Use the following expressions: *lose the reader's card, leave the mobile in the classroom, catch a cold, be late for the lecture, miss the seminar, win the first prize, lag behind the group, fail in Inorganic chemistry, keep up with the group mates, fail to fulfil the request, make up one's mind.*

Exercise 6. *Express advice, prohibition or warning referring to the past with the help of modal verbs with Perfect Infinitive.*

Model:	1) <u>be a top student</u> You should have told her that you were a top student. 2) <u>tell of the achievements</u>

	You ought to have told of your achievements long ago.

Use the following word combinations: *study German, work in the laboratory, speak to the monitor, miss classes, prepare a multimedia presentation, discuss that video-film, take part in the series of experiments, hand in the term-paper on time, do practicum, take medicines as prescribed, get rid of the habit of putting off everything till the last moment*

III. *READING COMPREHENSION.*

Read the text and answer the question asked in short.

COUNTERFEIT MEDICATIONS

Q. What is the definition of a counterfeit medication?
A. U.S. law defines counterfeit drugs as those sold under a product name without proper authorization. Counterfeiting can apply to both brand name and generic products. Counterfeit products may include products without the active ingredient, with an insufficient quantity of the active ingredient, with the wrong active ingredient, or with fake packaging.

Q. What risks are involved with taking counterfeit medications?
A. An individual who receives a counterfeit medication may be at risk for a number of dangerous health consequences. Patients may experience unexpected side effects, allergic reactions, or a worsening of their medical condition. A number of counterfeits do not contain any active ingredients, and instead contain inert substances, which do not provide the patient any treatment benefit. Counterfeit medications may also contain incorrect ingredients, improper dosages of the correct ingredients, or they may contain hazardous ingredients.

Q. What is the worldwide prevalence of counterfeit medication?
A. The extent of the problem of counterfeit drugs is unknown. Counterfeiting is difficult to detect, investigate, and quantify. So, it is hard to know or even estimate the true extent of the problem. What is known is that they occur worldwide and are more prevalent in developing countries. It is estimated that upwards of 10% of drugs worldwide are counterfeit, and in some countries more than 50% of the drug supply is made up of counterfeit drugs.

Q. How can pharmacists, physicians, and other healthcare professionals identify counterfeit medication?
A. Pharmacists, physicians, and other healthcare professionals should familiarize themselves with those drugs most likely to be counterfeited and how to identify these products. FDA will periodically place updated information

regarding counterfeiting on its website. Healthcare professionals should suspect that a patient may have received a counterfeit drug when a patient has experienced worsening of his medical condition or an unexpected side effect. Healthcare professionals who believe that a patient has received a counterfeit drug should contact the FDA immediately. In addition, any irregularity in packaging or labeling of a drug should be reported to the FDA and the manufacturer immediately.

Q. What can consumers do to protect themselves from counterfeit drugs?
A. Consumers can protect themselves from the risks associated with counterfeit drugs by purchasing all prescription and over-the counter medications from U.S. state licensed pharmacies. Consumers must be vigilant when examining their personal medications, paying attention to the presence of altered or unsealed containers or changes in the packaging of the product. Differences in the physical appearance of the product, taste, and side effects experienced should alert the patient to contact his physician, pharmacist, or other healthcare professional who is providing treatment.

Q. How will FDA work with the public and industry to combat counterfeits?
A. The FDA is currently working with pharmaceutical manufactures, wholesalers, and retailers to identify and prevent counterfeit drugs. A successful plan will require the cooperation of manufacturers, wholesalers, and retailers to track drugs through the FDA of any potential counterfeit drugs. The task force plans to gather information from manufacturers, wholesalers, healthcare professionals, consumer groups, and other members of the public to help inform its decision making process.

Q. Are there any promising technologies that have the capability of preventing counterfeiting?
A. There are several technologies that may prove helpful, including radio frequency chips. For example, radio waves are used to automatically identify items, such as pharmaceutical products, by assigning individual serial numbers to each product. This technology may be capable of ensuring that drugs are not diverted or counterfeited by allowing wholesalers and pharmacists to determine the identity and dosage of individual products.

Q. Will FDA be requesting new legislation to prevent counterfeiting from increasing?
A. There are clear opportunities to do a better job protecting drug products from counterfeiters using modern technologies. New approaches that were not possible when the Prescription Drug Marketing Act (PDMA) was implemented 15 yrs ago are available or on the horizon. FDA does intend to work with Congress to stiffen penalties for those who counterfeit drug products.

Exercise 7. *Read the article from the magazine "Health horizons" and find the information about:*

1. Equipment and reagents which the mini-lab includes;
2. Scientists who were engaged in the development of the mini-lab;
3. Countries the lab is widely used now;
4. Specialist whom the mini-lab is suited for and healthcare units where it can be used;
5. Active ingredients for which test methods were developed.

DETECTING COUNTERFEIT DRUG

Simple test methods for revealing counterfeit and substandard drugs have been developed by the German Pharma Health Fund (GPHF)[1], a non-profit organization established by the research-based pharmaceutical industry in Germany. The Minilab® provides a reliable, simple and inexpensive method for the easy detection of counterfeits found worldwide.

This portable, tropics-compatible and easy-to-use mini-laboratory will be used mainly in developing countries, which are particularly affected by counterfeit medicines. Most hit are those living in developing countries for whom high quality and inexpensive drugs are not readily available and where the means for an effective drug quality control system are not yet fully in place.

Testing the quality of drugs by means of the Minilab® involves a four-stage test plan that employs very simple physical and chemical analytical techniques:

- *visual inspection scheme of* solid dosage forms including the associated packaging material for a timely rejection of rough counterfeits;
- *simple tablet and capsule disintegration tests* for a preliminary assessment of deficiencies related to drug solubility and availability;
- *simplified colour reactions* for a quick check of any drug present, thus ensuring the drug's identity;
- easy-to-use *thin layer chromatographic assays* for a quick check of quantities of drug present, thus ensuring the drug potency.

This development work has been carried out in close cooperation with Professor Peter Pachaly, School of Pharmacy at the University of Bonn, and Professor Klaus Fleischer, Department of Tropical Medicine at the Medical Mission Institute in Würzburg, Germany. The overall priority during the development phase was to present reliable test methods employing a simple and versatile technology. The quantities of reagents and solvents supplied in the start-up package are sufficient to support at least 3,000 color reactions in order to verify the drugs' identity and 1,000 thin-layer chromatography runs in order to verify their potency, putting the average cost per test at approximately US$

1.3. All analytical reagents and the equipment are carefully selected to ensure that they are locally available.

After several years of development, the new Minilab® was subjected to lengthy field testing in Kenya, Tanzania, Ghana, and the Philippines. These tests have shown that the Minilab® is a practical and effective tool for the identification and quality control of pharmaceuticals.

The trials have confirmed that all the procedures employed can be performed, without any problem, in primary healthcare stations, in hospitals, and in pharmacies, even those which are based in rural areas. Furthermore, the methods used are also suited for customs officials based at harbours, airports, or any other port of entry.

The Minilab® is a very helpful and important tool for all government authorities, professional bodies and nongovernmental organizations working in public health care and responsible for ensuring a constant supply of high-quality drugs in developing countries.

Test methods were developed initially for 15 active ingredients, taking into account the WHO Essential Drug List and common prescription practice. The active ingredients chosen included antibiotics and antiparasitics as well as analgesic and anti-inflammatory medications that are frequently counterfeited.

Exercise 8. *Read the report released by Health and Human Services (USA). Say what its main aim is and what recommendations it includes. Name those recommendations which from your point of view are the most effective ones.*

PROTECTING CONSUMERS FROM COUNTERFEIT DRUGS

Drug counterfeiting has been relatively rare in the United States, but the practice has increased in recent years. The Food and Drug Administration has stepped up its efforts to halt drug counterfeiting and has issued a report highlighting critical elements that will help keep the U.S. drug supply safe and secure.

The report, released by Health and Human Services Secretary Tommy G. Thompson in February 2004, uses a multi-pronged approach to address weaknesses in the drug distribution system. The report's recommendations include:

- **New technologies.** The FDA believes radio frequency identification (RFID) tagging of products is feasible by 2007, and could be an effective way to tract and trace drugs from the point of manufacturing to the point of dispensing. RFID places electromagnetic chips and tags containing a unique serial number onto cartons and individual drug products. Other important anti-

counterfeiting technologies include *color-shifting inks, holograms, and chemical markers* incorporated into a drug or its label.

- **Stricter licensing requirements.** The FDA is working with the National Association of Boards of Pharmacy on revising model state rules for licensure of wholesale drug distributors to make it more difficult for illegitimate wholesalers to get into business.
- **Tougher penalties.** The task force found that penalties for counterfeiting drugs are substantially less than for other types of counterfeiting, such as counterfeiting registered trademarks. For example, counterfeiting a prescription drug label that bears a registered trademark is punishable by up to 10 years in prison, while counterfeiting the drug itself is punishable by a maximum of three years in prison. The FDA has requested that the United States Sentencing Commission increase criminal penalties for manufacturing and distributing counterfeit drugs.
- **More secure business practices.** Effective protection requires everyone in the drug supply chain to adopt secure business practices and to refuse to do business with people of unknown background. The FDA also recommends that businesses identify individuals and teams to take responsibility for security. Additionally, the FDA intends to increase its inspections of repackages who follow procedures that place them at increased risk for the introduction of counterfeit drugs.
- **Increased education.** The FDA plans to increase education for consumers and health professionals about the risks of counterfeiting. The agency will develop educational materials, partner with organizations, and deliver messages through public service announcements and its Web site (www.fda.gov).
- **International collaboration.** Counterfeit drugs represent a global challenge. The FDA does not have the legal authority or resources to assure the safety and effectiveness of drugs purchased outside of the United States. The agency intends to work with the World Health Organization (WHO), Interpol, and other international organizations on worldwide strategies to combat counterfeiting.
- **Improved reporting systems.** If counterfeit drugs get into the system, there should be procedures in place to recognize the problem and quickly alert the public. Last year, the pharmaceutical industry announced a voluntary program in which companies agreed to notify the FDA's Office of Criminal Investigations of suspected counterfeiting within five working days. The FDA also encourages pharmacists and other health professionals to report suspected counterfeit drugs to MedWatch, the agency's program for reporting safety information and adverse events. And the FDA has announced the creation of a Counterfeit Alert Network, a group of organizations that will spread the word about counterfeiting incidents and general educational messages from the FDA. Several organizations have joined the network,

including the American Pharmacists Association, the American Medical Association, the American Society of Health-System Pharmacists, the National Consumers League, and the Academy of Managed Care Pharmacy.
It is not a victimless crime. It isn't an offense against trademarks, or the balance sheets of deep-pocketed pharmaceutical companies. Counterfeit drugs hurt people. And the victims are most often people who need real, quality drugs the most: cancer patients, AIDS patients, and people being treated for heart disease. Moreover, those who have ended up with counterfeit drugs didn't necessarily go shopping for cheap pills from questionable sources. Many bought them at their local pharmacy. No one knows how many people have taken counterfeit prescription drugs in the U.S., although the number could be surprisingly high. In 2003, the FDA announced a recall of some 200,000 bottles of Lipitor (a popular cholesterol-lowering drug) that were believed to be fake. Over the previous two years, 110,000 bottles of counterfeit Epogen and Procrit, drugs used to boost red blood cell production in people with cancer, AIDS, and kidney disease, made their way into the marketplace. Law enforcement officials recovered only one-tenth of the counterfeit drugs. In the latter case, the drugs patients got were highly diluted. In another instance, a man thought he was injecting himself daily with an AIDS medicine when he was actually taking a female pregnancy hormone. Others who have received counterfeit prescription drugs still have no idea what they really took.

IV. *RENDERING.*

Render the newspaper articles into English.

ФАЛЬШИВЫЕ ЛЕКАРСТВА

Ни одно лекарство, которое реализуется в республике, в том числе через коммерческие аптеки, не поступает в торговую сеть без строжайшего контроля. Через Витебскую контрольно-аналитическую лабораторию УП «Фармация» проходят все партии лекарственных средств, ввозимых из-за пределов республики и производимых на ее территории.

В начале 2005 года Минздрав издал нормативные акты, упредившие поступление фальсифицированной продукции в республику. В июле 2007 года был принят Закон «О лекарственных средствах». Согласно ему фальсификат – это «лекарственное средство, умышленно сопровождаемое недостоверной информацией о его составе и (или) производителе». Это может быть лекарственное средство, содержащее действующее вещество, но изготовленное нелегально, либо не содержащее действующее вещество (пустышка) или оно не соответствует указанному на упаковке. Мизерная

часть ввозимой продукции, случается, бракуется как некачественная. Из-за неправильных условий хранения и доставки были изменены внешний вид или физико-химические показатели. Это лишь доказывает, насколько важно и дома хранить лекарства строго в соответствии с инструкцией.

Вся ввозимая лекарственная продукция, ровно, как и произведенная республике, подвергается по серийному контролю в контрольно-аналитической лаборатории, а в случае необходимости проверяется каждая партия. Это уже второй этап контроля (первый – через ОТК непосредственно на заводах-изготовителях). В «Фармации» контроль осуществляют семь специалистов, провизоров-аналитиков с категориями и опытом работы. Во-первых, проверяется в порядке ли документация, дизайн и маркировка. Во-вторых, препарат проверяется на соответствие требуемым показателям – цветность, прозрачность, растворимость и, главное, подлинность, содержание действующего вещества. Кроме ручных методов, используются приборы и, прежде всего, спектрофотометр. Образец в виде раствора помещается в специальное устройство, и машина вскоре выдает графическое изображение, идентичное введенным стандартным параметрам. Если к препарату претензий нет, выписывается протокол испытаний, который заверяет заведующая лабораторией, и на сертификате, наконец, появляется штампик с голограммой «Допуск к реализации». Голограмма, которая, кстати, тоже защищает от подделок, введена с 2004 года.

Read and translate the main points of the newspaper article into English.

КАК РАСПОЗНАТЬ ПОДДЕЛЬНОЕ ЛЕКАРСТВО

Наиболее надежное место для приобретения лекарств – крупные аптечные сети муниципальной или частной формы собственности. В передвижных аптечных киосках (stalls) шансы приобрести подделку увеличиваются. Будьте осторожны с интернет-магазинами и таким предложением как «лекарства-почтой». В случае обмана даже жаловаться будет некому.

Цена на одно и то же лекарство в разных аптеках может сильно отличаться, но и здесь есть предел. Производитель вряд ли может позволить себе снизить цену (reduce the price), к примеру, в 2 раза.

Обратите внимание на внешний вид упаковки. Вас должны насторожить шероховатый картон (rough cardboard), небрежно склеенная (carelessly glued) коробочка, нечеткие (illegible) надписи, отсутствие производителя, исправления в серийных номерах или сроке годности. Если таблетки расфасованы в пластины-блистеры, то дата производства, номер

и серия препарата должны быть выдавлены (stamp) четко и читаться с выпуклой (convex) стороны.

Все фирменные препараты обязательно снабжены аннотацией (package insert) либо на русском языке, либо на языке производителя, но обязательно с русским переводом. Обычно аннотация вложена так, что делится пластиной с лекарством пополам. В подделке же вкладыш чаще вложен в одну половину коробки.

Обязательно обратите внимание, насколько точно на упаковке и в аннотации воспроизведено название лекарства: иной раз мошенники (swindlers), заменив или добавив всего одну букву, выдают свои фальшивки за популярный препарат.

Если вы сомневаетесь в подлинности (authenticity) препарата, можете попросить провизора показать вам сертификат соответствия. Это своеобразный паспорт любого лекарства. Обязательные реквизиты документа: название страны, фирмы-поставщика, формы (formulation) препарата (ампулы, таблетки, капсулы и т.д.), номер серии (series) (должен совпадать с номером на упаковке). Сертификат должен быть заверен печатью (sealed) выдавшей его организации.

Все препараты, продаваемые в аптеке, зарегистрированы в Регистре лекарственных средств (РЛС) Если вам необходимо купить препарат, который вам не назначался, не сочтите за труд посмотреть информацию о нем в фармацевтическом справочнике (directory): такие справочники доступны.

Как правило, на всех лекарственных средствах имеются штрих-коды (stroke-codes), которые оформлены очень качественно и не могут быть стерты слегка намоченным пальцем. Если они смазываются (wipe off), то можно задуматься, а все ли здесь законно.

ЦИФРЫ

Что подделывают в России

1-е место: антибиотики – 38%
2-е место: спазмальгетики – 7%
3-е место: противовоспалительные средства – 6%
4-е место: препараты плазмы крови – 5%
5-е место: противоязвенные средства – 4%
68% всех фальшивок – подделка лекарств зарубежных производителей.

V. *FOLLOW-UP ACTIVITY.*

I. *Prove that:*

1. The problem of counterfeit drugs is a worldwide problem.
2. It is not an easy thing to detect a counterfeit drug.
3. There is a great risk involved with taking counterfeit medication.
4. The precise and detailed data on counterfeit drugs is difficult to obtain.

II. *Agree or disagree with the following:*

1. Drug counterfeiting is relatively rare in the USA.
2. Counterfeiting is the greatest in those regions which have less effective regulatory system and market control.
3. There are no promising technologies for prevention of counterfeit drugs.
4. It is the consumers who should protect themselves from risks associated with counterfeit drugs.
5. Healthcare professionals are likely to identify counterfeit medications.
6. International collaboration is one of the worldwide strategies to combat counterfeiting.

III. *Debate:*

1. whether drug counterfeiting can be stopped by legal means;
2. whether counterfeit medications cause much hazard to Public Health Services.

IV. *Make projects:*

1. prepare a leaflet for university-wide distribution that describes the risks involved with taking counterfeit medications; means of protection from counterfeits;
2. prepare a report on the main techniques of identification of counterfeits and the role of professionals in combating counterfeits.

TOPIC “PHARMACEUTICAL FORMULATIONS”

I. *VOCABULARY AND GRAMMAR LEARNING.*

Exercise 1. *Read and memorize the words of the active vocabulary.*

1.	coated tablet [ˊkoutɪdˊtæblɪt] – таблетка, покрытая оболочкой;
2.	effervescent tablet [ˌefəˊvesnt] *n*. – «шипучая» таблетка;
3.	pellet [ˊpelɪt] *n*. – пилюля;
4.	swallow [ˊswoləu] *v*. – глотать, проглатывать;
5.	shelf-life *n*. – срок годности, срок хранения (напр. лекарственного средства);
6.	shell [ʃəl] *n*. – оболочка;
7.	mode [moud] *n*. – способ, метод;
8.	starch [staːtʃ] *n*. – крахмал;
9.	opaque [oupeɪk] *a*. – непрозрачный, темный;
10.	permeable [ˊpəːmjəbl] *a*. – проницаемый;
11.	leach [liːtʃ] *v*. – выщелачивать;
12.	soothe [suːð] *v*. – смягчать, облегчать (боль);
13.	deteriorate [dɪˊtɪərɪəreɪt] *v*. – ухудшать(ся), портить(ся), разрушать(ся);
14.	lubricaut [ˊluːbrɪkənt] *n*. – смазочный материал;
15.	diluent [ˊdaɪljuənt] *n*. – разбавитель;
16.	binder [baɪndə] *n*. – связующее вещество (клей, цемент и т.п.);
17.	additive [ˊædɪtɪv] *n*. – добавка;
18.	represent [ˌreprɪˊzent] *v*. – изображать, представлять;
19.	release [rɪˊliːs] *v*. – освобождать, выпускать;
20.	susceptible [səˊseptəbl] *a*. – восприимчивый, чувствительный (to);
21.	enteric [enˊterɪk] *a*., *n*. – брюшной, кишечный; брюшной тиф; ~ coating – энтеросолюбильное покрытие таблетки;
22.	aid [eɪd] *v*., *n*. – помогать, способствовать; помощь, поддержка.

Exercise 2. *Practise pronunciation of the words of the Greek and Latin origin.*
elixir [ɪ'lɪks(ɪ)ə], tincture ['tɪŋkʧə], granule ['grænjuːl], emulsion [ɪ'mʌlʃ(ə)n], syrup ['sɪrəp], suppository [sə'pɔzɪt(ə)rɪ], suspension [sə'spen(t)ʃ(ə)n], cream [kriːm], lyophilizate [ˌlaio(u)fili'zeit], fumarate [ˌfjʊːməreɪt], spirit ['spɪrɪt], sucrose ['s(j)uːkrəus], glycerin(e) ['glɪs(ə)rɪn], glycol [ˌglʌɪkɒl], senna ['senə], ginger ['ʤɪnʤə], vagina [və'ʤaɪnə], anus ['einəs], rectum ['rektəm], cosmetic [koz'metik], carbon dioxide ['kaːbən dai'oksaid], vaccine ['væksiːn], sera ['siərə], plasma ['plæzmə], ether ['iːθə], parenteral [pə'rentərəl], external [eks'təːnl], gel [ʤel], local ['loukəl], inert [i'nəːt], aerosol ['ɛərəsol], lotion ['louʃən], sterile ['sterail],

disintegration [dis,intigreiʃən], subcutaneous ['sʌbkju:teinəs], excipient [ek'sipiənt], saccharin ['sækərin].

Exercise 3. *Study the following abbreviations and their meaning in Latin and in English.*

Abbreviation	**Latin**	**English**
amp.	-	ampule
amt.	-	amount
BUCC		inside cheek
cap., caps.	capsula	capsule
comp.	-	compound
cr., crm.	-	cream
elix.	-	elixir
emuls.	emulsum	emulsion
fl., fld.	-	fluid
ID	-	intradermal
IJ, inj.	injectio	injection
IM	-	intramuscular
IN	-	intranasal
IP	-	intraperitoneal
IV	-	intravenous
lin	linimeutum	liniment
liq	liquor	solution
lot.	-	lotion
nebul	nebula	a spray
p.o.	per os	by mouth or orally
p.r.	-	by rectum
pulv.	pulvic	powder
R	-	rectal
SL	-	sublingually, under the tongue
Sc, subc., subcut, subq., SQ	-	subcutaneous
sol	solutio	solution
supp.	suppositorium	suppository
susp.	-	suspension
tab.	tabella	tablet
troche	trochiscus	lozenge
top	-	topical
tr., tinc., tinct.	-	tincture
ung (unguentum)	-	ointment
vag.	-	vaginally

Exercise 4. *Match the abbreviation in A with its name in B:*

A 1. comp.; 2. amt.; 3. ID; 4. IN; 5. IP; 6. lin.; 7. nebul.; 8. p.o; 9. p.r.; 10. SL; 11. susp.; 12. tinc.; 13. ung; 14. sol.; 15. lot.; 16. BUCC; 17. IV; 18. IJ; 19. emuls.; 20. IM.

B a) tincture; b) emultion; c) intravenous; d) inside cheek; e) intramuscular; f) lotion; g) compound; h) suspention; i) injection; j) amount; k) ointment; l) intradermal; m) liniment; n) intranasal; o) by rectum; p) by mouth; r) a spray; s) intraperitoneal; t) solution ; u) under the tongue.

Exercise 5. *Form the words of negative meaning using the following prefixes:* ***dis-***, ***un-***, ***de-***, ***non-***, ***im-***

solve, integrate, stable, palatable, coated, attractive, suitable, natured, activated, medical, commercial, advantage, volatile, medicated, permeable, solution.

Exercise 6. *Fill in the table with cognate words according to the model.*

	Verb	***Noun***	***Adjective***
Model:	1. • absorb	• absorbent • absorbtives • absorbtion • absorbtivity • absorber	• absorbent • absorbtive • absorbing
	2. •	• admittance •	• admissible
	3. • extract	• • •	•
	4. •	• formula (as, ae) •	—
	5. • require	•	•
	6. • add	• addition •	•
	7. •	• digester • •	• digestive •
	8. •	• circularity • •	• circular •
	9. • inhale	• •	—
	10.• distinguish	—	• •

		•
11.•	• deliverance • •	• •
12.• medicate	•	• medicative •
13.•	• application	• applicable
14.•	• penetrability •	• penetrable • • •
15.• moisten	• •	• •

Exercise 7. *Match the adjectives with appropriate nouns:*

stable, unpalatable, portable, suitable, susceptible, cleaning, deodorizing available, soluble, acceptable, compatible, soothing.

taste, ingredient, substance, form, active substances, package, people, preparation, products, property.

Exercise 8. *Translate the following word combinations:*

a) gelatin capsule, stability property, enteric coating, "first pass effect", site of action, content uniformity, hardening agent, a poor drug, edible oil, unmedicated creams, deterioration of drug, alcohol content, sweetness properties, storage requirements.
b) small wide-mouthed containers, specified cool temperature, a soft-shell(ed) capsule, a hard-shell(ed) capsule, sustained release formulation, plant-based gelling substance, a viscous semisolid preparation, vapour permeability of plastics, screw-capped glass bottles, the rank order for absorption rate, different release characteristics, satisfactory temperature range for storage, hydrogen peroxide solution.

Exercise 9. *Compare the following pairs of words. Translate them into Russian.*

1. regard – with regard to;
2. to result in – to result from;
3. to die (of, from) – to die (about liquids);
4. transparent – opaque;
5. soft-shell(ed) – hard shell(ed);
6. accurate – neat;
9. sweet – sweat;
10. beverage – soft drinks;
11. solid – semisolid;
12. to grow – to harvest;
13. indication – contraindication;
14. mucus – mucous;
15. hydrophobic – hydroscopic;

7. content – contents;
8. solvent – cosolvent;
16. paper – paper-board.

Exercise 10. *Translate from Russian into English:*
подкожная инъекция, пероральный прием, парентеральное введение лекарства, неактивные добавки, пищеварительный тракт, список подходящих разбавителей, принимать микстуру по чайной ложке, облегчать боль, способ приема лекарства, глотать таблетку, водонепроницаемое покрытие таблетки.

Exercise 11. *Read the sentences and choose the proper word from those that are given in brackets.*
1. Powders (present, represent) one of the oldest dosage forms, being a natural attempt to prepare crude drugs in conveniently administered form.
2. Active constituents of coated tablets are (formed, released) very slowly.
3. Injectable products often contain (additives, diluents) which help maintain the stability and potency.
4. Today, the attention is paid to finding an optimal dosage form suitable to a certain (way, mode) of administration.
5. A tablet consists of a drug, mixed with inert (excipient, ingredient) and substances which cause rapid disintegration and absorption of the drug.
6. Surface active agents of the ointment (contribute, aid) the formation of an emulsion with the tissue.
7. Some substances change colour when they (destruct, deteriorate).

Exercise 12. *Compare the two ways of expressing the same idea.*

A. In everyday speech. The drug is <u>so effective that it changes the condition rapidly</u>.	**B.** In science The drug <u>is effective enough to change the conditions rapidly</u>.

Transform the sentences using the way of expressing the idea as in example B.
1. The drug is so poisonous that it causes death within two hours.
2. Injectable products are so purified that they do not precipitate on storage.
3. The particle sizes of insoluble drugs are so small that they cannot influence the absorption.
4. Injections are made so slowly that they are conveyed by the bloodstream to all parts of the body.
5. A piece of lead is so heavy that it immediately drops onto the bottom of the flask.

6. The difference between therapeutic and toxic doses of colchicine is so minimal that it gives little choice between treatment and poisoning.
7. The amino acids are so remarkable among organic compounds that they form a specific group.

Exercise 13. *Translate the following sentences paying attention to different functions of the Infinitive.*

1. It is important to appreciate that a tablet contains a variety of other substances apart from the drug itself.
2. Studies have to be carried out to ensure that the drug is compatible with these other substances.
3. Preformulation involves the characterization of a drug's physical, chemical, and mechanical properties in order to choose what other ingredients should be used in the preparation.
4. The drug must be combined with inactive additives by a method which ensures that the quantity of drug present is consistent in each dosage unit e.g. each tablet.
5. Coatings can be coloured or stamped to aid tablet recognition.
6. Such drugs may need to be given in very high doses or by injection.
7. Medicinal tablets are usually intended to be swallowed, and are of a suitable size and shape.
8. Sizes of tablets to be swallowed range from a few millimeters to about a centimeter.
9. Medicinal tablets are now made in many shapes and colors to users to distinguish between different medicines that they take.
10. In the manufacture of pharmaceuticals, encapsulation refers to a range of techniques used to enclose medicines in a relatively stable shell known as a capsule, allowing them to, for example, be taken orally or be used as suppositories.
11. A binder is added to help hold the tablet together and give it strength.
12. A base of a gelatin capsule is designed to contain the powdered contents of a capsule dosage form.
13. Physicians sometimes prescribe powders for use as laxatives or intestinal adsorptives, the amount to be employed usually being a teaspoonful or more.
14. The opening of the jars should be large enough to admit a teaspoon.

II. *READING COMPREHENSION.*

Read text 1 and do the tasks which follow it.

Text 1

PHARMACEUTICAL FORMULATION

Pharmaceutical formulation is the process in which different chemical substances are combined to a pure drug substance to produce a final medicinal product. Formulation studies involve developing a preparation of the drug which is both stable and acceptable to the patient. For orally taken drugs, this usually involves incorporating the drug into a tablet or a capsule. It is important to appreciate that a tablet contains a variety of other substances apart from the drug itself, and studies have to be carried out to ensure that the drug is compatible with these other substances.

Preformulation involves the characterization of a drug's physical, chemical, and mechanical properties in order to choose what other ingredients should be used in the preparation.

Formulation studies then consider such factors as *particle size*, *polymorphism*, *pH*, *and solubility*, as all of these can influence bioavailability and hence the activity of a drug. The drug must be combined with *inactive additives* by a method which ensures that the quantity of drug present is consistent in each dosage unit e.g. each tablet. The dosage forms should have a uniform appearance, with an acceptable taste, tablet hardness, or capsule disintegration.

Dosage forms have a long history. The art of apothecary, who prepared crude drugs of animal or vegetable origin, was the seed-bed out of which today's industrially and scientifically based pharmaceutical technology grew.

Not long ago it was recognized as a great step forward to extract and purify chemically homogenous substances from the products of nature or even to manufacture active substances by synthesis and make them available in tablet form. Only recently the pharmacists started the investigation of how much active substance is released from the dosage form and absorbed by the body. Today, the emphasis is on finding an optimal dosage form not only for every part of the body and mode of administration, but also for particular groups of patients.

According to the **mode of administration** drug formulations are divided into formulations for oral administration, formulations for topical administration and formulations for parenteral administration.

Formulation for oral administration. The most common product for administration to adults is the **tablet**. A tablet consists of a *drug*, very often representing a small proportion of the total weight, mixed with *enert excipients* to effect rapid disintegration and absorption of the drug in the alimentary canal and *a lubricant*. In order to protect tablets from moisture a waterproof coating is often applied.

Solutions and **suspensions** of drugs still form a large proportions of the products used.

Formulation for topical administration. Topical preparations consist of **ointments**, **creams**, **lotions**, **dusting powders**, and **sprays**.

Ointments are usually anhydrous bases. They contain surface active agents, such as wool fat, which aids the formation of an emulsion with tissue fluids.

Creams and lotions are emulsions of the oil-in-water or water-in-oil type and are designed to permit the maximum absorption of the drug through the skin.

Ointments and creams containing antibiotics and eye ointments have to be sterile and have to be made under aseptic conditions.

Formulation for parenteral administration. **Injections** are meant to introduce a drug into particular part of the body from which it is conveyed by the blood stream and distributed to all parts of the body. The common routes of injection are *subcutaneous*, *intramuscular*, and *intravenous*.

Injectable products must be free of particles of all sorts. The product must not form a precipitate on storage. Such particles may cause severe complications which can result in death.

Like oral products, injectable products often contain *additives* which help to maintain the stability and potency. The use of *buffers is* also necessary to maintain the pH and thus the stability of the product.

According to their **structure** dosage forms are divided into.

1. **Solid pharmaceutical forms:**
   - Granules
   - Tablets
   - Coated tablets
   - Effervescent tablets
   - Controlled Release Tablets
   - Capsules
   - Controlled Release Capsules
   - Pellets
2. **Semi-solid pharmaceutical forms:**
   - Ointments
   - Creams
   - Gels
   - Suppositories
3. **Liquid pharmaceutical forms:**
   - Solutions
   - Suspensions
   - Syrups
4. **Sterile pharmaceutical forms:**
   - Solutions
   - Dry injections
   - Lyophilizates
   - Creams

Exercise 1. *Add the correct beginning to each sentence according to the text.*

1. … are divided into formulations for oral administration, formulations for topical administration and formulations for parenteral administration.
2. … are divided into solid dosage forms, semi-solid dosage forms and liquid dosage forms.
3. … a waterproof coating is often applied.
4. … consists of ointments, creams, lotions, dusting powders, and sprays.

5. … often contain additives which help to maintain the stability and potency.
6. … are subcutaneous, intramuscular, and intravenous.
7. … still form a large proportions of the oral products used.

Exercise 2. *Add the proper ending of each sentence choosing them from the given options.*

1. Injections are made …
   a) to form a precipitate on storage; b) to cause severe complications; c) to introduce a drug into the particular part of the body.
2. A tablet consists of a drug …
   a) to effect rapid disintegration; b) to influence the mechanism of the disease; c) to protect tablets from moisture.
3. Creams and lotions are emulsions …
   a) free of particles of all sorts; b) containing particles of all kinds; c) applied to the surface of the skin.
4. Ointments and creams containing antibiotics …
   a) are only the oil-in-water type emulsions; b) have to be sterile; c) may not be made under aseptic conditions.
5. Like other compounds injectable products contain additives which help to …
   a) reduce toxicity; b) distribute drugs to all parts of the body; c) maintain the stability of the product.

Exercise 3. *Answer the questions to the text "Pharmaceutical formulation".*

1. What is called pharmaceutical formulation?
2. What does preformulation involve?
3. Why do formulation studies consider such factors as particle size, polymorphism, pH, and solubility?
4. What investigations did pharmacists start?
5. What is the most important problem for pharmacists working in the field of dosage form manufacture?
6. What are the types of dosage forms?
7. What are formulations for oral administration?
8. What kinds of dosage forms for topical administration have to be sterile?
9. What is necessary to maintain stability of the injectable products?

Read text 2 and do the tasks which follow it.

Text 2

SOLID DOSAGE FORMS

A **tablet** is a mixture of active substance and excipients, usually in powder form, pressed or compacted into a solid. The **excipients** include **binders**, **glidants** (flow aids) and **lubricants** to ensure efficient tabletting; **disintegrants** to ensure that the tablet breaks up in the digestive tract; **sweeteners** or **flavours** to mask the taste of bad-tasting active ingredients; and **pigments** to make uncoated tablets visually attractive. A **coating** may be applied to hide the taste of the tablet's components, to make the tablet smoother and easier to swallow, and to make it more resistant to the environment, extending its shelf life. Tablets are easy and convenient to use. They provide an accurately measured dosage in a convenient portable package; and can be designed to protect unstable medications or disguise unpalatable ingredients. Coatings can be coloured or stamped to aid tablet recognition. Manufactured processes and techniques can provide tablets special properties; for example, enteric coatings or sustained release formulations.

Some drugs may be unsuitable for administration by the oral route. For example, protein drugs such as insulin may be denatured by stomach acids; such drugs cannot be made into tablets. Some may be deactivated by the liver (the "first pass effect") making them unsuitable for oral use. However, drugs which can be taken sublingually bypass the liver and are less susceptible to the first pass effect. Bioavailability of some drugs may be low due to poor absorption from the gastric tract; such drugs may need to be given in very high doses or by injection. For drugs that need to have rapid onset, or have severe side effects the oral route may not be suitable. For example, *Salbutamol* can have effects on the heart and circulation if taken orally; these effects are greatly reduced by inhaling smaller doses direct to the required site of action.

Medicines to be taken orally are very often supplied in tablet form; indeed, the word *tablet* without qualification would be taken to refer to a medicinal tablet. Medicinal tablets and capsules are often called *pills*.

Medicinal tablets are usually intended to be swallowed, and are of a suitable size and shape. Tablets for other purposes, e.g. effervescent medicinal tablets and non-medicinal tablets, may be larger.

Medicinal tablets were originally made in the shape of a disk of whatever color their components determined, but are now made in many shapes and colors to users to distinguish between different medicines that they take. Tablets are often stamped with symbols, letters, and numbers, which enable them to be identified. Sizes of tablets to be swallowed range from a few millimeters to about a centimeter. Some tablets are in the shape of capsules, and are called "**caplets**".

In the tablet-pressing process, it is important that all ingredients be fairly dry, powdered or granular, somewhat uniform in particle size, and freely flowing. Mixed particle-sized powders can segregate due to operational

vibrations, which can result in tablets with poor drug or active pharmaceutical ingredient (**API**) content uniformity. Content uniformity ensures that the same API dose is delivered with each tablet.

Some APIs may be tableted as pure substances, but this is rarely the case; most formulations include **excipients**. Normally, an inactive ingredient (excipient) termed a **binder** is added to help hold the tablet together and give it strength. A wide variety of binders may be used, some common ones including lactose powder, dibasic calcium phosphate, sucrose, corn (maize), starch, microcrystalline cellulose and modified cellulose (for example hydroxymethyl cellulose).

Often, an ingredient is also needed to act as a **disintegrant** that hydrates readily in water to aid tablet dispersion once swallowed, releasing API for absorption. Some binders, such as starch and cellulose, are also excellent disintegrants.

Small amounts of **lubricants** are usually added, as well. The most common of these is magnesium stearate; however, other commonly used tablet lubricants include stearic acid (stearin), hydrogenated oil, and sodium stearyl fumarate. These help the tablets, once pressed, to be more easily ejected from the die.

Exercise 1. *Define the following notions.*
Medicinal tablet; a coating of a tablet; shelf life of a tablet; “the first pass effect”; a pill; API; a binder; a disintegrant; a lubricant; a caplet.

Exercise 2. *Expand the sentences using the Infinitive as an attribute to the underlined words. Choose the infinitive from the list:*
to hydrate readily in water, to be taken orally, to be commonly used, to be added to help hold the tablet together, to be applied to the tablet, to be taken sublingually, to be swallowed.

1. Small amounts of <u>lubricants</u> include magnesium stearate, stearic acid, hydrogenated oil, and sodium stearyl fumarate.
2. A <u>coating</u> hides the taste of the tablet’s components and make the tablet smoother and easier to swallow.
3. <u>Drugs</u> bypass the liver and are less susceptible to the “first pass effect”.
4. <u>Medicines</u> are very often supplied in tablet form.
5. <u>Medicinal tablets</u> are of a suitable size and shape.
6. An <u>inactive ingredient</u> (excipient) is termed a binder.
7. A <u>disintegrant</u> is needed to aid tablet dispersion once swallowed, releasing the active pharmaceutical ingredient for absorption.

Exercise 3. *Answer the following questions.*
1) What does a tablet usually consist of? 2) What do excipients include? What are they used for? 3) Why are tablets easy and convenient to use? 4) What special properties can tablets be provided with? 5) What drugs cannot be made into tablets? Why? 6) What shape were medicinal tablets originally made in? What are the usual shapes of tablets nowadays? 7) What is the difference between an active pharmaceutical ingredient and an inactive one? 8) What substances may be used as binders? 9) What is a disintegrant used for? 10) What are commonly used tablet lubricants?

Read text 3 and do the tasks which follow it.

Text 3

CAPSULES

In the manufacture of pharmaceuticals, encapsulation refers to a range of techniques used to enclose medicines in a relatively stable shell known as a capsule, allowing them to, for example, be taken orally or be used as suppositories. The two main types of capsules are **hard-shelled capsules**, which are normally used for dry, powdered ingredients, and **soft-shelled capsules**, primarily used for oils and for active ingredients that are dissolved or suspended in oil. Both of these classes of capsule are made both from gelatine and from plant-based gelling substances like carrageens and modified forms of starch and cellulose.

An empty gelatin capsule is made up of two parts, a **base** which is designed to contain the powdered contents of a capsule dosage form and the **cap** which is only about one-half as long as the base.

Commercial capsule dosage forms come in an impressive variety of colours, both transparent or opaque; some capsules are two-tone with the cap and base each having a different shade of the same colour or they may be of a different colour altogether.

The gelatin mixtures used to prepare hard-shelled gelatin capsules may contain additives such as **hardening agents**. Capsule sizes used for oral administration in medicine vary from 80 mg to 2.000 mg.
Soft-shelled gelatin capsules are a newer dosage than hard-shelled gelatin capsules or tablets. They have become very popular in recent years. Soft-shelled gelatin capsules are generally easier to swallow than hard-shelled capsules.

Since their inception, capsules have been viewed as the medium of more potent medicines than tablets, which are more commonly associated with weaker OTC drugs. For this reason, producers of drugs such as OTC analgesics wanting to emphasize the strength of their product developed the "**caplet**" or

“capsule-shaped tablet” in order to tie this positive association to more efficiently-produced tablet pills.

Powders. They represent one of the oldest dosage forms. They consist of mixtures of substances, which, have previously been reduced to a fine powder.

Powders are particularly useful for children who may have difficulty in swallowing a tablet or capsule. The disadvantages of powders, as a dosage form, lie chiefly in their unsuitability for certain medications such as those that are disagreeable in taste, caustic, or hygroscopic.

In the preparation of individual powders at the prescription department the problem of accurately subdividing the powder into individual portions is very important. For the greatest accuracy, each powder should be weighed.

Physicians sometimes prescribe powders for use as laxatives or intestinal adsorptives, the amount to be employed usually being a teaspoonful or more. These may be dispensed in tall, round, pasteboard boxes or in glass jars with straight sides. The opening of the jars should be large enough to admit a teaspoon.

Task 1. *State the difference between:*

1. hard-shelled capsules and soft-shelled capsules;
2. a base of a gelatin capsule and a cap of a capsule.

Task 2. *Name advantages and disadvantages of powders and tablets as one of the oldest dosage forms. Use the following phrases:*

To begin with, … has (have) some advantages. As it is known … . More over … . In addition … . Therefore … . However, … has (have) some disadvantages. The main one is … . On the one hand … . On the other hand … . What is more … . Consequently (therefore) … . In conclusion I would say that … .

Read text 4 and find the following information in it.

1) Different types of ointment bases and properties of an ointment affecting the choice of an ointment base; 2) Two types of creams as semi-solid emulsions; their advantages and disadvantages.

Text 4

SEMI-SOLID PHARMACEUTICAL FORMS

An **ointment** is a viscous semisolid preparation used topically on a variety of body surfaces. These include the skin and the mucous membranes of the eye

(an eye ointment), vagina, anus, glands and nose. An ointment may or may not be medicated.

The vehicle of a ointment is known as *ointment base*. The choice of a base depends upon the clinical indication for the ointment, and the different types of ointment bases are:

1. Hydrocarbon bases. e.g. hard paraffin, soft paraffin.
2. Absorption bases. e.g. wool, fat, beeswax.
3. Bold school rocks.

Properties which affect choice of an ointment base are:

1. Stability.
2. Penetrability.
3. Solvent property.
4. Irritant effects.
5. Ease of application and removal.

A **cream** is a topical preparation usually used for application to the skin. Creams for application to mucous membranes such as those of the rectum or vagina are also used. Creams may be considered pharmaceutical product as even cosmetic creams are based on techniques developed by pharmacy, and unmedicated creams are highly used in a variety of skin conditions (dermatosis). Creams are semi-solid emulsions, that is mixtures of oil and water. They are divided into two types: oil-in-water (O/W) creams which are composed of small droplets of oil dispersed in a continuous aqueous phase, and water-in-oil (W/O) creams which are composed of small droplets of water dispersed in a continuous oily phase. Oil-in-water creams are more comfortable and cosmetically acceptable as they are less greasy and more easily washed off using water. Water-in-oil creams are more difficult to handle but many drugs which are incorporated into creams are hydrophobic and will be released more readily from a water-in-oil cream than an oil-in-water cream. Water-in-oil creams are also more moisturizing as they provide an oily barrier which reduces water loss from the stratum cornea, the outmost layer of the skin.

Read text 5 and do exercises which follow it.

Text 5

LIQUID DOSAGE FORMS

Liquid dosage forms are **elixirs, spirits, tinctures, syrups** and others. **Elixirs**, like syrups, are clear, flavoured solutions which are sweetened with sucrose, other sugars, or sweetening agents like the polyhydric alcohols, saccharin or other substances. Elixirs differ from syrups in that they always contain alcohol. The alcohol content of elixirs varies from as low as 27% to as

high as 44%. Although elixirs which contain less than 5% alcohol are somewhat difficult to distinguish from syrups, elixirs are generally less viscid than syrups because they contain less sugar and are usually less sweet. Also, the elixirs usually contain a cosolvent in addition to alcohol, such as glycerin or propylene glycol, which may also contribute sweetness to the preparation. Elixirs provide stability properties as good syrups and may be stored at controlled room temperature.

In medicine, a **tincture** is an alcoholic extract (e.g. of a herb) or solution of a non-volatile substance. Solutions of volatile substances were called **spirits**, although that name was also given to several other materials obtained by distillation, even when they did not include alcohol. Tinctures can be effectively used for natural remedies, but one should be careful of the products since the original herb should be of a high standard before it goes through the extraction process. For instance, when creating a herbal tincture, it is important to harvest the herb during its peak time for potency and use only organic herbs.

The general approach on how tinctures are prepared is the following:

- Herbs are put in a jar and a spirit of 40º C pure ethanol is added
- The jar is closed and left to stand for 2-3 weeks. It is shaken once and a while.
- A normal dosage (though depending on the plant used) is to administer 3 times a day 10 drops of tincture diluted with water.

Some examples that were formerly common in medicine include:

- Tincture of green soap (which also contains lavender)
- Tincture of iodine
- Tincture of opium (laudanum)
- Camphorated opium tincture (paregoric)

Examples of **spirits** include:

- Spirit of ammonia (also called spirit of hartshorn)
- Spirit of camphor
- Similarly, “spirit of salt” actually meant hydrochloric acid
- “Spirit of vinegar” was glacial acetic acid
- “Spirit of wine” or “spirits of wine” is an old name for alcohol (especially food grade alcohol derived from the distillation of wine)
- “Spirit of wood” means methanol, often derived from the destructive distillation of wood.

An **infusion** is water or oil in which plants with a desired flavour have been steeped.

Examples:

- Herbs or other plants can be placed in boiling water for a few minutes, then discarded, and the water drunk as a beverage. A common example is tea. Many other drinks, often called herbal teas although they may contain no tealeaves, are prepared in this way. Lemon, chamomile, senna, apple, ginger, rooibos, and a great many other plants are used individually or in

combination. Infusions of this type are sometimes drunk for pleasure; other are claimed to be advantageous for health.

- Plants with desirable flavours may be steeped in an edible oil or vinegar for an extended period; the infused oil or vinegar is often sold still containing the plant, and is then used as flavouring. Chillies, lemon, garlic, and many other plants may be used.

Exercise 1. *Express the following with one word.*

1. Preparation by which medieval scientists hoped to change metals into gold or (~ of life) to prolong life indefinitely;
2. Strong alcoholic drink;
3. Thick sweet liquid made from sugar-cane juice or by boiling sugar with water;
4. Liquid made by steeping leaves, herbs, etc. to flavour it or to extract the taste;
5. An alcoholic extract (e.g. of a herb) or solution of a non-volatile substance.
6. A preparation made by boiling a substance in water or other liquid.

decoction, elixir, tincture, spirit, syrup, infusion.

Exercise 2. *Answer the following questions.*

1. What are elixirs sweetened with? 2. How do elixirs differ from syrups? 3. What is the difference between solutions of non-volatile substances and solutions of volatile substances? 4. Why should one be careful of the products in tinctures? 5. How are tinctures prepared? 6. What are the examples of tinctures which were formerly common in medicine? 7. What do examples of spirits include? 8. What are infusions used for?

Translate the text from English into Russian.

CONTROLLED RELEASE DRUG

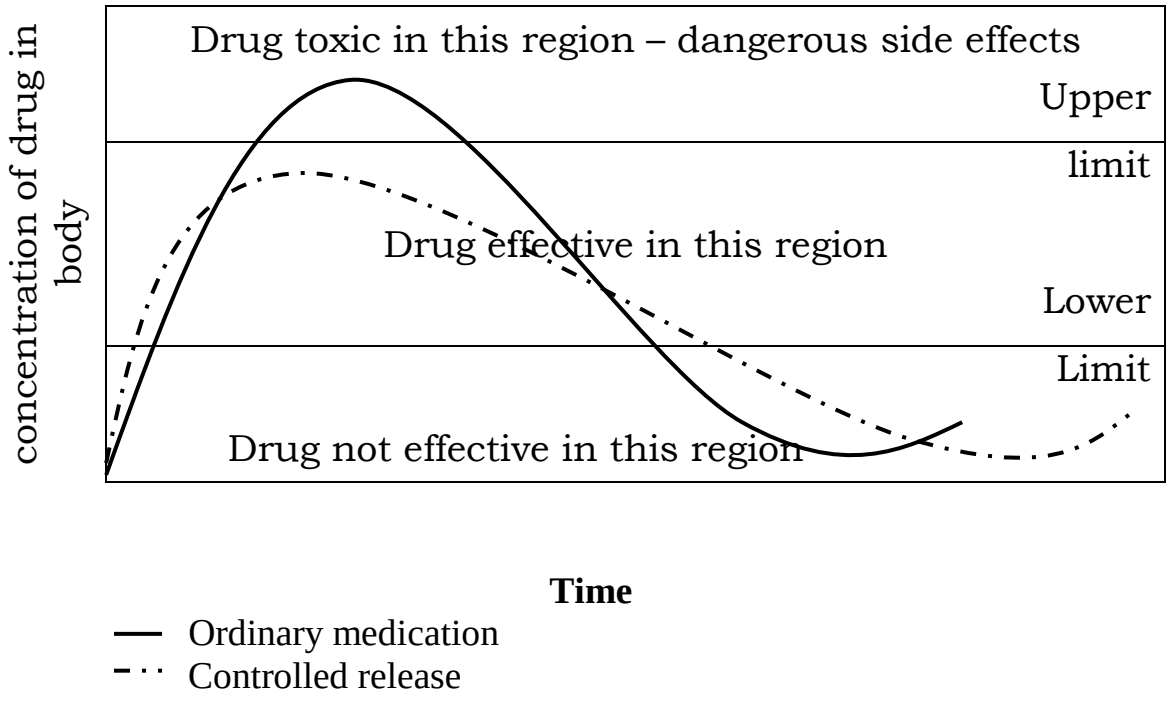
Why are timed release drugs sometimes more effective in treating a disease? Almost all involve a polymer as one of their key components. The polymer regulates the flow of the drug, maintaining the optimal level to treat the disease and yet avoid undesirable side effects.

Figure 1 shows how a controlled release drug operates. All drugs have an optimum concentration range for effective activity; below this range the drug is ineffective, and above it the drug may have toxic side effects. In the ordinary administration of medication, the initial dose raises the body’s drug level toward the upper portion of the effective range; this gradually declines and falls below

the effective limit. **In controlled release**, as Figure 1 shows, the same drug is released continuously, keeping the dosage level within the effective region for longer time periods. Controlled release substantially reduces the side effects that can arise when the drug's level exceeds the upper limit.

At least six different controlled release techniques exist. **Erodable devices** enclose the drug inside a substance, usually a polymer, that erodes or wears away due to chemical activity in the body and releases the drug for a few hours to several days. Many over-the-counter vitamins and cold, headache, and allergy medications utilize this simple method. **In reservoir and monolithic devices**, the drug is enclosed within a nonerodable polymer and slowly diffuses out into the body fluids; these devices can operate effectively for periods as long as two years. *Norplant*, a contraceptive device, falls into this category. **Transdermal** devices administer the drug through the skin using a polymeric membrane to control the delivery. *Nitroglycerin* patches are placed on the chest to treat angina pectoris (heart pain), patches that contain drug to alleviate motion sickness are placed behind the ear near the semicircular canals, and nicotine patches are placed on the arm to break the smoking habit. Another controlled release device, **microcapsules**, are tiny capsules molded or compressed into a caplet (a cross between a capsule and a tablet). And finally, **polymeric drug** contains an active drug unit as part of the polymer.

Figure 1



Translate the following newspaper article from Russian into English.

ОБОЛОЧКА ВРЕДНЕЕ ТАБЛЕТКИ?

Оболочки таблеток и капсул отрицательно влияют на репродуктивную функцию человека. К такому мнению пришли западные ученые.

Большое количество лекарств и добавок имеют в своем составе фталаты – соединения, которые можно найти в пластике. Фталаты провоцируют гормональные изменения и вызывают проблемы со стороны репродуктивной системы.

Ученые, выявившие данный факт, не знают, каким именно образом концентрация фталатов в таблетках отразится на здоровье. Но одно можно сказать точно: для детей и беременных женщин они представляют опасность, особенно если медикамент принимается регулярно.

Полностью исключить фталаты из препаратов нельзя. На упаковке не указывается их содержание, а разработчики лекарств заинтересованы в том, чтобы люди продолжали принимать таблетки.

Так, исследователи выявили повышенную концентрацию фталатов в моче пациентов, принимавших средства, назначаемые при муковисцидозе, хроническом воспалении желудочно-кишечного тракта.

В настоящее время, к примеру, в Штатах от фармпроизводителей не требуют указывать на коробке, что здесь использован фталат. А вот анализ 500-1000 БАДов и лекарств выявил: более чем 100 средств содержали две формы фталатов, оказывающих пагубное влияние на репродуктивную систему. В частности, речь идет о дибутилфталате и диэтилфталате.

III. *RENDERING.*

Render the information given in the texts into English.

ТАБЛЕТКИ, УКОЛЫ ИЛИ СИРОП?

Форма назначаемого врачом лекарства зависит от многого: наличия сопутствующих заболеваний, индивидуальных особенностей организма, возраста.

Таблетки – самая распространенная лекарственная форма. В их составе - основное действующее вещество и вспомогательные вещества. Обычно они назначаются взрослым пациентам без серьезных заболеваний желудочно-кишечного тракта. Если же у вас заболевание желудка, кишечника (intestines), то предпочтение нужно отдать препаратам, защищающим слизистую оболочку (mucus), например, капсулам, растворам, сиропам. Что такое капсула? Это оболочка для дозированных порошкообразных (а иногда пастообразных или жидких) лекарств, для приема внутрь. Она проходит через желудок (stomach), не травмируя его, а

затем растворяется в кишечнике, где и происходит всасывание действующих веществ.

Сиропы – концентрированные водные растворы сахарозы, которые могут содержать лекарственные вещества и фруктовые пищевые экстракты. Чаще они используются для исправления вкуса лекарств, чтобы их могли принимать дети (вспомните жаропонижающие (antipyretic), витаминные сиропы).

И еще в последнее время врачи часто назначают такую форму выпуска лекарственных препаратов, как суппозитории (свечи). Они могут быть для ректального и вагинального (vaginal) введения. В чем их преимущество? В том, что они начинают плавиться (melt) при температуре тела, то есть действующее вещество всасывается в кровь практически сразу. И никакого вреда для желудка, печени, кишечнику! Свечи широко назначаются как детям, так и взрослым.

Ну, и растворы для инъекций (уколов) – подкожных, внутривенных, внутримышечных. Все растворы для инъекций назначаются доктором. Безусловным преимуществом такого способа введения лекарства является быстрота действия, но болезненность и нарушение целостности кожи – это их минус.

Вообще, сейчас разрабатывается и вводится в практику много новых лекарственных форм. Конечно, все необходимые рекомендации по приему лекарства вам даст фармацевт (провизор), но только врач может решить, какая форма лучше всего подойдет именно вам.

ПОЧЕМУ ТАБЛЕТКИ РАЗНОЦВЕТНЫЕ

Некоторые посетители аптеки всерьез полагают, что цвет говорит о том, что именно данная таблетка лечит. Например, люди просят: «Дайте красные – от сердца», «желтые от кашля», «зеленые от боли в животе»» и т.д. На самом же деле цвет и назначение таблетки никак не связаны. Окрашивают таблетки чаще всего для улучшения их товарного вида. А основное лечащее вещество, содержащееся внутри таблетки, может быть самого разного цвета.

Для получения таблетки используется много компонентов. Твердая лекарственная форма в 90% случаев содержит тальк или аэросил. А эти вещества серого цвета. При смешивании с лекарственным веществом, скажем, кремового цвета получается цвет грязи. Такую таблетку принимать не очень приятно. Поэтому приходится прибегать к помощи красителя (dye), чтобы окрасить саму таблетку или ее оболочку.

ПЛАСТЫРЬ ОТ МОРСКОЙ БОЛЕЗНИ

С каждым годом в аптеке появляется все больше новых форм выпуска препаратов – технологии не стоят на месте. Одним из таких новшеств является и трансдермальный (проникающий сквозь кожу) пластырь. При ношении на поверхности кожи из пластыря постепенно высвобождается действующее вещество и, минуя (bypassing) желудочно-кишечный тракт, доставляется непосредственно к больному органу или ткани. Такой способ лечения позволяет избежать (avoid) перегрузки (overload) печени и других побочных эффектов, связанных с приемом медикаментов.

Другим преимуществом использования пластыря является возможность непрерывной и равномерной подачи лекарства в течение длительного периода времени (от нескольких часов до нескольких недель – в зависимости от продолжительности ношения пластыря).

Трасдермальные пластыри очень активно используются в различных сферах, в том числе, в гинекологии, косметологии, и т.д. Например, существует пластырь, который используется для снятия симптомов морской болезни (seasickness). Он равномерно высвобождает действующее вещество в течение 5 дней.

Перед подъемом на борт корабля или самолета достаточно прикрепить за ухом кружочек пропитанной (soaked with) лекарством ткани и за самочувствие во время путешествия можно не опасаться. Этот препарат назначается врачом, так как в его составе имеется сильнодействующее вещество. Стоимость трансдермального пластыря сравнима с курсом лечения обычными средствами: таблетками, мазями, БАДами, а по эффективности не уступают им.

IV. *FOLLOW-UP ACTIVITY.*

I. *Complete the sentences extending their idea.*

1. … is considered to be a satisfactory storage temperature range, because …
2. … temperatures are satisfactory for a large number of preparations such as …
3. … is a phrase which frequently occurs in storage regulations of …
4. Solutions, capsules, tablets and coated tablets contain not only the drug itself in solid form, but …
5. There are different types of containers …
6. … are the most satisfactory containers for dispensed medicines.
7. The label of a liquid preparation for external use should include the instruction …

II. *Comment on the following statements. Express your opinion and use your own experience.*

1. Pharmaceutical syrups generally show good microbial stability while dilute sugar solutions provide a suitable growth medium for the multiplication of different microorganisms.
2. Drug for parenteral administration are more active and often used in severe cases.
3. Pills were dispensed for many hundreds of years but at present this dosage form has actually disappeared and is no longer in use.
4. Though tablets show great varieties in sizes, shapes, colour, characteristic markings, etc., they are difficult to distinguish.
5. The tablet is the most common form of medication for the administering of drugs in a dry state.

III. *Make up your own situations.*

a) You are a consultant-pharmacist working at the hospital. The patient you were examining together with the physician needs some glucose to maintain his cardiac activity. Explain your choice of the dosage form.
   Words to be needed: injections, tablets, total dosage, single dose, glucose, stable, decompose, swallow, shape, size, weak, patient, move, etc.
b) You work as a dispensing pharmacist at the chemist's. A visitor came with the prescription for some laxative administered in a large dose. Explain how a patient should take the drug.
   Words to be needed: teaspoonful, before meals, powder form, the laxative, glass jar, suitable, the opening of the jar, keep, cool, protected from light, place, the total daily dose, as needed.

IV. *Prove that:*

a) the tablet is the most common form of medication at present; b) the appearance of the tablet is the subject of a special investigation; c) the packaging of a dispensed medicine influences the efficacy of the product; d) due to the development of pharmaceutical technology some traditional dosage forms are out-of-use.

V. *Speak about pharmaceutical formulations using the following outline:*

1. Classification of dosage forms. 2. Short description of formulations for oral, topical and parenteral administration. 3. The role of colour, size and shape of tablets in the administration of drugs. 4. Dosage forms of the new type. 5. Liquid dosage forms and their use.

TOPIC “PHARMACISTS AS PRIMARY HEALTH PROFESSIONALS”

I. *VOCABULARY LEARNING.*

Exercise 1. *Read and memorize the words.*

1.	to be alert – быть бдительным (живым, проворным);
2.	to charge oneself with smth. – брать на себя ответственность за что-либо;
3.	cognitive [ˈkɔgnətɪv] *adj*. – познавательный;
4.	to ensure *v*. – обеспечивать, гарантировать;
5.	facilities [fəˈsɪlətɪz] *n*. – возможности, благоприятные условия;
6.	geriatric [ˌdʒɛrɪˈatrɪk] *adj*. – гериатрический (относящейся к лечению людей пожилого и старческого возраста);
7.	inquiry [ɪnˈkwaɪərɪ] *n*. – запрос, наведение справок;
8.	nutrition [njuːˈtrɪʃ(ə)n] *n*. – питание, пища;
9.	outcome [ˈautkʌm] *n*. – последствие, результат, исход (напр. болезни);
10.	oversight [ˈəuvəsaɪt] *n*. – надзор;
11.	promotion [prəˈməuʃ(ə)n] *n*. – содействие; ≈ of health – укрепление здоровья.

Exercise 2. *Practise the pronunciation of the following words and translate them into Russian.*

legislature [ˈledʒɪsleɪtʃə], inquiry [ɪnˈkwaɪərɪ], counseling [ˈkaunsəlɪŋ], referral [rɪˊfəːrəl], collaboration [kə,læbəˈreɪʃən], immunization [ɪ,mjuːnaɪˈzeɪʃən], diabetes [ˌdaɪəˈbɪːtɪːz], nutrition [nju(ː)ˈtrɪʃən], geriatric [ˌdʒerɪˈætrɪk], psychiatric [ˌsaɪkɪˈætrɪk], integral [ˈɪntɪgrəl], mandate [ˈmændeɪt], decade [ˈdekeɪd].

Exercise 3. *Translate the cognate words:*

collaborate – collaboration – collaborator – collaborative
legislate – legislation – legislative – legislator – legislature
refer – referable – referral – reference
nutrition – nutrient – nutritionist – nutritious – nutritive n, a
cognate – cognition – cognitive
geriatrics – geriatric – geriatrician

Exercise 4. *Translate the word combinations from English into Russian.*
Primary drug experts, drug therapy experts, primary health professionals, clinical medication management, general health monitoring, general health advice, drug information pharmacist, health care providers, promoting public health, pharmacokinetic evaluation, collaborative teams from various disciplines, to produce positive health outcomes, to refer patients to other health professionals.

II. *READING COMPREHENSION.*

Read the text and do the tasks which follow it.

PHARMACY AND PHARMACISTS AS DRUG THERAPY EXPERTS

Pharmacy (from the Greek φάρμακου = drug) is a transitional field between health sciences and chemical sciences and a professional charged with ensuring the safe use of medication. Traditionally, pharmacists have compounded and dispensed medications on the orders of physicians. More recently, pharmacy has come to include other services related to patient care including clinical practice, medication review, and drug information. Some of these new pharmaceutical roles are now mandated by law in various legislatures. Pharmacists, therefore, are drug therapy experts, and the primary health professionals who optimize medication management to produce positive health-outcomes. Pharmacists are often the first point-contact for patients with health inquiries. This means that pharmacists have large roles in the primary care of patients. These roles may include, but are not limited to: clinical medication management; specialized monitoring of simple and complex disease states; reviewing medication regimens; monitoring of treatment regimens; general health monitoring; compounding medicines; general health advice; providing specific education to patients about disease states and medications; oversight of dispensing medicines on prescription; provision of non-prescription medicines; counseling and advice on optimal use of medicines; advice and treatment of common ailments; referral to other health professionals if necessary; dosing drug in renal and hepatic failure; pharmacokinetic evaluation; education of physicians and other healthcare providers on medications and their proper use; prescribing medications in collaboration with other healthcare professionals; providing pharmaceutical information; promoting public health by administering immunizations.
The field of Pharmacy can generally be divided into three main disciplines: Pharmaceutics, Pharmaceutical chemistry and Pharmacognosy, Pharmacy practice.

The boundaries between these disciplines and with other sciences, such as biochemistry, are not always clear-cut; and often, collaborative teams from various disciplines research together.

Pharmacology is sometimes considered a fourth discipline of pharmacy. Although pharmacology is essential to the study of pharmacy, it is not specific to pharmacy. Therefore, it is usually considered to be a field of the broader sciences. There are various specialties of pharmacy practice. Some specialization is based on the place of practice including: community, hospital, consultant, locum, drug information, regulatory affairs, industry, and academia. Other specializations are based on clinical roles including; nuclear, oncology, cardiovascular, infectious disease, diabetes, nutrition, geriatric, and psychiatric pharmacy.

Specialties exist within the pharmacy profession, with the place of occupation being the major differentiator.

Specialties include: academic pharmacist; clinical pharmacist (consisting of many subspecialties); community pharmacist; compounding pharmacist; consultant pharmacist; drug information pharmacist; home Health pharmacist; hospital pharmacist; industrial pharmacist; locum pharmacist; regulatory-affairs pharmacist; veterinary pharmacist.

Technological advancements have dramatically changed the way the pharmacists fill the prescriptions and the way the pharmacists interact with patients. The most significant of these changes include: paperless workflow, automated dispensing and centralized fill. In the coming decades, pharmacists are expected to become more integral within the health care system, rather than simply dispensing medication, pharmacists expect to be paid for their cognitive skills.

Pharmacists usually work in well-lit, clean and well-ventilated areas. Many pharmacists spend most of the days on their feet. When working with potentially dangerous or sterile pharmaceutical products, pharmacists put on gloves and masks and use protective equipment. Many community and hospital pharmacies are open long hours, so pharmacists may work evenings, nights, weekends and holidays. Those who consult may travel to nursing homes or other facilities. Like all health care professionals, they must be alert all the time, even in stressful situations.

Exercise 5. *Find English equivalents in the text.*

Безопасное использование медикаментов; отпуск лекарств по рецептам врачей; обеспечение лекарствами, выдаваемыми без рецепта; контроль за выдачей лекарств по рецептам; узко направленное просвещение пациентов по заболеваниям и лекарственным средствам; просвещение врачей и других специалистов здравоохранения по лекарственным средствам и их надлежащему применению; первичная медико-санитарная помощь.

Exercise 6. *Change the sentences using Subject Infinitive Construction. The first sentence has been done for you.*

1. It is known that pharmacists optimize medication management to produce positive health outcomes. **The pharmacists are known to optimize medication management to produce positive health outcomes**.
2. It appears that some of the new pharmaceutical roles are now mandated by law in various legislatures.
3. It is claimed that pharmacists have large roles in the primary care of patients.
4. It is considered that nowadays pharmacists perform oversight of dispensing medicines on prescriptions.
5. It turns out that pharmacists may prescribe medications in collaboration with other healthcare professionals.
6. It is claimed that pharmacists will be paid for their cognitive skills.
7. It is known that dispensing machines or robots have the ability to fill and label the prescription very quickly and accurately.

Exercise 7. *Identify sentences with the Subject Infinitive Construction and translate them.*

1. Pharmacology is usually considered to be a field of the broader sciences.
2. Pharmacists are the primary care professionals who optimize medication management to produce positive health outcomes.
3. In the coming decades, pharmacists are expected to become more integral within the health care system.
4. Rather than simply dispensing medication pharmacists expect to be paid for their cognitive skills.
5. Those pharmacists who give consultation are liable to travel to nursing homes or other facilities.
6. Pharmacy has come to include other services related to patient care
7. The dispensing machines are sure to improve both dispensing efficiency and patients' safety.

Exercise 8. *Make up as many sentences as possible using Subject Infinitive Construction.*

Model:	Crude drugs (to be regarded) to possess a specific action due to the combination of its main principles. Crude drugs are regarded to possess a specific action due to the combination of its main principles.

1. Some medications 2. Pharmacy graduates 3. Pharmacists 4. Pharmacy 5. Pharmacology 6. Clinical pharmacy 7. The place of occupation of pharmacists	to turn out to be claimed to be sure to be known to be regarded to be considered to be known to be likely	to be the major differentiator in various specialties of pharmacy practice; to be prepared by pharmacists at chemist's; to be a transitional field between health sciences and chemical sciences and a professional ensuring the safe use of medications; to have compounded and dispensed medications on the orders of physicians; to apply their knowledge to the provision of medicines; to spend most of the days on their feet; to be alert all the time even in stressful situations; to be a fourth discipline of pharmacy; to be drug therapy experts.

Exercise 9. *Answer the questions with more than one sentence.*

1. What have pharmacists done traditionally? 2. Why have their roles changed lately? 3. What may their roles include? 4. What is specialization of pharmacists based on? 5. What specialties based on the place of occupation of pharmacists exist? 6. Why are pharmacists expected to become more integral with the health care system? 7. What can you say about working conditions of pharmacists? 8. Why must pharmacists be alert all the time like all other health care professionals?

Exercise 10. *Match the words in column A with the words in column B.*

A.	B.
1. to get profound knowledge 2. to be conscientious and hard-working 3. old-fashioned professions 4. to be competent in doing smth. 5. to have an ability to smth. 6. to be cut out for smth.	престижная, (имеющая спрос, сложная) работа; оправдать чьи-либо надежды; быть вежливым, спокойным, уравновешенным, общительным, терпимым, умным; справиться с эмоциями;

7. a prestigious (demanding, challenging) job	быть добросовестным и трудолюбивым;
8. a skillful (qualified, industrious, responsible) employee	иметь хороший организаторский талант;
9. a job requiring a good qualification, great responsibility, special skills	сдерживать себя (выходить из себя); получать глубокие знания; быть компетентным в чем-либо;
10. to have wonderful organizational powers	быть словно созданным для чего-либо;
11. to justify one's faith in smb.	работа, требующая хорошей квалификации, большой ответственности и особых умений;
12. to keep one's temper (to lose one's temper)	быть тактичным;
13. to behave calmly and coolly	иметь способность к чему-либо;
14. to cope with one's feelings	умелый (квалифицированный, трудолюбивый, ответственный) работник;
15. to apply tact	вести себя спокойно и сдержанно;
16. to be polite, calm, good-tempered, sociable, tolerant, intelligent	"традиционные" профессии.

B. *Work in pairs. Ask each other questions using word combinations from A.*

Exercise 11. *Read and say what professional and personal qualities seem, from your point of view, more important for a pharmacist. Rate them in order of their importance:*

wonderful organizational powers; ability to work in stressful situations; good qualification; great responsibility; social skills (sociability, patience, friendliness, calmness, tact, politeness, tolerance); talent; intelligence; ability to educate; optimism; flexibility; honesty; professional skills; wisdom; devotion to the chosen profession; decisiveness; competence; motor ability.

III. *RENDERING.*

Read the following information and render it into English.

ПРОВИЗОР - ГЛАВНЫЙ ПО ТАБЛЕТКАМ

Провизор – это специалист, который досконально разбирается в лекарственных препаратах, их применении, составе и дозировках. В России это специалист высшей категории, под началом которого работают фармацевты, консультанты и другие сотрудники аптечных пунктов. Современный провизор – своего рода менеджер от фармакологии:

теоретически он может заниматься приготовлением и отпуском лекарств, на деле же, как правило, руководит процессом.

Еще лет 15-20 назад провизор, главным образом, готовил лекарственные препараты. Сегодня у специалистов с высшим фармацевтическим образованием несколько иной круг задач. Несмотря на то, что большинство современных провизоров, как и раньше, работают в аптеках, в их обязанности входит не приготовление препаратов, а отпуск готовых лекарств и консультации покупателей.

Выпускники вузов редко задерживаются за «первым столом» (отпуск лекарств без рецепта) надолго: высшее фармацевтическое образование позволяет сделать достаточно быструю карьеру. Нередко, проработав год-два на отпуске лекарств, молодые люди идут на повышение – становятся заместителями заведующих, а потом и заведующими аптек. Можно работать и при лечебных учреждениях: в больницах и санаториях. Также существуют провизоры-технологи (отвечают за промышленное производство лекарств) и провизоры-аналитики (осуществляют контроль качества и занимаются лицензированием). Кроме того, специалисты с профильным образованием находят применение своим знаниям в маркетинге фармакологического рынка, в сфере закупок импортных лекарственных средств и их производных.

Что пригодится провизору

- *Любовь к естественным и точным наукам. В первую очередь, разумеется, к химии – с этой дисциплиной будет связана как учеба, так и последующая работа.*
- *Готовность к обучению. Профессия требует постоянного «апгрейда» информации, повышения квалификации и самообразования, иначе карьеру в фармакологии сделать невозможно.*
- *Физическая выносливость (endurance). Нередко провизору приходится проводить на ногах весь день.*
- *Аккуратность (neatness). Аптека, как и любое медицинское учреждение, требует чистоты и порядка. Особенно актуально это в период эпидемий, когда сотрудники чуть ли не ежеминутно подвергаются атакам микробов и вирусов.*
- *Коммуникабельность и сострадание (mercy) к людям. Нужно не просто выслушать посетителя, но и вникнуть в его проблему, чтобы дать действительно полезный совет. Опытный провизор – это отчасти и врач, который, если необходимо, предупреждает покупателя о возможной опасности самолечения и отправляет его на консультацию в поликлинику.*

Химия плюс

Любой провизор, вне зависимости от места работы, должен прекрасно знать фармакологию и химию, ориентироваться в лекарственных препаратах, их видах и группах, исходном сырье и т.п. На рынке то и дело появляются препараты нового поколения, выпускаются аналоги уже существующих лекарств. К какой фармакологической группе относится препарат, какие компоненты входят в его состав, чем он отличается от себе подобных, какие у него показания, противопоказания, побочные действия – все эти тонкости известны настоящему профи.

Если провизор работает в аптеке или медицинском учреждении, в его должностные обязанности входят: толерантность, вежливость и внимательность. В данном случае «по совместительству» он выполняет функции психолога: работать приходится не просто с людьми, а с больными. Процент посетителей аптеки, покупающих биологически активные добавки или витамины, невелик – большинство имеют проблемы со здоровьем, и настроение у них соответствующее. Причем, заболевая, девять человек из десяти не идут за рецептом к лечащему врачу, а отправляются прямиком в аптечный киоск. Таким образом, провизор превращается во врача и психотерапевта в одном лице: он должен «поставить диагноз», «выдать рецепт», подобрать правильную дозировку и терпеливо выслушать сетования бабушки на дороговизну аспирина.

Если работа провизора связана с продвижением лекарственных средств на рынке, закупками или логистикой, необходимо разбираться в менеджменте, маркетинге и основах экономики. Ведь заведующий аптекой, по сути, менеджер: круг его обязанностей во многом схож с функционалом управляющего магазина, а основная задача – создание конкурентоспособного бизнеса. В этом случае важны такие качества, как мобильность, способность креативно и неординарно мыслить. Провизору, который работает с зарубежными партнерами, пригодится еще и знание иностранного языка.

Образование провизора имеет «срок годности». Если в течение 5 лет после получения диплома вам не случилось работать по специальности – придется отправляться обновлять знания на курсы повышения квалификации.

Некоторые крупные компании практикуют метод «пятилеток» и в отношении постоянных сотрудников. Раз в 5 лет служащие отправляются на повышение квалификации, после которого они могут претендовать на карьерный рост и прибавку к жалованью.

Read the newspaper article and render it into English. Before reading practise the pronunciation of the following words.

Salicylate [ˊsælıˌsılıt], pyrazole [ˌpaırəˊzəul], hereditary [hıˊredıtərı], environment [ınˊvaıərənmənt], nutrition [nju(:)ˊtrıʃən], edema [ıˊdı:mə], discharge [dısˊʧa:dʒ], profuse [prəˊfju:s], conjunctiva [ˌkondʒʌŋkˊtaıvə], angioneurotic [ˌændʒıonjuəˊrotık], cyanotic [ˌsaıəˊnotık], eczema [ekˊsımə], coagulability [koˌægjuləˊbılıtı], sweating [ˊswetıŋ], fever [ˊfı:və].

ЧЕМ БОЛЕЮТ ФАРМАЦЕВТЫ?

Главную опасность для аптечных работников (staff) представляют различные аллергические заболевания. Они связаны с постоянным воздействием лекарственных средств на органы зрения (visual organs), дыхания, открытые участки тела. В воздухе аптечных помещений выявляется высокое содержание лекарственной пыли (dust). Наибольшие концентрации химических веществ наблюдаются при распаковке и заполнении аптечной тары (package), а также при изготовлении порошковой (powder) смеси, включающей много компонентов с малым удельным весом. Повышенной чувствительностью организма при контакте с фармацевтической продукцией обладают лица с наследственной предрасположенностью (hereditary predisposition) и те, у кого в свое время наблюдались аллергические реакции на другие факторы окружающей среды (environment) – биологические, бытовые (domestic), пищевые (nutritional) и т.д.

Аллергия дает о себе знать по-разному. Одно из наиболее частых ее проявлений у фармацевтов – аллергический ринит. Он проявляется приступами чихания (attacks of sneezing), зудом (itching) слизистой оболочки носа, ее отеком (edema), затрудненным дыханием (difficult breathing), обильными (profuse) водянистыми выделениями из носа (discharge).

Заболевание может сочетаться с аллергическим конъюнктивитом. Его симптомами являются сильный зуд (pruritus), резь (colic) в глазах, иногда с обильным слезотечением (lacrimation), отек и покраснение слизистой оболочки конъюнктивы (conjunctiva), светобоязнь (photophobia).

Если контакт работника с аллергеном продолжается, это может послужить причиной развития бронхиальной астмы.

Ангионевротический отек (angioneurotic edema) – отек Квинке (Quincke’s edema) – является одним из видов крапивницы. У человека наблюдается отек мягких тканей лица, конечностей (limbs), слизистых оболочек, нарастает затруднение дыхания, появляется одышка (dyspnea), цвет лица приобретает синюшный (cyanotic) оттенок, затем резко бледнеет.

Промедление (delay) с экстренной медицинской помощью (acute management) может привести к летальному исходу (fatal outcome).

Аллергические дерматиты возникают при непосредственном воздействии на кожу веществ, способных вызвать аллергическую реакцию. Если профессиональный дерматит, возникший от действия лекарств, продолжается более 3-5 месяцев, то на этом фоне может развиться реакция и на непрофессиональные аллергены, например, микробы, с формированием полиаллергии. Такая ситуация обычно приводит к экземе (eczema).

Анафилактический шок является наиболее опасным проявлением аллергических реакций. Быстро снижается артериальное давление (arterial pressure), температура тела. Нарушается свертываемость (coagulability) крови, происходит расстройство (disfunction) функций центральной нервной системы. Возможна потеря сознания (loss of consciousness). Тяжелый анафилактический шок может начаться совершенно внезапно и привести (result in) к смерти уже через 5-10 минут. В менее тяжелых случаях (severe conditions) человек испытывает страх (fear), беспокойство (anxiety), головокружение, сопровождающееся шумом в ушах (tinnitus), снижением слуха (hearing) и зрения (vision), головной болью, чувством жара, кожным зудом, холодным потом (sweating).

Практически любой препарат может стать причиной развития анафилактического шока, даже если ранее он в течение долгого времени использовался без каких-либо негативных проявлений. Аллергенные свойства наиболее сильно выражены у антибиотиков, особенно у пенициллина и стрептоцида (sulfanilamide), а также сульфаниламидов (sulfa drugs), новокаина, формалина, лекарственно-растительного сырья, витаминов B_1 и B_6, салицилатов, пиразолонов и др.

Фармацевтам с аллергическими реакциями для сохранения здоровья лучше оставить работу в аптечном учреждении. Работники аптек не являются главной категорией лиц из группы риска развития аллергии.

Возможно, что некоторое «благополучие» фармацевтов связано с сокращением количества производственных отделов на предприятиях фармации. Все больше лекарственных средств поступает в аптеки в готовых формах, что значительно уменьшает контакт аптекарей с возможными аллергенами.

IV. *FOLLOW-UP ACTIVITY.*

I. *Agree or disagree with the following statements.*

1) In some cases highly qualified pharmacists have even larger roles in the primary care of patients than therapeutists. 2) A profession of a pharmacist is a stressful one. 3) Earnings of pharmacists vary depending on many factors (a

number of hours worked, experience, the type of practice, etc.). 4) Professional diseases are not widely spread among pharmacists nowadays. 5) The profession of a pharmacist requires professional skills rather than cognitive ones. 6) The majority of pharmacy graduates practise their profession at chemists' and hospitals. But there are other sectors where pharmacists can apply their knowledge of medicines to a wide range of issues.

II. *Prove that:*
1) In the coming decades, pharmacists are expected to become more integral within the health care system. 2) There are both advantages and disadvantages in the profession of a pharmacist. 3) Choosing a profession of a pharmacist one should consider many factors. 4) The process of learning continues throughout the pharmacist's career. 5) Pharmacists have got excellent career opportunities. 6) Working as a narrow specialist requires special knowledge and skills base.

III. *Express your idea of a chemist's and the role of pharmacists 50 years from here. Explain why you really think so. Compare your ideas with those of your group mates and say whether you agree with them or not. Use the following phrases:* ***I think … because. I also believe that … . What's more. I consider … . But sometimes … . That is why … . Besides, I would like to add … . I absolutely agree with or I disagree … . I agree to a certain extent … .***

IV. *Speak about your future profession using the following questions as an outline to the topic "Pharmacists as primary health professionals".*
1) Are there special reasons for taking up a profession of a pharmacist? What makes many young people take up a career of a pharmacist? 2) Why have you chosen pharmacy as your future profession? 3) Do you think your future profession is the right one for you? 4) What do you know about the history of pharmacy? 5) What roles in the primary care of patients do the pharmacists have nowadays? 6) What specialties of pharmacy practice do you know? 7) Working as a pharmacist, you'll always feel you have done something worthwhile, won't you? 8) What professional and personal qualities does your profession demand? 9) What are positive and negative sides of your specialty? 10) Is there a lot of stress connected with your future work? 11) What job would you like to get after you graduate from the university? 12) Has your education (experience) prepared you well for the position you want to get? 13) Are there excellent career opportunities in the pharmacy field? Where would you like to be professionally five years from here? 14) Will your job give opportunities for professional advancement? 15) Do you have plans for getting more education or practical training?

TOPIC “DRUG SCENE IN THE USA AND GREAT BRITAIN”

I. *VOCABULARY LEARNING.*

Exercise 1. *Read and memorize the following words.*

1.	legislation [ˌledʒɪ'sleɪʃ(ə)n] *n*. – законодательство, закон;
2.	package insert ['pækɪdʒ 'ɪnsɜ:t] – листок- вкладыш;
3.	authorize ['ɔ:θ(ə)raɪz] *v*. – разрешать;
4.	(general) practitioner [præk'tɪʃ(ə)nə] – врач общей практики;
5.	health insurance [helθ ɪn'ʃuər(ə)ns] – страхование на случай болезни и потери трудоспособности;
6.	reimburse [ˌri:ɪm'bɜ:s] *v*. – возвращать, возмещать (сумму);
7.	charge [ʧɑ:ʤ] *n*., *pl*., *v*. – цена; расходы, издержки; назначать цену, взымать (плату);
8.	be in charge of – отвечать, заведовать;
9.	be aware of (или that) [ə'weə] – знать, сознавать, отдавать себе полный отчет в (или в том, что);
10.	dressing ['dresɪŋ] *n*. – перевязочный материал;
11.	exempt (from) [ɪg'zempt], [eg-], [ɪk,sem-], [ek-] *v*. – освобождать от;
12.	abolish [ə'bɔlɪʃ] *v*. – отменять;
13.	indigent ['ɪndɪʤənt] *n*. – бедный, нищий;
14.	dispensation [ˌdɪspen'seɪʃ(ə)n] *n*. – раздача, распределение.

Medicaid a program sponsored by the US federal state and local governments, providing medical benefits for needy or disabled persons not covered by social security.

Medicare a US program of medical care and hospital services sponsored by the federal government for persons sixty-five years old or older.

British National Formulary (BNF) – is a United Kingdom (UK) pharmaceutical reference book.

Exercise 2. *Translate from English into Russian paying attention to nouns as attributes.*

1. prescription drug prices;
2. prescription payment plans;
3. drug company prescription assistance programs;
4. publicly funded drug assistant programs;
5. health care provider;
6. safety standards for self-medication;
7. NHS prescription;
8. full-time education;
9. prescription charges;

10.prescription items;
11.pharmacy services;
12.Federal Food Drug and Cosmetic Act.

Exercise 3. *Match the abbreviations with their interpretations.*

1. POM	a) General practitioner
2. OTC	b) Doctor of Medicine
3. GP	c) Doctor of Dental Medicine
4. NHS	d) Doctor of Dental Surgery
5. MD	e) Doctor of Podiatric Medicine
6. DMD	f) Doctor of Veterinary Medicine
7. DDS	g) Prescription Only Medicine
8. DPM	h) Doctor of Optometry
9. DVM	k) nurse-practitioner
10. DO	l) Doctor of Osteopathy
11. NP	m) Over-the-counter drugs
12. OD	n) physician assistant
13. PA	o) Patient Information Leaflet
14. PIL	p) National Health Service

II. *READING COMPREHENSION.*

Read the text and do the tasks which follow it.

DRUG REGULATION IN UNITED STATES AND GREAT BRITAIN

Prescription drug is a licensed medicine that is regulated by legislation to require a prescription before it can be obtained. The term is used to distinguish it from over-the-counter drugs which can be obtained without a prescription.
Dispensation of prescription drugs often includes a package insert (in Europe, a Patient Information Leaflet or PIL) that gives detailed information about the drug.

Regulation in United States

In the United States, the Federal Food, Drug, and Cosmetic Act defines what requires a prescription. Prescription drugs are generally authorized by veterinarians, dentists, optometrists, physicians and nurse practitioners, though physician assistants do an increasing amount of drug prescribing under a physician's supervision. It is generally required that an MD, DO, DPM, NP, DVM, DDS, DMD, OD, or PA write the prescription; basic-level registered nurses (as opposed to advanced practice nurses such as a nurse practitioner, clinical nurse specialist, nurse anesthetist, and nurse midwife), emergency

medical technicians, psychologists (but not psychiatrists, who are physicians), and social workers as examples, do not have the authority to prescribe drugs.

Unlike most other countries, the United States does not have governmental control of prescription drug prices, and US drug prices are usually significantly higher than those in countries who do. For those with health insurance, many health insurance programs (generally paid partially or in full by the patient's employer) have *prescription payment plans* where the patient pays only a small copayment and the pharmacy is reimbursed for the remaining cost by the insurance company using the premiums collected from all of the insured individuals and their employers. The uninsured typically must pay whatever higher drug price their local pharmacy charges. Some indigent people can get assistance through *publicly funded drug assistance programs* such as *Medicaid* or private support through *drug company prescription assistance* programs.

All prescription drugs have cautions on them to warn users of an allergy or anything else that they should be warned of. Also, it tells the effects of taking the drug and the result of what it does to you and your body.

The safety and effectiveness of prescription drugs in the US is regulated by the federal Prescription Drug Marketing Act of 1987. The Food and Drug Administration is charged with implementing this law.

As a general rule, *over-the-counter* drugs are used to treat conditions not necessarily requiring care from a health care provider and will have been proven to meet higher safety standards for self-medication by patients. Often a lower dosage of a drug will be approved for OTC use, while higher dosages will remain the province of a prescription; a notable case is ibuprofen, which has been widely available as an OTC pain killer since the mid-1980s but is still available in doses up to four times the OTC dose for use in cases of severe orthopedic pain.

Herbal preparations, vitamins, minerals, and food supplements are not regulated by the FDA, so the individual consumer must be aware of the potentially-negative effects of using these preparations and also the potential interactions with prescription drugs they may be taking.

In the United States, the term "prescription drug" is most commonly used, but they are also called **legend drugs** or **Rx-only drugs**, after the requirements of Federal and state laws that all such drugs bear a "legend" prohibiting sale without a prescription; though more complex legends have been used, on most original drug packaging today the legend simply says "Rx only". In the United Kingdom, they are referred to as **Prescription Only Medicine** or **POM**.

Also, pharmacies operated by membership clubs, such as Costco and Sam's Club, by law must allow non-members to use their pharmacy services and must charge the same prices as to members.

Regulation in United Kingdom

In the United Kingdom, a patient visits a general practitioner (GP) who is able to prescribe medicines. If given an NHS prescription, this can be taken to a

pharmacy to be dispensed. District nurses and health visitors have had limited prescribing rights since the mid-nineties where prescription for dressings and simple medicines would have had to have been signed by a doctor. Extended prescribing was introduced in late 1999, where appropriately trained nurses could prescribe from a limited list of POMs. From 2006, some nurses and pharmacists are permitted to prescribe all medicines in the British National Formulary, except controlled drugs directly. Each item on the prescription is liable to a prescription charge in England of £7.10 (as of April 2008), although many patients are exempt from this charge. This includes those over 60, under 16 (or under 19 if in full-time education), patients with certain medical conditions, those on certain benefits and those with an HC2 certificate, which is issued if patients can prove their income is under £8,000 per year. However, in Wales prescription charges have been abolished and in Scotland prescription charges have been reduced to £5 (as of April 2008) as a first phase of abolishing them over the next three years.

The majority of items dispensed on NHS prescription are exempt from charges. This is because of the large number of medicines needed by, for example, the elderly or those with medical exemptions. NHS prescriptions can also be written for certain items by dentists and nurses. Some patients also receive private prescriptions, typically either from a doctor seen privately or for medicine not permitted on the NHS. For these, the patient will pay the pharmacy directly for cost of the medicine and the pharmacy's markup.

Prescription drug prices for single-source brand name drugs in the United States are significantly higher than in Canada and other countries, many of which have price controls. Prices for generically available drugs tend to be higher in Canada. The price differential for brand-name drugs between the two countries has led Americans to purchase upward of US$1 billion in drugs per year from Canadian pharmacies. Pharmaceutical companies argue that the prices they set are necessary in order to continue to fund research. Only 11% of drug candidates that enter clinical trials are successful and receive approval for sale. The large cost of conducting clinicals trials for unsuccessful candidates must be recovered from the sales of successful drugs.

The anticipated Medicare reforms, expected to pass, include prescription drug coverage under Medicare.

The large pharmaceutical companies maintain a website at helpingpatients.org in order to provide drugs at a reduced rate to needy consumers.

Exercise 4. *Translate from Russian into English and give abbreviations for the English equivalents:*

1) врач-специалист по заболеваниям и повреждениям стоп;

2) предписание «только для медицинских целей»; «только по назначению врача»;

3) лекарственные средства, отпускаемые без рецепта;
4) врач общей практики;
5) врач оптометрист (определяющий рефракцию глаз);
6) практикующая медсестра;
7) помощник врача-терапевта, врач интерн-терапевт;
8) Национальная служба здравоохранения;
9) Британский национальный реестр лекарственных средств, разрешённых к применению;
10) лекарственные средства, отпускаемые по рецепту.

Exercise 5. *Give the definitions of the following notions:*

1. a prescription drug;
2. a legend drug;
3. a general practitioner;
4. British National Formulary;
5. an over-the-counter drug;
6. prescription payment plan in US.

Exercise 6. *Answer the questions:*

1. What Act in the USA defines what drugs require a prescription?
2. What specialists have (no) the authority to prescribe drugs?
3. The US has governmental control of prescription drug prices, doesn't it?
4. What is the difference between prescription payment of insured and uninsured patients?
5. What programes assist in prescription payment of some indigent people?
6. When was the federal Prescription Drug Marketing Act brought into action?
7. What medicines are not regulated by the FDA?
8. How is a prescription drug in the US and in the United Kingdom termed?
9. What medical specialists prescribe medicines in the UK?
10. Who has got limited prescribing rights?
11. What is extended prescribing?
12. Is each item liable to a prescription charge in England?
13. Is there any difference in prescription charges in England, Wales and Scotland?
14. What categories of patients in GB are exempt from prescription charges?
15. What items dispensed on NHS prescription are exempt from charges?
16. In what way are items dispensed on private prescriptions payed?
17. Why do the Americans prefer to buy drugs in Canadian pharmacies?
18. What has been done in the US to improve the situation in prescription drug pricing?

Read the article "Prescription drugs", translate it with the help of a dictionary and do the task which follows the article.

PRESCRIPTION DRUGS: AN OVERVIEW

Each year, about 1.5 billion prescriptions are written in the United States: half of these are new prescriptions, and the other half are refills. The pharmaceutical industry is a $63-billion-a-year industry, big business by anyone's standard. In order to introduce a drug onto the market, a pharmaceutical company must demonstrate that the product is both safe and effective. To do this, the firm must conduct extensive laboratory tests on animals and clinical tests on humans. Such research is extremely time-consuming and very, very costly. Developing, testing, and marketing a new drug cost a pharmaceutical company an average of $10 million and as much as $ 70 million< and there is no guarantee that the drug will be therapeutically effective at the end of the tests, or profitable even if it is. A pharmaceutical firm's patent on a drug is permitted to last only seventeen years; after that, any drug company may manufacture and market the generic version of the substance. A generic is the same chemical as the brand, except that it is packaged differently - the tablet or capsule will be a different color, size, or shape - and it will be sold under the generic name of the drug instead of the patented brand name.

The pharmaceutical industry has been criticized for its aggressive marketing procedures. Profits have higher priority that the alleviation of suffering. Drugs are advertised and sold for every ill that *befalls humankind. The industry spends roughly $2,500 per physician on advertising every year, and most of what many physicians know about prescription drugs they've learned from the clearly *biased representatives of a drug company, whose primary interest is to sell as many prescriptions as they can. Some companies have *resorted to deception and even *outright fraud in compiling information about their products, underplaying their dangers and *exaggerating their therapeutic effectiveness. The legal drug industry is said to be "very large, growing, and profitable."

Over the past 15 years or so, the pharmaceutical industry has made physicians the targets – sometimes willing, sometimes unwilling – of sophisticated, subtle, and highly effective marketing techniques that *permeate nearly every aspect of medical practice. Drug companies organize "educational symposia" that are actually *disguised promotional efforts for their products. They pay for *sober-looking "supplements" to respected medical journals and fill those supplements with articles selected and edited to make their products look good. They pay doctors to use drugs in "clinical trials" organized not by drug researchers but by drug marketers. And they offer doctors all sorts of gifts and *perks, from ballpoint pens to *lavish banquets and concerts.

Sometimes the drugs being marketed really are more effective, less costly, or safer than their competitors. But others are unoriginal products seeking to take market share away from established, and frequently less expensive, formulations. Of the 20 or so new drugs the FDA approves in a typical year, the

agency usually rates no more than four as truly meaningful therapeutic advances. That leaves the rest slug it out in the arena of image, promotion, and marketing.

The money spent directly on drug-company promotion, current marketing practices have a high indirect cost as well. Companies have the greatest *incentive to promote costly drugs, even if they're no more effective than cheaper ones.

High drug prices are a special burden for elderly people, who make up 12 percent of the population but consume 34 percent of prescription drugs. Surveys by the American Association of Retired Persons have found that prescription drugs are the single largest out-of-pocket medical expense for three out of four Americans over 50, and that four out of ten have no prescription drug insurance coverage whatever. One in seven say they have failed to take prescribed medicine because it was too expensive.

NOTES:

*to befall – случаться, происходить;
*biased – пристрастный;
*to resort to deception – прибегать к обману;
*outright fraud – прямой обман, мошенничество;
*to permeate – проникать;
*to disguise – скрывать, маскировать;
*to exaggerate – преувеличивать, излишне подчеркивать;
*sober-looking – трезвый, рассудительный;
*lavish – щедрый, расточительный;
*perk (perquisite) – приработок, случайный доход, чаевые;
*incentive – побудительная причина.

Task:

A. *Answer the following questions.*

1) Why do drug companies begin to produce the generic version of a substance and in what way does this version differ from the brand?
2) What is the pharmaceutical industry criticized for?
3) Are expenses on development, promotion and marketing of new drugs always justified? (What is the number of new drugs approved by FDA every year? What is the number of truly meaningful therapeutic advances?)

B. **Prove** that testing, developing and marketing a new drug are time-consuming and very costly research.

Prove that high drug prices are a special burden mainly for elderly people.

C. Explain the meaning of the following statement: "Not physicians but pharmaceutical companies treat people nowadays."

Read the following text and make a summary of it.

ANTIANXIETY DRUGS

Until the 1950s, anxiety was treated with one of a number of heavy-duty **tranquilizers** known as **barbiturates**. Although the dangers of these drugs – particularly sedation, overdose, and addiction – were well recognized, there was little alternative. Then in the mid-1950s the so-called minor tranquilizers such as Valium came on the scene. These were heralded as a safer, more effective way to combat anxiety. The **benzodiazepines** in particular quickly became among the most widely prescribed drugs in the United States, especially among women. Tranquilizer consumption – virtually nonexistent in 1955 – reached 462,000 pounds in 1958 and 1.5 million pounds just one year later. The majority of these were prescribed for housewives – they were "mother's little helpers," as the popular 1960s song by the Rolling Stones called them.

Although benzodiazepines depress the respiratory system and relax the muscles to a lesser extent than barbiturates, they are sedatives with a strong potential for dependence. Consequently, during the decades following the drugs' introduction, addiction and overdose – especially among woman – became a major problem. Current thinking about tranquilizers has consequently shifted to the side of caution, but these drugs still have an important role to play in the treatment of anxiety and panic disorders.

Accurate diagnosis and careful prescription are the key to effective treatment, especially in complex cases in which generalized anxiety is accompanied by depression, punctuated by panic attacks, or complicated by obsessive-compulsive disorder. New evidence suggests that some women in these situations respond better to antidepressants than to tranquilizers.

Finally, whatever type of drug is used to treat anxiety, ultimately it can only relieve symptoms. To address the underlying cause of an anxiety disorder, antianxiety drugs are generally most valuable when used in conjunction with psychotherapy.

*** Benzodiazepines and other minor tranquilizers**

Antianxiety medications used today include the **benzodiazepines** – such as **clonazepam** (Klonopin), **diazepam** (Valium), **lorazepam** (Ativan), and alprazolam (Xanax). The benzodiazepines are usually prescribed only in low dosages and for limited periods of time because of their potential for side effects, including dependence. A newer antianxiety drug, **buspirone** (BuSpar), seems to work particularly well at controlling panic attacks and to have fewer adverse effects and little addictive potential.

Side effects from benzodiazepines are not common, but poor muscle coordination and control, drowsiness, dizziness, confusion, hallucinations, and decreased sex drive occasionally occur. Alcohol greatly increases the sedative effect of tranquilizers and should be avoided by anyone taking them. Nor should

any of these drugs be used by a person operating a motor vehicle or other potentially dangerous machinery.

Some especially agitated patients and older people may become extremely nervous or excited when taking benzodiazepines, in which case the drug must be gradually discontinued. Women who are pregnant or breastfeeding should generally avoid tranquilizers as well. Finally, no matter how low the dosage, all antianxiety drugs should be discontinued gradually to avoid symptoms of withdrawal – such as nervousness, insomnia, nightmares, or seizures.

* **Antidepressants**

In the 1980s, when **Prozac** (fluoxetine) and related forms of antidepressant made their appearance, they were heralded by the press, and by some practitioners and patients, as psychiatric cure-alls. The result was a decline in both the diagnosis of anxiety and the prescription of antianxiety drugs, as depression became a more common diagnosis.

Tricyclic antidepressants (imipramine, desipramine, nortryptiline) can be helpful for anxiety disorders that are accompanied by panic attacks. They are also sometimes used when cognitive symptoms of worry and apprehension are prominent. Antidepressants have little effect on the muscle tension or sweating, palpitations, and other symptoms that result from hyperactivity of the autonomic nervous system. When obsessive-compulsive disorder complicates anxiety Prozac (fluoxetine), Zoloft (sertraline), and Paxil (paroxetine) are effective, although in some patients they produce nervous system symptoms associated with anxiety.

* **Beta blockers**

Beta blockers are sometimes tried as alternative antianxiety drugs. At this point there is no evidence that they are safer or more effective than benzodiazepines, and they have the added drawback that they can aggravate depression accompanying anxiety.

The one major exception is the particular kind of anxiety attack called *stage fright*. Beta blockers, if taken about an hour before an anticipated attack, are often effective in preventing the trembling limbs and quavering voice that sometimes afflict performers and public speakers. A woman considering the use of beta blockers for this purpose should try them out at some time prior to the day of the "performance," in case she experiences unwanted side effects. The beta blockers most commonly prescribed to treat anxiety are **propranolol** (Inderal) and **atenolol** (Tenormin). Side effects are uncommon, but occasionally beta blockers can cause breathing difficulties in people with asthma, who should use them with caution.

Read the passage and translate it into English.

ШОКИРУЮЩАЯ ПРАВДА О ПРОЗАКЕ

Выведение прозака («антидепрессанта последнего поколения») на американский фармрынок в конце 80-х произвело настоящий фурор: «наконец-то мы научились лечить депрессию!»

И правда, человек, принявший таблетку прозака, просто лучится счастьем – депрессии как не бывало.

Препарат помогал и тем, кто сидел на диете, бросал курить; его прописывали и при бессоннице, страхах, стрессе, упадке сил и. д. Дошло до того, что в США лекарство стали назначать детям и свободно продавать в аптеках. За 12 лет продаж прозака (по официальной информации) его принимали 38 миллионов человек.

И только в конце 90-х разразился скандал: выяснилось, что «чудодейственный» прозак совсем не безобиден. У четырех человек из ста препарат вызывал приступы немотивированной агрессии, особенно у детей. Наверняка все помнят волну детской преступности в Штатах – по репортажам американских журналистов. Подростки расстреливали учителей, одноклассников и потом кончали с собой. Журналисты «New York Times» выяснили, что все эти тинейджеры «сидели» на прозаке.

Независимые клинические испытания показали – **у тех, кто принимает «таблетки счастья», шанс покончить с собой выше почти в 2 раза!** Ограничения к назначению прозака («черная метка») были введены только в 2004 году – за научно доказанную способность вызывать самоубийства у детей. В мае 2005 года «Journal of the American Medical Association» опубликовал исследование, которое указало на связь прозака и аналогичных препаратов с проблемами у новорожденных. У одного из сотни младенцев возникают серьезные проблемы с дыханием, если мать принимала препарат в последнем триместре беременности.

III. *FOLLOW-UP ACTIVITY*.

I. *Agree or disagree with the following.*

1. In the UK, the British National Formulary is the core guide for pharmacists and clinicians.
2. Marketing of prescription drugs in the USA is regulated by Federal Prescription Drug Marketing Act of 1989.
3. Pharmaceutical companies are interested in promotion and selling of costly drugs rather than cheaper ones.
4. The development and approval of generics is less expensive, allowing them to be sold at a lower price.
5. Alongside with NHS prescription patients may receive private prescription as well.

6. All the items on NHS prescription are free of charge.
7. In the United States prescription drugs are referred to as POMs.

II. *Prove that:*
1. The process of developing, testing and marketing new medicines is time consuming and very costly.
2. Over the years, the worldwide demand for drugs has increased rapidly as more and more drugs have been developed.
3. Today, the United States heads all countries in drug production.
4. Drugs today not only benefit mankind tremendously but also present it with some of the worst problems and greatest challenge.
5. Pharmaceutical companies commonly spend a large amount on advertising marketing and lobbying to influence politicians.
6. In some countries, notably in the US, pharmaceutical companies are allowed to advertise direct to the general public and physicians.

III. *Discuss the following points.*
1. Drug regulation in the USA.
2. Drug regulation in Great Britain.
3. Prescription charges in the USA and Great Britain.
4. State Federal Programs in the USA.
5. New marketing techniques in promotion of new medicines.

REFERENCES

1. Английский язык. «Reader»: учеб. пособие/ Р.В. Кадушко, [и др.]; под общ. ред. Р.В. Кадушко. – Витебск: ВГМУ, 2016. – 231 с.

2. Chabner, D.E. The language of medicine/ D.E. Chabner. – 11th edition. – Saunders, 2017. – 430 p.

3. Орлова, Е.С. Английская грамматика по-новому. University Univelsal: Курс английского языка для университетов/ Е.С. Орлова. – М.: ЗАО Центрполиграф, 2003. – 479 с.

4. Англо-русский словарь синонимов. Тезаурус. – М.: Ин.язык, 2001. – 412 с.

5. Petrov, V.I. Russian-English Medical Dictionary Phrase book/ V.I. Petrov. – Медиа, 2000. – 595 с.

6. Health 96/97 / Rchard Yarian [at el]. – Dushkin Publishing Group/ Brown & Benchmark Publishers, Guilford, 1996. – 246 p.

7. Karen J. Carlson, M.D. Harvard Guide to Women's Health/ Karen J. Carlson, M.D., Stephanie A. Eisenstat, M.D., Terra Ziporyn, Ph.D. – Harvard University Press, Cambridge, Massachusetts, and London, England, 1996. – 718 p.

8. The World Book/ Rush-Presbyterian-St. Luke's Medical Center Medical Encyclopedia/ Rush Medical College, Rush-Presbyterian-St. Luke's Medical Center. – Chicago: World Book, Inc., 1995. – 1072 p.

9. George A. Wistreich. Medical Terminology in Action/ George A. Wistreich. – Wm. C. Brown Publishers, 1994. – 605 p.

CONTENTS

Учебное издание

Андреева Ирина Сергеевна.

АНГЛИЙСКИЙ ЯЗЫК

PROFESSIONAL ENGLISH

Методические рекомендации для студентов фармацевтического факультета и магистрантов

(часть III)

Методические рекомендации

Редактор Р.В. Кадушко
Технический редактор И.А. Борисов
Компьютерная верстка и дизайн М.М. Мироевская
Корректор И.С. Андреева

Подписано в печать _____. Формат бумаги 64х84 $^{1}/_{16}$.
Бумага типографская №2. Гарнитура Таймс. Усл.печ.листов _____.
Уч. -изд. л. _____. Тираж _____ экз. Заказ № _____.

Издатель и полиграфическое исполнение УО «Витебский государственный медицинский университет»
ЛП №02330/453 от 30.12.2013.
Пр-т Фрунзе, 27, 210023, Витебск