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Кафедра иностранных языков

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ВСЕ ОБ АПТЕЧНОМ ДЕЛЕ

Учебно-методическое пособие по английскому языку
для студентов 1 курса медицинских вузов
лечебного и медико-диагностического факультетов

EVERYTHING ABOUT PHARMACY

Teaching workbook in English
for the 1st year students of medical higher educational institutions
of the Faculty of General Medicine and Diagnostics

Гомель
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Предназначено для практических и факультативных занятий студентов медицинских вузов, продолжающих изучение английского языка в вузе, и является частью как обязательных, так и элективных учебных материалов программы. Цель учебно-методического пособия — предоставить студентам информацию об аптечном деле и развить навыки устной монологической и диалогической речи на английском языке в пределах изучаемой тематики.

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FOREWORD

This teaching workbook designed for 1st year medical students who continue studying English at the university can also be used by senior students during optional courses or for self-study.

This workbook consists of 4 units. The 1st unit includes topic vocabulary, the text «Chemist's», pretext and post text exercises in which special attention is paid to the meaning and the usage of the words, prepositions and the names of terms in English and Latin. All the exercises are suitable for oral and written work. Time should be spent in class on intensive skill practice and discussion of the subject matter of the major topic.

The 2nd unit is designed to be used during optional courses. The 3rd unit contains information devoted to drugs: their taking, action, dosage, side-effects. There are several instructions on drug administration in this unit. The texts and exercises which deal with such subject as pharmacology are equally suitable for self-tuition and class-work.

In the 4th unit there are texts to read and enjoy which can be used both for independent study and during optional courses.

CONTENTS

UNIT 1

AT THE CHEMIST'S

Pre-reading tasks

***I*. *Learn the topical vocabulary*:**

1.	administer (v); administration (n); administer some drugs orally	[əd´ministə] [əd´ministreiʃən] [´ɔrəli]	назначить; применение; назначить лекарства внутрь
2.	because of	[bi´kɔ:z əv]	из-за
3.	cause	[kɔ:z]	вызывать; причина
4.	chemist pharmacist	[´kemist] [´fa:məsıst]	фармацевт, аптекарь провизор, фармацевт
5.	chemist's department	[di´pa:tmənt]	отдел ручной продажи
6.	chemist's (shop); pharmacy; dispensary; dispense (v)	[ʃɔp] [´fa:məsı] [dıs´pensərı] [dıs´pens]	аптека; аптека; аптека; отпускать лекарство
7.	cod liver oil	[´kɔd livər´ɔil]	рыбий жир
8.	compound	[´kɔmpaund]	соединение
9.	confuse	[´kənfju:z]	путать
10.	decoction	[dı´kɔkʃən]	(лечебный) отвар
11.	directions for administration of a drug	[di´rekʃənz]	указания, как употреблять лекарство
12.	dose to be taken$ overdosage	[dous tə bi: teikn] [´əuvədousidʒ]	доза, которую следует принимать; передозировка
13.	drop (v) drop (n) dropper	[´drɔp] [´drɔp] [´drɔpə]	капать; капля; пипетка
14.	drug; drug action; drug cabinet; drug for injections; drug for internal (external) use drugstore	[drʌg] [´ækʃən] [´kæbinət] [in´dʒekʃənz] [in´tə:nl/eks´tə:nl ju:s] [´drʌgstɔ:]	лекарство, медикамент; действие лекарства; шкаф для хранения лекарства; лекарство для инъекций лекарство для внутреннего (наружного) употребления *амер. аптека*

15.	effective; strong effective drug	[i´fektiv] [strɔŋ i´fektiv]	эффективный; сильнодействующее лекарство
16.	hand in	[hænd]	вручать, подавать
17.	heal; healing ointment; to put the ointment on; to rub in	[hi:l] [hi:liŋ ´ɔintmənt] [put] [rʌb]	заживать; лечебная мазь; намазать мазь; втирать
18.	in case (of)	[in keis]	в случае, при
19.	indicate; indication	[´indikeit]	указывать, обозначать указание
20.	indigestion	[indi´ʤestʃən]	расстройство ;пищеварения
21.	irritate irritation	[iri´teit] [iri´teiʃən]	раздражать; раздражение
22.	keep (kept, kept)	[ki:p]	держать, хранить
23.	label	[´leibl]	этикетка
24.	laxative	[´læksətiv]	слабительное лекарство
25.	mark	[ma:k]	отмечать, обозначать
26.	medicine; medicine cabinet	[´medsin] [´kæbinət]	лекарство, медикамент; домашняя аптечка
27.	(it is) necessary for smth.	[´nesəsəri]	необходимо для
28.	order; order a prescription	[´ɔ:də] [pris´kripʃən]	заказывать; заказать лекарство по рецепту
29.	pain-killer; pain-relieving pill	[´peinkilə] [pil]	болеутоляющее; обезболивающая пилюля
30.	poison; poisonous	[´pɔizn] [´pɔiznəs]	яд; ядовитый
31.	prescribe some drug; prescription for smth.; prescription department	[pris´kraib] [pris´kripʃn] [di´pa:tmənt]	прописать лекарство; рецепт на что-л.; рецептурный отдел
32.	remedy	[´remidi]	лечебное средство
33.	right away	[rait ə´wei]	сразу; без заказа
34.	shake (shook, shaken)	[ʃeik]	трясти, взбалтывать
35.	sleeping-draught	[´sli:piŋdra:ft]	снотворное
36.	something is wrong with	[rɔŋ]	что-то не в порядке с …
37.	stick (stuck, stuck) a label on a bottle	[stik]	наклеить этикетку на бутылку
38.	suppository	[sə´pɔzitəri]	свеча

39.	tablet; a half-tablet; coated tablet tablet for headache	[ˊtæblət] [ˊtæblət fəˊhedeik]	таблетка; полтаблетки таблетка, покрытая оболочкой таблетка от головной боли
40.	take (a drug): — every hour; — every other day; — on an empty stomach; — before meals; — after meals; — according to the doctor's instruction		принимать (лекарство): — каждый час; — через день; — натощак; — перед едой; — после еды; — в соответствии с предписанием врача
41.	take a tablespoonful of mixture; take sleeping-draughts before going to bed	[ˊteiblspu:nful]	принимать микстуру по столовой ложке; принимать снотворное перед сном
42.	untoward reaction; adverse effect	[ʌnˊtouəd ri:ˊækʃn] [ˊædvə:s]	неблагоприятная реакция; побочное действие
43.	write out	[rait aut]	выписать

II. <u>Practise the pronunciation and guess the meaning of the following words</u>:

alcohol	[ˊælkəhəl]	iodine	[ˊaiədi:n]
ampule	[ˊæmpu:l]	mixture	[ˊmikstʃə]
aspirin	[ˊæspirin]	pill	[pil]
capsule	[ˊkæpsju:l]	powder	[ˊpaudə]
dose	[dous]	sedative	[ˊsedətiv]
dosage	[ˊdousidʒ]	signature	[ˊsignitʃə]
dragee	[dra:ˊʒei]	syrup	[ˊsirəp]
glucose	[ˊglu:kous]	tincture	[ˊtiŋktʃə]
intramuscular	[ˌintrəˊmʌskjulə]	tonic	[ˊtɔnik]
intravenous	[ˌintrəˊvi:nəs]	tube	[tju:b]

III. <u>Memorize the meaning of the following words and word combinations. Translate them:</u>

1) <u>a prescription</u>, to write out a prescription for some medicine, to order the prescriptions;

2) <u>a chemist</u>, to work as a chemist, at a chemist's department;

3) <u>a label</u>, to stick a label on a bottle, the dose of the drug is indicated on a label;

4) to administer, to administer some drug orally, the administration of a drug, the directions for the administration of a drug;

5) poison, poisonous, poisonous remedies may cause death, every nurse must know which drugs are poisonous;

6) dose, dosage, the dose to be taken, the dose is indicated on a label, overdosage of a drug may cause untoward reactions, take only the indicated dose of the drug;

7) powder, powders for cough, powders for headache, take these powders three times a day, these are the powders for internal use;

8) an ampule, ampules of camphor, glucose is kept in ampules;

9) intramuscular, intramuscular injection of vitamin B;

10) intravenous, intravenous injections, intravenous injections of glucose;

11) iodine, to paint the skin with iodine, bottles of iodine;

12) alcohol, to sponge [spʌnʤ] the skin with alcohol before injections, to rinse the hands with alcohol before the operation;

13) laxatives, to prescribe laxatives if something is wrong with the patient's stomach;

14) sedatives, to administer sedatives orally;

15) sleeping-draughts, to take sleeping-draughts before going to bed;

16) to heal, healing ointment, tube of healing ointment, to put the healing ointment on the wound, to rub in healing ointment.

IV. Find the similarity and the difference between the English terms and their Latin equivalents. Match their meanings:

	English term	Latin equivalent		Given meaning
1.	acid	acidum	a.	a drink, remedy, or extract prepared by soaking the leaves of a plant or herb in liquid
2.	ampule	ampulla	b.	process of dissolving a solid or a gas in liquid
3.	capsule	capsula	c.	small shaped piece of compressed medicine
4.	plaster	emplastum	d.	medical paste made from oil or fat and used on the skin
5.	extract	extractum	e.	substance like water or oil that flows freely and is neither a solid nor a gas
6.	drops	guttae	f.	substance that contains hydrogen, which can react with metals to form a salt
7.	infusion	infusum	g.	thick sweet liquid made from sugar-cane juice or by boiling sugar with water

8.	liquid	liquor	h.	piece of fabric spread with a medical substance, used to cover a wound
9.	mixture	mixtura	i.	substance that has been crushed, rubbed or worn to dust, for use on the skin
10.	oil	oleum	j.	tiny soluble container for medicine
11.	powder	pulvis	k.	liquid medicine taken in drops
12.	syrup	sirupus	l.	medicine (in a container which dissolves) to be put into the rectum
13.	alcohol	spiritus	m.	a medicine made by dissolving a drug in alcohol
14.	solution	solutio	n.	glass container for medicine
15.	suppository	suppositorium	o.	something made by mixing
16.	suspension	suspensio	p.	pure, colourless liquid
17.	tablet	tabuletta	q.	liquid which does not mix with water, obtained from animals, plants
18.	tincture	tinctura	r.	a mixture in which particles are dispersed throughout the bulk of a fluid
19.	ointment	unguentum	s.	preparation containing the active ingredient of a substance in concentrated form

V. Fill in the blanks. Choose the right word from the given:

1) little children must take … (sleeping-draughts, cod liver oil, sedatives);
2) a …(dose, tablet, powder) to be taken;
3) … (poisonous, effective, untoward) compound;
4) to hand in a … (prescription, instruction, direction);
5) you must be careful with … (effective, poisonous, strong effective) drugs;
6) to put … (solution, decoction, ointment) on the wound;
7) not to confuse … (remedies, drugs, prescription);
8) you may administer this drug … (orally, for internal use);
9) overdosage may … (cause, use, give) untoward … (reaction, death, irritation);
10) this remedy is for external … (use, treatment, care) only;
11) you must … (paint, sponge, rinse) the skin with alcohol before giving injections;
12) paint the skin with … (alcohol, iodine, ointment), please.

VI. Choose the right preposition from the given:

1. Give me the powder (for, of, in) … aspirin, please.
2. These are drugs (for, of, in) … injections.

3. Take this medicine in case (of, at, for) … indigestion.
4. Pain-killers will help (in, to, at) … case of pain.
5. You must sponge the skin … (with, without, by) alcohol before giving injections.

VII. Put the right preposition or postposition where necessary:

1. Some drugs are taken … meals, other drugs are taken … meals.
2. We mustn't take drugs … doctor's advice.
3. Give this solution … the doctor's instruction.
4. The doctor advised to put the ointment … the wound.
5. Buy this remedy right … .
6. You may buy things … medical care.
7. Take these tablets … going to bed.
8. Something is wrong … the patient's stomach because … indigestion.
9. Blue labels indicate drugs … injections.

VIII. Complete the sentences. To help you the first letter of each word is given:

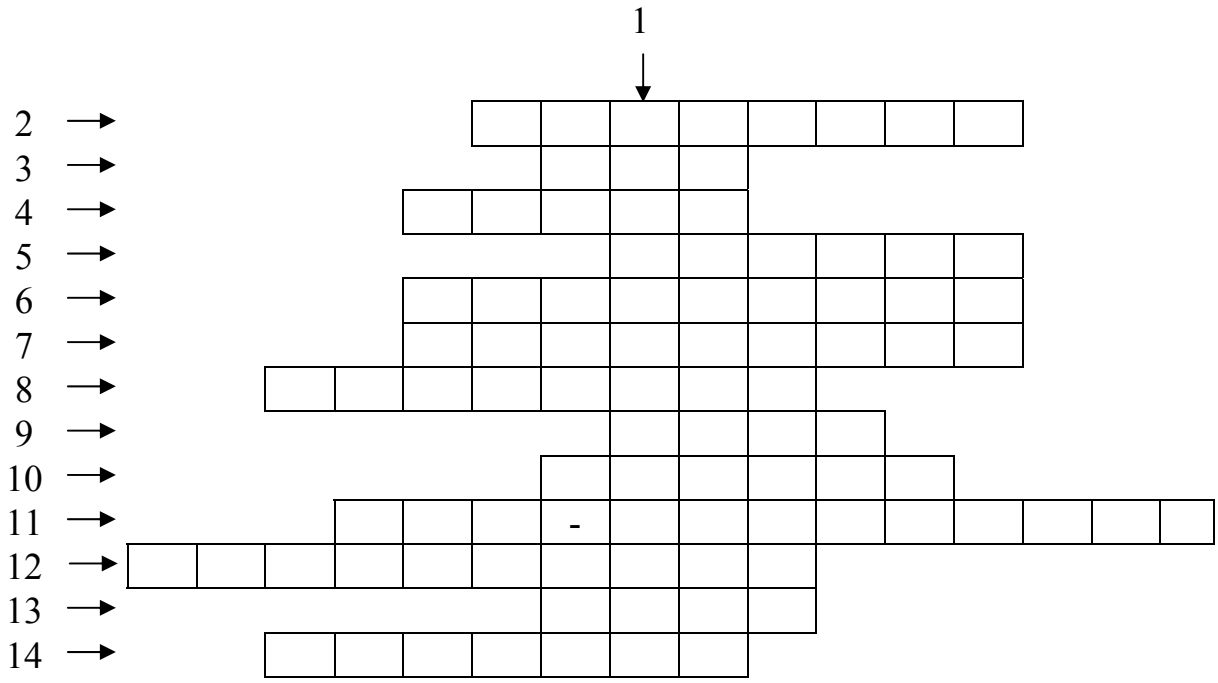
1. It is a coated t _____.
2. He took a drug on an e_____ stomach.
3. Sometimes drugs cause adverse e_____.
4. We mustn't take drugs w_____ doctor's advice.
5. It is necessary to s_____ this mixture before using.
6. Drop seven d_____ of this tincture.
7. Don't take drugs without doctor's a_____.
8. Don't take this medicine on an empty s_____.
9. You must u_____ suppositories.
10. Take a pain-relieving p_____, please.
11. You should give him decoction three times a d_____ after m_____.
12. They dispense d_____ at the c_____.
13. Put this o_____ on the wound.
14. Surgeons rinse hands with a_____.

IX. Answer the questions. Begin with the given words:

1. Can we take any drugs on an empty stomach? — We can … .
2. Are any pills taken with milk? — Some pills … .
3. When do you take a pain-relieving pill? — I take … .
4. What may you take when you are excited? — I may … .
5. Must we shake mixture before using? — Some mixture … .
6. Who dispenses drugs at the pharmacy?
7. Some drugs can cause adverse effect, can't they?
8. Are you sensitive to penicillin or novocain? — I … neither … nor … .
9. How many drops of tincture can you take? — I can take … .
10. How many times a day can you take decoction? — I can take … .
11. Do you take drugs without doctor's advice?

X. Translate the words from Russian into English and fill in the crossword. You will get the missed word:

1) … ;
2) отпускать (лекарства);
3) намазать (мазь);
4) капли;
5) порошок;
6) отвар;
7) прописать (лекарство);
8) раствор;
9) принимать (лекарство);
10) покрытая оболочкой (таблетка);
11) обезболивающая (пилюля);
12) фармацевт;
13) принятие пищи, еда;
14) побочное (действие).



XI. Match the following verbs with the nouns:

1.	to prescribe	a.	directions for administration
2.	to order	b.	medicine
3.	to rub in	c.	drugs
4.	to cause	d.	mixture
5.	to confuse	e.	prescription
6.	to relieve	f.	the dose to be taken
7.	to keep	g.	drug cabinet
8.	to shake	h.	ointment

9.	to administer	i.	pain
10.	to write out	j.	tablets
11.	to stick	k.	death
12.	to mark	l.	remedies
13.	to indicate	m.	powders
14.	to write	n.	label

XII. Complete the chart:

	Noun	**Verb**	**Adjective**
1.	vein	—	intravenous
2.	indication		
3.		inject	
4.		administer	
5.			intramuscular
6.	poison		
7.		direct	
8.		prescribe	
9.	effect		
10.		drop	
11.		mix	
12.	irritation		

XIII. Before reading the text pay attention to the meaning and the translation of the underlined words and fill in the tables:

1. She has to rub in healing ointment twice a day.
2. What do you usually have for breakfast?
3. I have already ordered the drugs at the chemist's.

№			
Значение	иметь	должен, вынужден	часть сказуемого
Признаки			

4. You can get medicine droppers at the chemist's shop.
5. The medicine may be ready in some hours.
6. The patient must know what he is taking.

№			
Значение	возможность, вероятность	обязанность	способность
Перевод			

7. Take sleeping-draughts before going to bed.
8. As I'm sick I'm following a home treatment.
9. The man ordering the drug wants it to be ready as soon as possible.

№			
Форма	Participle I	Gerund	Present Continuous
Перевод			

10. All the drugs are kept in drug cabinets.
11. He handed in the prescription written out by the doctor.
12. The chemist marked the bottle with the letter A.

№			
Форма	Passive Voice	Active Voice	Participle II
Перевод			

13. There are things for medical care at the chemist's.
14. There is some other way to solve this problem.

№		
Перевод	есть, существует	находятся
Условия		

15. There is one ampule in the box.
16. White labels indicate drugs for internal use, yellow ones indicate drugs for external use.
17. One can use this mixture in case of cough.

№			
Значение	неопределенное местоимение	слово-заменитель	числительное
Перевод			

XIV. ***Before reading the text discuss with your partner the following questions:***

1. What medicine is used in case of bacterial infection?
2. When are sedatives prescribed?
3. What sublingual remedies do you know?
4. What may patients take if something is wrong with their blood pressure?
5. What is administered in case of myocardial infarction?

XV. Read the text. While you are reading try to fill in the table. Then do the tasks that follow.

Medicine for internal use	Medicine for external use	Things for medical care

Text

Chemist's

On receiving a prescription from a doctor or on following a home treatment all of us need medicines, which are ordered or bought at a chemist's.

There are usually two departments at a large chemist's. At the chemist's department one can get the medicine right away, other drugs have to be ordered at the prescription department. Drugs are produced in different forms, such as tablets, capsules, dragee, ampules, bottles, suppositories, drops, powders, ointments, syrup.

At any chemist's all the drugs are kept in drug cabinets. Every small bottle or box has a label with the name of the medicine stuck on it. There are labels of three colours: green ones are stuck to indicate drugs for internal use, orange labels are stuck to indicate drugs for external use, and blue ones are stuck to indicate drugs used for injections. The dose to be taken and the directions for the administration are usually indicated on a signature or a label. The indicated dose and the name of any medicine are necessary for chemists, nurses, doctors and patients themselves. It prevents us from confusing different remedies, some of which are poisonous. Their overdosage may cause untoward reactions and even death. There are drug cabinets with the big letters A and B at the chemist's. They keep poisonous drugs in the drug cabinet marked with the letter A, and all strong effective drugs are kept in the drug cabinet having the letter B.

At the chemist's one can buy different drugs for intramuscular and intravenous injections, for oral administration and for external use. In the drug cabinets there are small parcels of different powders; ampules of glucose; tubes of healing ointments, which are rubbed in to relieve pain or skin irritation; pills for internal use; sedatives and tonics, such as vitamins, cod liver oil and sleeping-draughts; laxatives administered orally in case something is wrong with the patient's stomach because of indigestion, bottles of iodine and so on. At the chemist's shop one can also get hot-water bottles, medicine droppers and many other things which are quite necessary for medical care.

You can hand in the prescription for the cough mixture or tincture, ointment or suppositories, eye drops or powders, suspension or decoction and other remedies written out by the doctor which may be ready in a while. The chemist may advise to keep the medicine in a cool place, to shake it before using and follow the directions.

The patient must know well that he is taking the proper drug and its dose. For example, you will have to take a tablespoonful of the cough mixture three times a day to relieve cough. In case of severe pain the doctor may administer an intravenous injection of a pain-killer such as morphine, promedol or omnapone. If the patient's blood pressure is low it is necessary to take such tonics as caffeine, cordiamin which may be administered orally before meals. Tablets of captopril or

enalapril will help if the patient suffers from hypertension. Attacks of angina pectoris are relieved with the sublingual remedy of nitroglycerin. Novo-passit is used as a sedative in case of patient's irritability, nervousness or anxiety. If the patient is ill with lobar pneumonia or quinsy the doctor will prescribe antibiotics. All the drugs must be taken according to the doctor's instruction.

Reading comprehension

I. After reading the text say which new facts about a chemist's you have learned.

II. Find statements that are not true to the text and correct them:

1. Strong effective drugs are kept in the drug cabinets marked with the letter A.
2. Chemist's, nurses, doctors and patients mustn't confuse remedies.
3. Overdosage of a drug may cause death.
4. We can buy medicine write away at the prescription department.
5. Drugs must be taken according to the doctor's instruction.
6. We cannot buy things for medical care at the chemist's.
7. The directions for the administration are indicated on a signature.
8. One cannot buy tablets for headache right away.
9. You may take a tablespoonful of mixture one time a day.
10. Drugs are produced in ampules, capsules, tablets, suppositories, dragee.
11. Sedatives are taken in case of hypertension.
12. An intravenous injection of a pain-killer may be administered in case of severe pain.

III. Complete the sentences:

1. You may … a prescription at the chemist's.
2. … drugs are kept in the drug cabinets marked … the letter A.
3. All strong effective drugs are marked … .
4. You can keep drugs in … .
5. … is stuck on every bottle or … .
6. … for administration are indicated on a … .
7. You must take a … of this mixture.
8. You can buy a … of healing … at the … department.
9. … are written on a signature.
10. Use healing … in case of skin … .
11. When you are excited you may take … .
12. Overdosage of poisonous … may cause … .

IV. Add the beginnings to the following sentences:

1. … must be taken according to the doctor's instruction.
2. … also get hot-water bottles, medicine droppers.
3. … to keep the medicine in a cool place, shake it before using.

4. … that he is taking the proper drug and in the necessary dosage.
5. … has a label with the name of the medicine stuck on it.
6. … may cause untoward reaction and even death.
7. … are usually indicated on a signature or a label.

V. Put as many questions as you can to the following sentences:

a) Some remedies may be ready in a while.
b) At any chemist's all the drugs are kept in drug cabinets.
c) Tablets of captopril will help if the patient suffers from hypertension.

VI. Add the facts:

1. Departments at the chemist's: _____, _____.
2. Written on the label: _____, _____, _____.
3. Drug cabinets: _____ (for …), _____(for …).
4. What drugs we buy: _____, _____, _____, _____.
5. For medical care: _____, _____, _____.
6. Chemist's advice: to _____, to _____.
7. Overdosage may cause: _____, _____.
8. At the chemist's we: _____, _____ drugs.
9. We need medicines on: _____, _____.
10. The dose indication is necessary: for ____, for ____, for ____, for ____.

VII. Find suitable words in the right-hand column:

1.	Chemists work at a …	a.	directions
2.	to take a tablespoonful of this …	b.	chemist's
3.	overdosage may cause untoward …	c.	effective
4.	take this mixture for …	d.	shake
5.	overdosage may cause even …	e.	rub in
6.	to keep medicine in a … place	f.	times
7.	things necessary for medical …	g.	department
8.	all strong … drugs	h.	orally
9.	… healing ointment	i.	care
10.	to relieve pain or skin …	j.	cough
11.	to take medicine three … a day	k.	reaction
12.	laxatives administered …	l.	irritation
13.	to … mixture before using	m.	cool
14.	to rub in … ointment	n.	mixture
15.	at the prescription …	o.	death
16.	the … for administration of a drug	p.	healing

VIII. Make up questions to which the following sentences might be the answers:

1. There are two departments at the chemist's shop.

2. They keep strong effective drugs in the drug cabinet having the letter B.
3. At the chemist's one can buy things for medical care.
4. It may cause untoward reaction.
5. You will have to take a tablespoonful of the mixture three times a day.
6. Yes, all the drugs must be taken according to the doctor's instruction.

IX. Express the given definitions in one word:

1) the department where we can have the medicine right away; 2) the department where we order some prescriptions; 3) a small slip of paper on which the name of the medicine is written; 4) drugs taken orally; 5) unfavourable reaction; 6) the drugs which may cause an untoward reaction or sometimes even death; 7) the method of introducing some medicine into the vein; 8) the method of introducing some medicine into the muscle; 9) a substance made of oil or fat and applied to the skin to heal wounds; 10) the medicine which is prescribed in case of sleeplessness; 11) to mix the medicine in the bottle moving it quickly up and down; 12) a small instrument used for dropping some medicine; 13) the drug which produces an extremely marked influence; 14) the treatment which causes good results; 15) to go to the chemist's and order some drugs; 16) at once; 17) neither a cold nor a hot place; 18. something hurts my stomach.

X. Match the following words with the definitions:

1.	sleeping-draught	a.	a piece of paper which is stuck on a bottle
2.	healing ointment	b.	you can buy drugs right away there
3.	cough mixture	c.	it has all necessary instructions of the doctor
4.	a tube	d.	you can order prescriptions there
5.	cod liver oil	e.	the drugs that cause death in large doses
6.	a prescription	f.	this may be caused with overdosage of the drug
7.	a dropper	g.	to use wrong medicine instead of the right one
8.	alcohol	h.	a place where all drugs are kept at the chemist's
9.	novocain	i.	a kind of place where you must keep medicine
10.	laxatives	j.	it is taken to relieve pain
11.	pain-killer	k.	it is rubbed in to relieve skin irritation
12.	untoward reaction	l.	we use this thing to drop the eyes or ears
13.	drug cabinet	m.	it is used to paint the skin
14.	prescription department	n.	you always use them when you look after a patient
15.	dark and cool	o.	it may be used to sponge the skin before injections
16.	things for medical care	p.	the medicine which is taken in case of sleeplessness
17.	signature	q.	it is usually written out by the doctor
18.	to confuse	r.	this remedy must be taken by children
19.	chemist'sdepartment	s.	these drugs are used if something is wrong with the stomach

20.	a label	t.	it is kept in ampules and used for injections
21.	iodine	u.	it is the container where ointment is kept
22.	poisonous drugs	v.	you sometimes shake it before using
23.	penicillin	w.	this medicine is kept in bottles

XI. Answer the following questions:

1. How many departments are there at the chemist's? 2. At what department do some drugs have to be ordered? 3. Where are all drugs kept? 4. What is stuck on every bottle and box containing some drug? 5. What is usually written on a signature or a label, which is stuck on a bottle? 6. What labels are stuck to indicate drugs for internal (external) use? 7. Why must the name of the medicine and the directions for the administration be written on a label? 8. Why is the dose to be taken indicated on the label? 9. What can we see in the drug cabinets? 10. What can you buy at the chemist's department? 11. What do you hand in to the prescription department? 12. What things for medical care do we buy at the chemist's? 13. Where do they keep strong effective drugs? 14. Where are poisonous drugs kept? 15. What do patients take in case of sleeplessness? 16. Who takes cod liver oil? 17. What can you paint the skin with? 18. What must we sponge the skin with before giving injections? 19. What remedies for external use do you know? 20. What is the dosage of the cough mixture? 21. Where must we keep drugs? 22. In what cases are sedatives prescribed? 23. What may cause untoward reactions? 24. What is a medicine dropper used for? 25. What pills does a doctor prescribe to keep the fever down? 26. What do you take for a headache? 27. What do you take for a cough? 28. When does a doctor prescribe penicillin injections? 29. In what cases are laxatives administered? 30. When did you order a prescription last time?

XII. Reread the text and arrange the following items of the plan into the logic succession according to the text:

a) different kinds of drugs;
b) drug cabinets;
c) to prevent confusing remedies;
d) the departments at the chemists;
e) things for medical care;
f) a label;
g) to hand in a prescription;
h) administration of medicines;
i) the advice of a chemist.

XIII. Retell the text using the plan from exercise XII.

XIV. Imagine that you attended a chemist's shop a week ago. Write about it in a letter to your imaginable friend from England.

XV. <u>Complete the chart. Choose the disease or the symptom from the box:</u>

pneumonia, sleeplessness, influenza, cough, headache, constipation, avitaminosis, skin irritation, nervousness

	Medicine	**is used in case of …**
1.	sleeping-draught	
2.	laxative	
3.	sedative	
4.	vitamin	
5.	antibiotic	
6.	antiviral	
7.	pain-killer	
8.	cough mixture	
9.	healing ointment	

XVI. <u>Fill in the blanks with prepositions or adverbs where required:</u>

A. 1. «Have you any pain … the stomach?» «Yes, I have sometimes. Something is wrong … it.» 2. The district doctor wrote … a prescription … some tablets. 3. As my brother was running a very high temperature the doctor prescribed … him the tablets … aspirin to keep the fever down . 4. The chemist wrote the name … the drug … the label and stuck it … the bottle. 5. I'll prescribe … you a tube … healing ointment. Please rub it … to relieve the skin irritation. 6. These ampules … camphor are … intramuscular injections. 7. Please order this prescription … the chemist's … your way … the University. 8. Be careful! This drug is only … external use. And besides its overdosage may cause an irritation … the skin. 9. If something is wrong … the liver the doctor may write … the prescription … vitamin B_1 or B_{12}.

B. Some days ago my friend was running a high temperature and was in a poor condition. I took the prescriptions, written … by the district doctor, and went … the nearest chemist's. … the chemist's department I bought pills and powders right … . I ordered the cough mixture … the prescription department. Later I got the drugs which I had ordered. When the chemist gave me the bottle … mixture he said to keep it … a cool place and shake it … using.

XVII. <u>Translate the sentences. Find V-ed/$V_{2,3}$ and divide the sentences into 2 groups: 1st — main verb in Past Simple, 2nd — Participle II.</u>

1. The patient rubbed in the healing ointment. 2. The healing ointment rubbed in every three hours gave relief. 3. The chemist stuck a yellow label on a box of medicine. 4. You must take the prescribed drug after meals. 5. The neurologist prescribed to me sleeping-draughts. 6. The untoward reaction caused by the overdosage of this drug caused a bad pain in his stomach. 7. The doctor marked some changes in the patient's blood pressure. 8. The drug kept in a cool place must be shaken before using. 9. The chemist kept all strong effective drugs in a special drug cabinet.

XVIII. <u>Translate the following sentences into English:</u>

1. В этой ампуле содержится 5 г глюкозы.
2. Продают ли новокаин в отделе ручной продажи?
3. Это лекарство можно заказать в любой аптеке.
4. Маленьким детям необходимо принимать рыбий жир регулярно.
5. Что-то было не в порядке у него с желудком.
6. Есть ли в отделе ручной продажи пипетки и грелки?
7. Эта мазь вызвала раздражение кожи.
8. Нужно соблюдать строгую диету при расстройстве пищеварения.
9. Полощите горло этим лекарством 2 раза в день и не забудьте взбалтывать его перед употреблением.
10. Доктор, сколько раз в день я должен принимать это лекарство? — Принимайте его по столовой ложке 3 раза в день перед едой.
11. Я пропишу вам порошки и микстуру от кашля. Они должны вам помочь.
12. Больному прописали тонизирующее и успокаивающее, так как он жаловался на слабость и бессонницу.
13. В отделе ручной продажи я купила порошки от головной боли и 2 пипетки.
14. Что вы можете мне сказать об этом лекарстве? Это сильнодействующее лекарство, которое нужно принимать только по назначению врача.
15. Это мазь от раздражения кожи.
16. Эти порошки от высокой температуры.
17. Эта микстура от кашля.
18. Эти таблетки от простуды.
19. Это лекарство можно назначать как внутримышечно, так и для приема внутрь.
20. Принимайте это лекарство осторожно, следуйте указаниям врача, потому что передозировка может вызвать неблагоприятную реакцию.
21. Врач прописал мне микстуру, которая сняла кашель и помогла мне быстро поправиться.
22. Почему вчера вы не дали этому больному снотворного? Он ведь жаловался на бессонницу.
23. Вы будете принимать эту микстуру, и вы скоро перестанете кашлять.

XIX. <u>Act out the following dialogues with your partner and make similar conversations. Pay attention to the new phrases:</u>

1) to have the medicine right away — получить лекарство тотчас же;
2) to be in great demand — пользоваться большим спросом;
3) here you are — пожалуйста;
4) to look seedy — плохо выглядеть;
5) I am feeling rather out of sorts — мне не по себе;
6) chap — трещина (на коже);
7) chilblain — обмороженное место;
8) that’s not the custom with us — у нас не принято;
9) to make up — составлять.

DIALOGUE 1

Petrov enters the chemist's shop with a prescription, which he has just received.

Petrov: I have a prescription for some medicine. Can I have it right away?
Chemist: Sorry, it must be made up. It has been in great demand lately.
Petrov: Then I'll leave the prescription. Will it be ready in a couple of hours?
Chemist: I'm afraid it will not be ready before this evening.
Petrov: Well, then I'll come in the evening.

DIALOGUE 2

A young woman enters the drugstore.

Woman: Be so kind as to advise something for a headache.
Chemist: These pills are very effective. They will stop your headache at once.
Woman: Have you any antibiotics?
Chemist: We have a lot of them at present. Here are some new antibiotics: albumycin, monomycin and mycerin.
Woman: I have a prescription for albumycin.
Chemist: Here you are.

DIALOGUE 3

A middle-aged man enters the pharmacy, he comes up to the chemist and greets her.

Man: Good afternoon.
Chemist: Good afternoon. You are looking rather seedy today. What is the matter with you?
Man: I am feeling rather out of sorts. I have a headache and a sore throat. I am afraid I've got a temperature.
Chemist: Why aren't you in bed?
Man: I have just finished my work. I am going home.
Chemist: I'll give you some powders for stopping your headache and furacillin to gargle your throat with. Go home and get into bed immediately. Call the doctor, if you are not well tomorrow.
Man: I hope for the better. I have to deliver a report tomorrow, so I must be as sound as a bell. Good-bye.
Chemist: Good afternoon. Be sure and follow my advice. Better stay in bed.

DIALOGUE 4

Just at that moment an old woman comes in, she hands in a prescription to the chemist.

Chemist: You need cardiomin and cardiovalen. You may have them right away.

Woman: Thank you. Be so kind, have you got cholelitin or allochol? My liver troubles me, I was told you have these medicines ready.
Chemist: Sorry, we had them, but they are sold out at present. Come in a day, or two. We are expecting them any day.
Woman: Give me a pair of washing gloves and a bar of soap.
Chemist: Here they are. Anything else?
Woman: No, thank you. I'll come in two days to buy some liver drugs. I need them badly. Good-bye.
Chemist: Good-bye.

DIALOGUE 5

Mr. Brown enters the chemist's shop.

Chemist: What can I do for you?
Customer: Have you anything for toothache?
Chemist: Aspirin is the best I can offer, Mr. Brown.
Customer: Then I will have a dozen, please.
Chemist: Is there anything else I can do for you?
Customer: My hands are chapped, can you recommend a good lotion?
Chemist: Try this one first. If it isn't any help come back next week and try a stronger one.
Customer: How much is it?
Chemist: That makes one pound altogether.
Customer: Thank you, good-bye.

DIALOGUE 6

The customer enters the chemist's shop.

Mrs. Short: Have you a good cream for chilblains?
Chemist: I have a cold cream which I can recommend.
Mrs. Short: I have a sore throat too. I need a box of those throat pastilles.
Chemist: Here we are, anything else I can do for you?
Mrs. Short: I have a prescription for a medicament. I can't make out what the doctor has written.
Chemist: Oh, this is a rather dangerous one. Keep it away from your children. (reading it carefully)
Mrs. Short: I always keep things like that locked up.
Chemist: Thank you, good morning, Mrs. Short.

DIALOGUE 7

George meets a foreign medical student who wants to know some facts about the work of our chemist's shops.

Foreign student (F.S.): I would like to know some facts about the chemist's shops in your country.

George: I think the best way is to visit one of our chemist's. If you have some spare time let's go to the nearest chemist's.
F. S.: I'll try to order a prescription myself.
George: You must hand in your prescription to the prescription department. The chemist will tell you if you can have it made up.
F. S.: And who will tell me the price?
George: The chemist will do it, and then you'll have to pay money at the cash-desk.
F. S.: And how soon will my prescription be ready?
George: You'll be told everything at the prescription department.Usually it takes them several hours to have the prescription made up.
F. S.: Well, can you tell me, what things are sold at the chemist's department?
George: Oh, there you can find many different things.
F. S.: Are cameras also sold at the chemist's department as they are in England?
George: No, that's not the custom with us.
F. S.: Do they stick labels on the boxes and bottles which patients get?
George: Certainly, they do. The dosage is indicated on the label, so that a patient won't forget, when and how to take the medicine.
F. S.: Now I have all the necessary information and can try to order the prescription myself.

DIALOGUE 8

«Will you make up this prescription, please?»

«Just a minute … . Here you are. One tablespoonful before meals three times a day.»

«Thank you.»

«As for these tablets, you can get them without a prescription in the other department.»

XX. Work in pairs. Discuss the following questions:

1. What would you buy at the chemist's if you had a headache, a sore throat, a stomachache, an earache, pain in the joints, if you were running a high temperature or coughing?
2. What would you buy at the chemist's department if your granny asked you to go to the chemist's?
3. What would you have done if the doctor had written out a prescription yesterday?
4. What things for medical care can you buy at the chemist's?

XXI. Discuss the following situations:

1. Your room-mate at the hostel is in a poor condition. He (she) is running a high temperature and coughing. You have to go to the chemist's to buy some drugs. Act out your conversation with a chemist.

2. Your mother has asked you to buy sleeping-draughts and tablets for headache for your grandmother, cough mixture and vitamins for your brother, sedatives and pain-killers for your grandfather. You haven't got any prescription so you have to ask a chemist what medicine she will recommend.

XXII. Now read some examples of foreign humour and answer the questions that follow:

1. A man went into a chemist's and asked for something to cure a headache. The chemist held a bottle of ammonia to the man's nose, in consequence of which the customer nearly fainted. As soon as he had recovered he began to rail at the chemist.

«But didn't it help your headache?» asked the chemist.

«Help my headache!» screamed the man, «I haven't any headache, it's my wife that's got the headache.»

Note: ammonia — нашатырный спирт; in consequence of — в результате чего.

1. Did ammonia help the man?
2. Who made a mistake?
3. Who was wrong in this situation?

2. The doctor smiled as he entered the room.
«You look much better today.»
«Yes, I followed the directions on your medicine bottle.»
«What were they?»
«Keep the bottle tightly corked.»

Note: to keep the bottle tightly corked —держать бутылку плотно закупоренной.

1. Why did the patient look much better in your opinion?
2. Did the patient really follow the instructions?
3. What may help in the patient's quick recovery?

UNIT 2

PHARMACY

The mortar and pestle is an international symbol of pharmacists and pharmacies.

Pre-reading tasks

I. <u>Study the following list of words and word combinations:</u>

1.	advanced	[əd´va:nst]	передовой, продвинутый
2.	antidote	[´æntıdəut]	противоядие
3.	apothecary	[ə´pɔθıkərı]	1) уст. аптекарь; 2) *амер. аптека*
4.	brand	[´brænd]	качество, фабричная марка
5.	ceremonial	[ˌserı´məunjəl]	обрядовый
6.	charge	[tʃa:dʒ]	забота; взять на себя ответственность за
7.	come of age	[eıdʒ]	достичь совершеннолетия
8.	concoction	[kən´kɔkʃən]	варево, концентрат
9.	contribute	[kən´trıbu:t]	способствовать, делать вклад
10.	counsel	[´kaunsel]	давать совет, рекомендацию
11.	creation	[kri:´eıʃən]	создание
12.	crude	[kru:d]	необработанный, неочищенный
13.	decoction	[dı´kɔkʃən]	(лечебный) отвар
14.	derive	[dı´raıv]	происходить
15.	dye	[daı]	красящее вещество
16.	efficacy	[ı´fıkəsı]	эффективность
17.	ensure	[ın´ʃuə]	обеспечивать
18.	expertise	[ˌekspə:´ti:z]	компетенция
19.	eventually	[ı''ventʃəlı]	со временем
20.	force	[fɔ:s]	заставлять, принуждать
21.	fountain	[´fauntın]	резервуар, источник

22.	fractionate	[ˊfrækʃəneɪt]	дробить
23.	fungus	[ˊfʌŋgəs]	грибок
24.	gather	[ˊgæðə]	собирать
25.	groom	[grum]	ухаживать
26.	herbal	[ˊhə:bəl]	травяной
27.	hunt	[hʌnt]	охота
28.	identify	[aɪˊdentɪfaɪ]	отождествлять
29.	in particular	[pəˊtɪkjulə]	в особенности
30.	investigation	[ɪnˌvestɪˊgeɪʃən]	исследование
31.	isolate	[ˊaɪsəleɪt]	изолировать, отделять
32.	medication	[ˌmedɪˊkeɪʃən]	лекарственное средство
33.	midwifery	[ˊmɪdwɪfərɪ]	акушерство
34.	mold	[məuld]	плесень
35.	mortar	[ˊmɔ:tə]	ступка
36.	multiple	[ˊmʌltɪpl]	сложный
37.	perfume	[ˊpə:fju:m]	благовоние
38.	pestle	[ˊpesl]	пестик
39.	practitioner	[prækˊtɪʃnə]	практикующий врач
40.	precursor	[pri:ˊkə:sə]	предшественник
41.	promotion	[prəˊməuʃən]	повышение
42.	property	[ˊprɔpətɪ]	свойство
43.	provide	[prəˊvaɪd]	снабжать, обеспечивать
44.	purpose	[ˊpə:pəs]	цель, назначение, намерение
45.	raise	[reɪz]	выращивать
46.	range	[reɪndʒ]	ряд
47.	raw	[rɔ:]	сырье
48.	regard	[rɪ'ga:d]	рассматривать, считать
49.	responsibility	[rɪsˌpɔnsəˊbɪlɪtɪ]	ответственность, обязательство
50.	retail	[ˊri:teɪl]	розничная продажа
51.	review	[rɪ'vju:]	просматривать, проверять
52.	root	[ru:t]	корень
53.	scale	[skeɪl]	масштаб, размер
54.	scope	[skəup]	границы, пределы возможностей
55.	seek	[si:k]	стремиться к
56.	solely	[ˊsəullɪ]	исключительно
57.	source	[sɔ:s]	источник
58.	sulfa drugs	[ˊsʌlfəˊdrʌgz]	сульфаниламидные препараты
59.	take a request	[rɪˊkwest]	запрашивать
60.	utilize	[ˊju:tɪlaɪz]	использовать

II. Practise the pronunciation of the following words:

alchemy	[ˊælkımı]	ingredient	[ınˊgri:djənt]
artisan	[ˌa:tıˊzæn]	medicinal	[ˌme'dısınl]
coal-tar	[ˊkəul 'ta:]	medieval	[ˌmedıˊi:vəl]
crystallization	[ˌkrıstəlaı'zeıʃən]	Muslim	[ˊmuslım]
to extract	[ıksˊtrækt]	phenol	[ˊfi:nɔl]
incense	[ˊınsens]	typical	[ˊtıpıkəl]

III. Analyze the following forms and say which part of speech they belong to; translate them into Russian:

The community pharmacy; internationally recognized symbol; it is charged with; may be regarded; more modern services; the earliest druggists; drug compounder; creation of modern pharmacy; advanced methods of compounding drugs; they extracted crude drugs using water or alcohol to form extracts.

IV. Study and memorize the meaning of the following words and word combinations. Translate them:

Dispense, dispensary, dispensing chemist, to dispense medications at the apothecary, dispensed drugs.

Medicine, medical advice, to review medications for safety and efficacy, chemist's, chemical ingredients, apothecary shops, drugstores.

Pharma, pharmacy, pharmacist, to practice the science of pharmacy, community pharmacies, pharmaceutical companies.

Compound, pharmacy compounding, ceremonial compounds, to compound a variety of preparations, advanced methods of compounding drugs, preparation and compounding of crude drugs, compounding pharmacist, to compound most preparations, ancient compounders, multiple chemical compounds.

To derive, to serve, to offer, to perform, to be regarded, to provide drug information, to ensure, to form extracts, to do on a small scale, to produce a market, to force the drug company.

Retail shop, patent medicines, investigation, precursor, scope, clinical service, patient care, health professional, source of medical knowledge, many areas of expertise, ancient roots, hunter-gatherer society, medicinal properties, plants, molds, fungus, poisons and antidotes, oils and perfumes, dyes and incense, medieval Islamic world, coal tar, the discovery of penicillin, brand promotion, drug manufacturing industry, the majority of dispensed drugs.

V. <u>Match the term with its definition. Some words may be used more than once.</u>

1. Chemistry of the Middle Ages, attempting to discover how to change ordinary metals into gold 2. Person who prepares and sells medicines and medical goods 3. Thing made up of two or more combined parts 4. Preparation and dispensing of medicines and drugs 5. Shop where medical goods are sold (US) 6. Science of pharmacy 7. Expert in pharmacology 8. Person skilled in preparing medicines 9. Engaged in pharmacy 10. Substance used for medical purposes, either alone or in a mixture 11. Person who prepares and sells medical goods, toilet articles etc 12. One of the parts of a mixture 13. Place where medicines are given out 14. Medicine used against a poison or to prevent a disease from having an effect 15. Substance causing death or harm if absorbed by a living thing (animal or plant) 16. Materials in a natural state, not manufactured or prepared 17. A mixture of various ingredients or elements 18. Tradesman who sells drugs (GB) 19. Kind of medicine especially prepared 20. The liquor resulting from concentrating the essence of a substance by heating or boiling, esp. a medical preparation made from a plant	1. chemist 2. druggist 3. pharmacist 4. pharmacy 5. pharmacology 6. pharmacologist 7. dispensary 8. apothecary 9. alchemy 10. drug 11. compound 12. preparation 13. ingredient 14. poison 15. raw 16. antidote 17. crude 18. concoction 19. decoction 20. drugstore 21. pharmaceutical

VI. Can you guess what the text is about judging by the title? What do you know or what have you heard about the subject you are going to read about?

VII. Read the text. While you are reading try to find the answers to the following questions:

a) What does «pharmacy» mean?
b) What are the duties of pharmacists?
c) When did people begin to compound drugs?
d) What achievements were made in the 19th century?

The 19th century Italian pharmacy is shown in figure 1, modern pharmacy in Norway — in figure 2.

Figure 1 — 19th century Italian pharmacy

Figure 2 — Modern pharmacy in Norway

Text

Pharmacy

A pharmacy (commonly the chemist's in Australia, New Zealand and the UK; or drugstore in North America; retail pharmacy in industry terminology; or Apothecary, historically) is the place where most pharmacists practise the profession of pharmacy. It is the community pharmacy where the dichotomy of the profession exists — health professionals who are also retailers. Community pharmacies usually consist of a retail storefront with a dispensary where medications are stored and dispensed.

Pharmacy (from the Greek «pharmakon» — drug) is the health profession that links the health sciences with the chemical sciences, and it is charged with

ensuring the safe and effective use of medication. The mortar and pestle is an internationally recognized symbol to represent the pharmacy profession.

The word pharmacy is derived from its root word pharma which was a term used since the 1400–1600s. In addition to pharma responsibilities, the pharma offered general medical advice and a range of services that are now performed solely by other specialist practitioners, such as surgery and midwifery. The pharma often operated through a retail shop which, in addition to ingredients for medicines, sold tobacco and patent medicines.

In its investigation of herbal and chemical ingredients, the work of the pharma may be regarded as a precursor of the modern sciences of chemistry and pharmacology. The scope of pharmacy practice includes more traditional roles such as compounding and dispensing medications, and it also includes more modern services related to patient care, including clinical services, reviewing medications for safety and efficacy, and providing drug information.

Pharmacists are health professionals who practise the science of pharmacy. In their traditional role, pharmacists typically take a request for medicines from a prescribing health care provider in the form of a medical prescription and dispense the medication to the patient and counsel them on the proper use and adverse effects of that medication. Pharmacists have many areas of expertise and are a critical source of medical knowledge in clinics, hospitals, medical laboratory and community pharmacies throughout the world.

The art of pharmaceutical compounding has ancient roots. Hunter-gatherer societies had some knowledge of the medicinal properties of the animals, plants, molds, fungi and bacteria as well as inorganic minerals within their environment. Ancient civilizations utilized pharmaceutical compounding for religion, grooming, keeping the healthy well, treating the ill and preparing the dead. These ancient compounders produced the first oils from plants and animals. They discovered poisons and the antidotes. They made ointments for wounded patients as well as perfumes for customers.

The earliest druggists were familiar with various natural substances and their uses. These drug artisans compounded a variety of preparations such as medications, dyes, incense, perfumes, ceremonial compounds and cosmetics. Drug compounders seeking gold and the fountain of youth drove the Alchemy movement. Alchemy eventually contributed to the creation of modern pharmacy and the principles of pharmacy compounding. In the medieval Islamic world in particular, Muslim pharmacists and chemists developed advanced methods of compounding drugs. The first drugstores were opened by Muslim pharmacists in Baghdad in 754, while the first apothecary shops were also founded by Muslim practitioners.

The modern age of pharmacy compounding began in the 19th century with the isolation of various compounds from coal tar for the purpose of producing synthetic dyes. From this one natural product came the earliest antibacterial sulfa drugs, phenolic compounds made famous by Joseph Lister.

During the 1800s, pharmacists specialized in the raising, preparation and compounding of crude drugs. Crude drugs, like opium, are from natural sources and usually contain multiple chemical compounds. The compounding pharmacist often extracted these crude drugs using water or alcohol to form extracts, concoctions and decoctions.

Pharmacists began isolating and identifying the active ingredients contained within these crude drug concoctions. Using fractionation or recrystallization, the compounding pharmacist would separate the active ingredients, like morphine, and use it in place of the crude drug. During this time modern medicine began.

With the isolation of medications from the «raw materials» or crude drugs came the birth of the modern pharmaceutical company. Pharmacists were trained to compound the preparations made by the drug companies, but they were unable to do it efficiently on a small scale. So economies of scale, not lack of skill or knowledge, produced a market for the modern pharmaceutical drug companies (Pharma).

With the turn of the 20th century came greater government regulation of the practice of medicine. These new regulations forced the drug companies to prove that any new medication they brought to market was safe. With the discovery of penicillin, modern marketing techniques and brand promotion, the drug manufacturing industry came of age. Pharmacists continued to compound most prescriptions until the early 1950s when the majority of dispensed drugs came directly from the large pharmaceutical companies.

Reading comprehension

I. After reading the text say if your ideas were right. Which new facts about pharmacy have you learned from the text?

II. <u>Find statements that are not true to the text and correct them</u>.

1. The mortar and pestle is an international symbol of pharmacists and pharmacies.
2. The pharma didn't operate through a retail shop.
3. The scope of pharmacy practice includes compounding and dispensing medications.
4. Pharmacists have one area of expertise.
5. Hunter-gatherer societies didn't have any knowledge of the medical properties of animals, plants, bacteria.
6. Muslim practitioners developed advanced methods of compounding drugs.
7. The modern age of pharmacy compounding began in the 20th century.
8. Pharmacists extracted crude drugs using water or alcohol to form extracts, concoctions and decoctions.

III. <u>Make up questions to which the following sentences might be the answers:</u>

1. They usually consist of a retail storefront with a dispensary where medications are stored and dispensed.

2. Ancient civilizations utilized pharmaceutical compounding for religion, grooming, preparing the dead.

3. They discovered poisons and the antidotes.

4. Economies of scale produced a market for the modern pharmaceutical drug companies.

5. The majority of dispensed drugs came directly from the large pharmaceutical companies.

6. Yes, Alchemy contributed to the creation of modern pharmacy.

IV. Add the beginnings to the following sentences:

a) … are health professionals who practise the science of pharmacy;

b) … often operated through a retail shop;

c) … is an internationally recognized symbol of pharmacy;

d) … consist of a retail storefront with a dispensary where medications are stored and dispensed;

e) … made ointments for wounded patients as well as perfumes for customers;

f) … developed advanced methods of compounding drugs;

g) … contributed to the creation of modern pharmacy.

V. Match the suitable adjective with the noun:

1.	Muslim	a.	shops
2.	Alchemy	b.	role
3.	natural	c.	ingredients
4.	apothecary	d.	pharmacists
5.	synthetic	e.	movement
6.	active	f.	advice
7.	raw	g.	minerals
8.	pharmaceutical	h.	materials
9.	medical	i.	dyes
10.	patent	j.	roots
11.	modern	k.	medicines
12.	traditional	l.	properties
13.	ancient	m.	substances
14.	medicinal	n.	company
15.	inorganic	o.	sciences

VI. Fill in the blanks. Use the right words from the text.

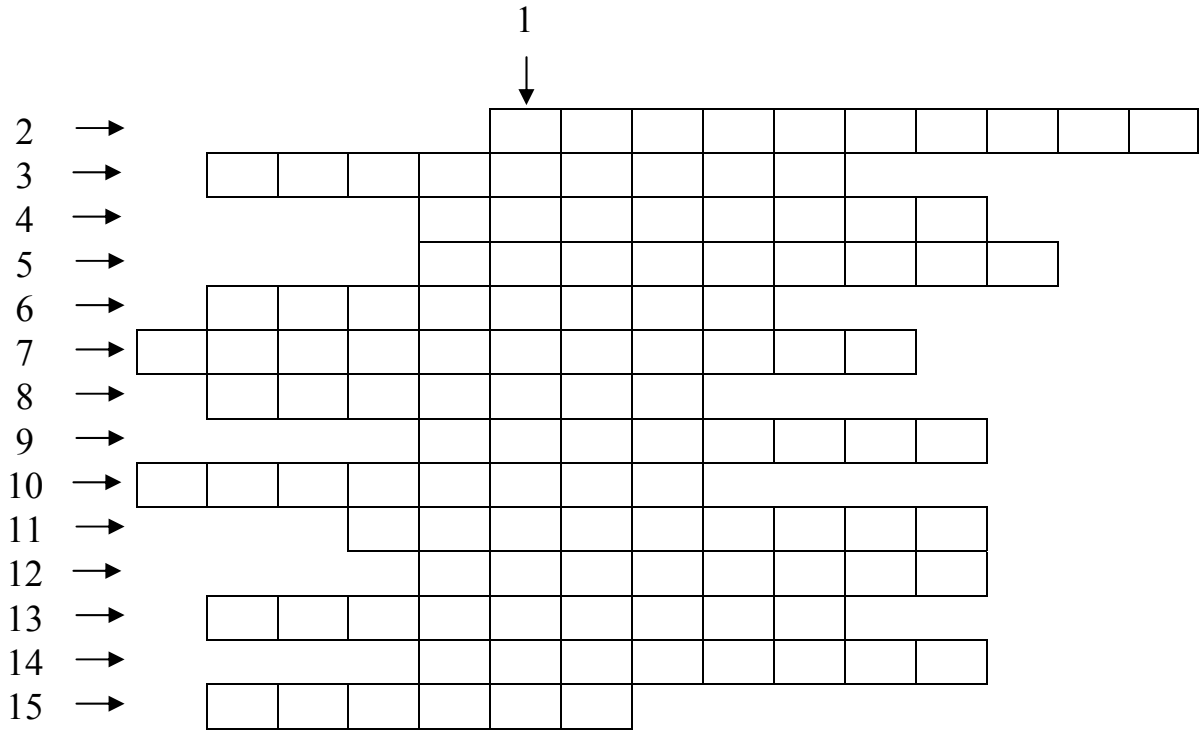
1) the symbol of … profession;

2) to be a … of the modern sciences;

3) ancient … of pharmaceutical compounding;

4) the birth of the … pharmaceutical company;
5) the investigation of herbal and … ingredients;
6) … methods of compounding drugs;
7) isolation of various … from coal tar;
8) to extract … drugs using water or alcohol;
9) the first … were opened by Muslim pharmacists;
10) drug … compounded a variety of preparations;
11) modern … of pharmacy began;
12) pharmacy is the … profession.

VII. Fill in the crossword using the proper words from the text:



1. … company;
2. compounding … ;
3. … dyes;
4. raw … ;
5. brand … ;
6. Alchemy … ;
7. to review … ;
8. natural … ;
9. clinical … ;
10. phenolic … ;
11. poisons and … ;
12. inorganic … ;
13. … properties;
14. wounded … ;
15. mortar and … .

VIII. Complete the sentences:

1. A pharmacy in the United Kingdom is called … .
2. In North America they call pharmacy … .
3. … is a historical name for a medical professional who dispenses drugs.
4. The … and … is an international symbol of pharmacists and pharmacies.
5. Pharmacy ensures … use of medication.
6. The word pharmacy is derived from the word … .
7. … often operated through a retail shop.
8. The work of the pharma is regarded as a … of the modern sciences of chemistry and pharmacology.
9. Pharmacists have many areas of … .
10. The ancient compounders produced … . They discovered … . They made… .
11. The earliest druggists were familiar with … .
12. Alchemy movement contributed to … .
13. … were opened by Muslim pharmacists.
14. Crude drugs usually contain multiple … .
15. … extracted crude drugs using … … to form extracts and decoctions.
16. The birth of the modern pharmaceutical company came … .
17. Economies produced … for the modern pharmaceutical drug companies.
18. Pharmacists continued to compound most prescriptions until … .

IX. Answer the following questions:

1. What do community pharmacies consist of?
2. What is a pharmacy?
3. What is it charged with?
4. What is the symbol of pharmacy?
5. What is the word «pharmacy» derived from?
6. What were the responsibilities of the pharma?
7. Is the pharma regarded as a precursor of any modern sciences?
8. What does the scope of pharmacy practice include?
9. What are the duties of pharmacists?
10. Do pharmacists ensure the safe and effective use of medications?
11. What knowledge did hunter-gatherer societies have?
12. What did ancient civilizations utilize pharmaceutical compounding for?
13. What did ancient compounders produce and discover?
14. What did they make for wounded patients and for the customers?
15. What did the earliest drug artisans compound?
16. What did Alchemy movement contribute to?
17. Who developed advanced methods of compounding drugs?
18. What was the role of Muslim practitioners?
19. When did the modern age of pharmacy compounding begin?

20. What drugs were made in the 19th century?
21. What did the pharmacists specialize in during the 1800s?
22. What did the pharmacists learn to do within crude drug concoctions?
23. What methods did the pharmacists use to separate the active ingredients?
24. When did the birth of the modern pharmaceutical company come?
25. Why did the economies of scale produce a market for the modern pharmaceutical drug companies?
26. What did the drug companies have to prove in the 20th century?
27. When did the drug manufacturing industry come of age?
28. When did the majority of dispensed drugs come directly from the large pharmaceutical companies?

X. Choose the suitable verb from the box to complete the phrases below:

to discover, to compound, to develop, to operate, to extract, to practise, to ensure, to perform, to offer, to investigate, to review, to dispense, to counsel, to have, to utilize, to provide, to produce, to sell

1) _____ the profession of pharmacy;
2) _____ the safe and effective use of medication;
3) _____ a range of services;
4) _____ general medical advice;
5) _____ through a retail shop;
6) _____ tobacco and patent medicines;
7) _____ herbal and chemical ingredients;
8) _____ medications for safety and efficacy;
9) _____ drug information;
10) _____ medications to the patients;
11) _____ on the proper use and adverse effects;
12) _____ many areas of expertise;
13) _____ pharmaceutical compounding for religion;
14) _____ the oils from plants and animals;
15) _____ poisons and antidotes;
16) _____ a variety of preparations;
17) _____ advanced methods of compounding drugs;
18) _____ crude drugs using water or alcohol.

XI. Put as many questions as you can to the following sentences:

a) The ancient compounders produced the first oils from plants and animals.
b) The earliest druggists were familiar with various natural substances.
c) The scope of pharmacy practice includes compounding and dispensing medications.

XII. <u>Reread the text and fill in the missing points so that you had the plan of the text:</u>

1. … .
2. The function of pharmacy.
3. The symbol which represents the pharmacy profession.
4. … .
5. The scope of pharmacy practice.
6. … .
7. The duties of pharmacists.
8. The first pharmaceutical knowledge.
9. … .
10. … .
11. Antibacterial substances.
12. Crude drugs.
13. … .
14. Pharmaceutical companies.
15. … .

XIII. Write a summary of the text.

XIV. <u>Discuss with your partners:</u>

1. Pharmacy is the health profession.
2. The duties of pharmacists.
3. The scope of pharmacy practice.
4. Compounding in ancient civilizations.
5. The modern age of pharmacy compounding.
6. The birth of modern pharmaceutical company.

UNIT 3

THE FATE OF DRUGS

GROUPS OF DRUGS

I. <u>Study the following information</u>:

a) Antianxiety drugs	These are an ill-defined group of drugs mostly mild CNS depressants which are aimed to control the symptoms of anxiety, produce a restful state of mind without interfering with normal mental or physical functions
b) Antidepressants	These are drugs which can elevate mood in depressive illness
c) Analgesic	A drug that selectively relieves pain by acting in the CNS or on peripheral pain mechanisms, without significantly altering consciousness. Analgesics relieve pain as a symptom without affecting its cause. They are divided into: narcotic/morphine like analgesics; non-narcotic/aspirin like/antipyretic or anti-inflammatory analgesics
d) CNS stimulants	These are drugs whose primary action is to stimulate the CNS globally or to improve specific brain functions
e) Analeptics (respiratory stimulants)	These are drugs which stimulate respiration and can have resuscitative value in coma or fainting
f) Antiarrhythmic drugs	These are drugs used to prevent or treat irregularities of cardiac rhythm
g) Antihypertensive drugs	These are drugs used to lower BP in hypertension
h) Diuretics	These are drugs which cause a net loss of Na+ and water in urine. Diuretics are used irrespective of etiology of edema — cardiac, hepatic or renal
i) Antiemetics	These are drugs used to prevent or suppress vomiting.
j) Laxatives (purgatives)	These are drugs that promote evacuation of bowels
k) Local anaesthetics	These are drugs which upon topical application or local injection cause reversible loss of sensory perception, specially of pain, in a restricted area of the body
l) Oral hypoglycaemic drugs, insulin	These drugs lower blood glucose levels and are effective orally. The chief draw back of insulin is — it must be given by injection
m) Antitussives	These are drugs that act in the CNS to raise the threshold of cough centre or act peripherally in the respiratory tract to reduce tussal impulses, or both these actions.

	Antitussives should be used only for dry unproductive cough or if cough disturbs sleep
n) Antimicrobial drugs (antibiotics)	These are substances produced by microorganisms which suppress the growth of or kill other microorganisms at very low concentrations
o) Anticoagulants	The aim of using anticoagulants is to prevent thrombus extension and embolic complications by reducing the rate of fibrin formation

***II. Complete the chart**:*

	Groups of drugs	**Symptom or disorder**
1.	antiarrhythmic	arrhythmia
2.	analeptics	
3.		pain
4.	diuretics	
5.		anxiety
6.		major depression
7.	antiemetics	
8.		constipation
9.		deep vein thrombosis
10.	antitussives	
11.		toothache
12.		myocardial infarction
13.	antihypertensive	
14.		dysentery
15.		diabetes mellitus

III. Find the disease in the right-hand column which can be treated with the following drugs:

1) antitubercular	a) allergic disorders
2) anticancer	b) angina pectoris
3) antimalarial	c) acute mania
4) antiviral	d) tuberculosis
5) antifungal	e) epilepsy
6) anti-ischaemic	f) cancer
7) antianginal	g) fungus
8) antimanic	h) influenza virus
9) antiepileptic	i) malaria
10) antihistaminics	j) ischaemic heart disease

IV. *Fill in the missing letters to complete the names of types of drugs below.*

Choose a suitable word from the box:

analgesics, anticoagulants, digitalis, decongestants, diuretics, tranquillizers, anti-emetics, stimulants, miracle drugs, sedatives, insulin, anti-inflammatory, laxatives, aspirin, narcotics.

1.				A	N	A	L	G	E	S	I	C	S		
2.				D											
3.				M											
4.				I-											
5.				N											
6.				I-											
7.				S											
8.				T											
9.				E											
10.				R											
11.				A											
12.				D											
13.				R											
14.				U											
15.				G											

1. A wide range of drugs to relieve pain.
2. They help to remove excess fluid from the body.
3. They increase activity.
4. These drugs are used to reduce and suppress swelling.
5. Excellent painkillers originally derived from opium.
6. These help suppress nausea and vomiting.
7. One of the best known drugs which anyone can buy and use to relieve pain, inflammation and fever.
8. They prevent blood clots forming.
9. They soothe patients and help them sleep.
10. These are used to calm people and relieve anxiety.
11. Taken to relieve constipation.
12. These help to clear a stuffy nose.
13. Antibiotics are sometimes given this name because of the rapid relief they bring to many infectious diseases.
14. It’s used in the treatment of diabetes.
15. It’s used to increase the performance of a weak heart.

DRUG TAKING

I. Read «some rules for drug taking» and discuss the following points with your partner:

a) Decide if it may cause harm or not if medicine is taken incorrectly. Why?
b) What do you think of alcohol and its influence on the effect of medicines?
c) When can medicines lose their effect?

If medicine is taken incorrectly, it may actually cause harm. As a rule, the prescription contains information about dosage, doses, time for taking it and the way of taking. But some patients don't always follow the prescribed instructions.

Here are *some rules for drug taking:*

1) Some medicines taken after meal can lose their effect. Hence pharmacological therapy follows this general rule: medicines having an organic structure should be taken one-half hour to one hour before meal-time.

2) Alcohol has a very negative influence on the effect of medicines. It intensifies the effect of histamines, barbiturates and tricyclic antidepressants. Alcohol increases the toxicity of barbiturates by more than 50 %.

3) Shake the bottle with liquids or the last dose can be too strong.

4) Keep the medicine in a cool place.

Answer the following questions:

1. What happens if medicine is taken incorrectly?
2. What information does the prescription contain?
3. What medicine should be taken one-half hour or one hour before meals?
4. Why are some medicines taken before meals?
5. What intensifies the effect of antidepressants?
6. What is the effect of alcohol?
7. Why is it necessary to shake the bottle with liquids?
8. Where must we keep medicines?

II. Try to answer the following questions after listening to the lecture «The action of Drugs»:

1. What does the term «compliance» mean?
2. What organs influence the action of drugs?
3. Why do older people need smaller doses of drugs?
4. What happens to the drugs taken by the patient orally?

III. Read and find the advantages of the routes of absorption.

ABSORPTION

Oral

The majority of drugs are administered for therapeutic purposes by mouth (orally), but a drug can only affect a tissue when it reaches the cells of which the

tissue is composed. If it is a local irritant, the drug may be evacuated by vomiting (emetic), or diarrhea (purgative). Some drugs are so poorly absorbed as to be of little value when given orally. This may be because their chemical nature is such that they are destroyed by the processes of digestion, for example the hormone insulin; or by the products of bacterial activity in the intestine, for instance benzylpenicillin; or very poorly absorbed because of physico-chemical properties which make it difficult for the molecule to penetrate the polarized membrane of the mucosal cell, for example hexamethonium.

Most water-soluble drugs given orally are absorbed more easily if they remain unionized. Absorption from the acid medium of the stomach may therefore differ markedly from absorption from the alkaline medium of the small intestine. Substances such as dextrose and alcohol, which are unionized, are absorbed readily from both; iron or calcium are absorbed with difficulty, and as a result of specialized acceptance and transfer systems of delicacy and complexity. If a drug is absorbed from the small intestine, it will pass via the hepatic portal blood to the liver; there it may be so catabolized that this route of administration is ineffective.

The difficulty may, on occasion, be overcome by applying the drug in pellet form under the tongue (sublingual). Absorption through this highly vascular mucosa is speedy and the venous drainage avoids the liver. Drugs so applied are isoprenaline, a dilator of the bronchi, and trinitrate, a dilator of the smaller arteries. Apart from special transport mechanisms, the rate and degree of absorption will be related to the concentration gradient across the absorbing surface, and such factor as the relative solubility of the drug in the oil and water. Since the semi-permeable cell membrane contains a fatty-acid layer, lipid solubility is a valuable attribute in a drug which is to be absorbed from the alimentary canal.

Inhalation

Gaseous and volatile drugs or those administered as a fine spray (aerosol) may be inhaled and absorbed from the respiratory tract or the alveolar surfaces. This is a very speedy route of absorption, and equilibrium is readily reached with the blood so that the degree of effect can be related closely to the concentration of drug administered.

Parenteral

The other main route is the parenteral, or by injection, thus avoiding the necessity for absorption across a mucosal barrier. Drugs given in this way have to be specially prepared in a sterile, stable, non-irritating form and dissolved in water which is free from pyrogens. Drugs parenterally injected are usually speedily and completely absorbed, but there are exceptions. Some are deliberately prepared in depot form so that absorption may be delayed and the effect prolonged, for example protamine zinc insulin.

A compressed tablet of a drug may be implanted under the skin, for instance implant of testosterone. Other drugs may be added to a complementary drug which affects absorption, for instance adrenaline is added to solutions of

the local anaesthetic lignocaine hydrochloride in order to constrict the blood vessels in the area of injection and thus to reduce the rate of absorption. Hyaluronidase, an enzyme which is extracted from bull testis, greatly facilitates the spread of injected solutions and thus increases the area for absorption.

If a drug is to be injected subcutaneously (hypodermically), such factors will affect the concentration attained in the blood. Similar considerations apply to injection of drugs intramuscularly. Here absorption may be speedier, more complete, and the presence of the drug may be less irritating. The ultimate sophistication is to inject the solution of the drug intravenously when it is totally absorbed, diluted in the blood, and rapidly distributed. There is a danger that a temporarily high concentration of the drug will affect a vital organ, for instance the heart or the brain. To the therapist this route is often justified where speed of effect is desired or a valuable drug is too irritant to inject into the tissues.

Rarely the qualitative nature of the response to a drug is dependent on the route by which it is administered, for example magnesium sulphate (Epsom salts) when administered by mouth is not absorbed, holds water by its osmotic power according to concentration, and acts as a saline purgative; if a solution is injected intravenously the magnesium ion depresses cerebral function. Excretion by the kidney then increases the volume of urine passed — a diuretic action.

The concentration of active drug available for absorption and the duration of action of the drug may be greatly modified by pharmaceutical processing. It is possible to combine an active drug with a resin or other «carrier» from which it is only slowly released, or to prepare the drug in a vehicle which offers varying degrees of resistance to the contents of stomach or intestine and thus delay the release of the drug. It is also possible to increase the absorbability of a compound and thus its efficacy by preparing it in very fine particles.

1. Prove the following statements by giving examples from the text:

a) Absorption in the stomach and in the small intestine.
b) Some drugs are poorly absorbed.
c) Absorption through highly vascular mucosa.
d) Absorption from the respiratory tract.
e) Drugs are speedily and completely absorbed.
f) The effect of a drug may be prolonged.
g) Complementary drug affects absorption.
h) A drug injected hypodermically.
i) To facilitate the speed of injected solution.
j) Total absorption and rapid distribution.
k) Response of a drug is dependent on the route by which it is administered.

2. ***Match the words on the right with the word combination on the left***:

1. by injection	a) sublingual
2. as a fine spray	b) purgative
3. by vomiting	c) parenteral
4. by diarrhea	d) oral
5. from under the tongue	e) emetic
6. subcutaneously	f) aerosol
7. by mouth	g) hypodermical

3. Answer the questions:

1) Some drugs are of little value when given orally, aren't they? Why?
2) What may happen to: a) insulin; b) benzylpenicillin; c) hexamethonium?
3) In what case are water-soluble drugs absorbed more easily?
4) May absorption from the acid medium of the stomach differ from absorption from the alkaline medium of the small intestine?
5) How are iron and calcium absorbed?
6) Where does a drug pass if it is absorbed from the small intestine?
7) What are the advantages of sublingual way of absorption?
8) Why is inhalation a very speedy route of absorption?
9) How are drugs given by injection prepared?
10) What may be implanted under the skin?
11) Why is adrenaline added to solutions of anaesthetics?
12) What are the effects of intramuscular injections?
13) What kind of absorption is in case of an intravenous injection?
14) What is the advantage of introducing a drug intravenously?
15) What is the importance of preparing the drug in a vehicle?
16) How is it possible to increase the absorbability of a drug?

4. ***Write a summary of the text.***

5. Make up a «Round-Table Talk» on the topic «Absorption».

IV. There is a lot of language used by drug users which has a special meaning in the drug world. The language tested below includes some of the more common terms.

What does a drug taker mean by the following? Choose the correct answer.

1. I need a fix!
   a) a pill;
   b) time to lie down;
   c) an injection;
   d) a tourniquet.

2. He's clean!
   a) stopped taking drugs;
   b) sells only pure drugs;
   c) buys drugs;
   d) conceals drugs by swallowing them.
3. When did you shoot up?
   a) conceal drugs;
   b) take an injection;
   c) begin taking drugs;
   d) buy drugs.
4. He's hooked.
   a) preparing to inject;
   b) addicted to drugs;
   c) in prison;
   d) in hospital.
5. She takes hard stuff.
   a) sedatives;
   b) LSD;
   c) cocaine and opiates;
   d) cannabis.
6. Have you got the machinery?
   a) morphine;
   b) supplier's phone number;
   c) equipment for injecting;
   d) a place to hide.
7. She's registered.
   a) obtains a regular prescription for drugs;
   b) is known by the police;
   c) knows where to buy drugs illegally;
   d) has been taken into hospital.
8. I need a script!
   a) a pack of clean needles;
   b) an injection;
   c) a pill;
   d) a prescription.
9. Who's the dealer?
   a) doctor;
   b) supplier;
   c) addict;
   d) heroin taker.
10. She does pipes.
   a) smokes crack cocaine;
   b) conceals drugs in the vagina;

c) injects intravenously;
d) inhales heroin fumes.

11. He's a junkie.
a) heroin taker;
b) stopped taking drugs;
c) police informer;
d) a doctor willing to prescribe drugs.

INSTRUCTIONS ON DRUG ADMINISTRATION

I. Complete the following sentences. Choose from the box. Some words may be used more than once.

Giving instructions on drug administration

apply, carry, chew, continue, dissolve, inhale, lay, put, rub, sip, spray, stick, take

1. _____ a little of this ointment on his chest each morning.
2. _____ two of these tablets twice a day.
3. _____ two puffs in each nostril twice a day.
4. _____the cream to the affected areas every morning.
5. Don't _____ these tablets. Swallow them whole.
6. Ask your brother to help you _____ two drops into each ear in the morning.
7. It's best to _____the patch on your thigh or lower back.
8. You should _____ this insulin kit with you at all times.
9. Just _____ the lozenge under the tongue and allow it to _____ slowly.
10. Make a hot drink and _____ it slowly.
11. _____ one teaspoonful in half a liter of hot water and _____ the steam.
12. Make sure you _____ with these pills until they're all finished, even if you think you're better!

II. Read the instructions below and do the following tasks:

***1. Fill in the following table after reading the instructions*:**

1.	**Name of the drug**	**Piriton Allergy**	**Panadol extra soluble**	**Ringer's solution**	**Medy-flex ointment**
2.	Description of the medicine				
3.	Composition				
4.	Indications				
5.	Contraindications				
6.	Dosage				
7.	How to take the drug				
8.	Side-effects				
9.	Cautionary notes				
10.	Storing				

2. ***Try to answer the following questions*****:**

1) Which of the drugs is used orally?
2) What medicine is used as an ointment?
3) How are soluble tablets taken?
4) In what case must we use Ringer's solution?

3. ***Work in pairs. Act out the following:***

1. Recommend Panadol Extra Soluble tablets to the patient who has come to the chemist's shop. Describe its positive effects.

2. A patient asks you the directions for the administration of Piriton Allergy. Explain how the tablets work, what they are for, how to take the tablets, their side effects and storing.

3. Discuss the indications of Ringer's Solution for irrigation, when the solution may be used, when it mustn't be used.

4. Tell your desk-mate what the ointment is used for, how we must keep and store it.

MEDI-FLEX OINTMENT

Povidone Iodine Ointment, 10 %.

— Antiseptic.
— Keep out of eyes.
— For external use only.
— Net wt. 1 g

FOR SINGLE USE: contains 1 % available iodine.

Directions: to help prevent infection in minor burns, cuts and abrasions. Apply directly to affected area as needed. May be bandaged.

FOR PROFESSIONAL USE.

Caution: in case of deep or puncture wounds or serious burns, consult physician. If redness, irritation, swelling or pain persists or increases, or if infection occurs, discontinue use and consult physician. Keep out of reach of children. Store at room temperature 15–30 ºC (59–86 ºF)

MEDI-FLEX.

— quality through innovation.
— OVERLAND PARK, KS 66210.

PIRITON ALLERGY

What you should know about Piriton Allergy tablets (chlorpheniramine maleate Ph. Eur. 4 mg).

Please read it before you take the tablets. If there is anything you do not understand, ask your pharmacist to explain it to you.

What are piriton allergy tablets:

Piriton Allergy tablets are round, yellow tablets engraved with a P to one side of the break line. Each tablet contains 4 mg of the antihistamine chlorpheniramine maleate. The tablets also contain lactose, maize starch, magnesium stearate, and the colouring material yellow iron oxide (E172). This pack contains 30 tablets.

Who makes piriton allergy tablets:

Piriton Allergy tablets are manufactured by Medeva Pharma Limited, Vale of Bardsley, Ashton-Under-Lyne, Lancashire, OL7 9RR. The product licence is held by Stafford-Miller Ltd., Broadwater Road, Welwyn Garden City, Herts., AL7 3SP. UK.

How do piriton allergy tablets work:

Piriton Allergy tablets contain an antihistamine. Histamine is a chemical released into the body during an allergic reaction. It causes itching and inflammation. Piriton Allergy tablets block the effects of histamine, calming down the body's allergic reaction and starting to relieve the symptoms within half an hour.

What are piriton allergy tablets for:

Piriton Allergy tablets are used to treat allergies. They relieve the itchiness, redness, swelling, tenderness and irritation associated with many skin problems.

You can take Piriton Allergy tablets for things like nettle rash, hives, heat rash, prickly heat, dermatitis, reactions to food, food additives or medicines, insect bites or stings.

Piriton Allergy tablets also relieve the sneezing and itchy, watery eyes and nose associated with hayfever.

Before you take your medicine:

- Are you allergic to any of the ingredients?
- Have you taken monoamine oxidase inhibitor (MAOI) treatment in the last 14 days?
- Are you pregnant or breast feeding?
- Do you have epilepsy, glaucoma, an enlarged prostate, an overactive thyroid, very high blood pressure, heart, liver or chest disease?
- Are you taking drugs to treat anxiety or help you sleep?
- Are you taking any medicine containing phenytoin for epilepsy?

If the answer to any of these questions is YES, tell your doctor or pharmacist immediately.

Do not drink alcohol whilst taking this medicine.

If these tablets make you feel drowsy, do not drive or operate machinery.

How to take your tablets

Swallow the tablet with a drink of water.

Adults: 4 mg (one tablet) every four to six hours (maximum 24 mg in one day).

Children aged 6–12: 2 mg (half a tablet) every four to six hours (maximum 12 mg in one day).

Not recommended for children under 6.

For children aged 1 year and over, Piriton Syrup is available.

Do not take more than the recommended dose.

If you accidentally take more than this then contact a doctor immediately.

DO NOT DRIVE.

If symptoms persist consult your doctor.

Are there any side effects:

The vast majority of people do not have any problems after taking Piriton Allergy tablets although all medicines can occasionally upset some people. The commonest side effect is drowsiness. This drowsiness can be helpful if symptoms are particularly troublesome at night.

Less common side effects:

- A few people may get an upset tummy, have blurred vision, headaches, difficulty in passing water, dry mouth, muscular inco-ordination, become jaundiced (go yellow), feel their heart beating faster, have chest tightness, ringing in the ears or feel dizzy.
- Allergic reactions to the tablet (for example rash, itching), blood problems, irritability or nightmares can very occasionally occur.
- Although very rare, elderly people can become confused or children become excitable.

If you feel your medicine has upset you in any way, tell your doctor or pharmacist.

Storing your medicine:

- Keep your tablets in a safe place WHERE CHILDREN CANNOT REACH THEM.
- Store the tablets in a dry place at room temperature below 30 ºC (86 ºF).
- Do not use after the date shown as «EXP» on the pack.

RINGER'S SOLUTION FOR IRRIGATION

Solution for irrigation and wound lubrication

Composition: 1 l contains:

— sodium chloride: 8,6 g.
— Potassium chloride: 0,3 g.
— Calcium chloride 2 H_2O: 0,33 g.
— Na^+: 147,2 mmol/l.

— K+: 4 mmol/l.
— Ca++: 2,25 mmol/l.
— Cl–: 155,7 mmol/l.
— Hydrochloric acid.
— Sodium hydroxide.
— Water.
— ph-valve: 5,0–7,0.
— titrations acidity: < 1 mmol NaOH/1.
— theoretical osmolarity: 309 mosm/l.

Indications: Irrigation solution for internal and external use:
— during operative procedures to rinse the area being operated on and to keep body tissues moist;
— For the lubrication of surgical tampons and dressings;
— For the irrigation of wounds in cases of external trauma and burns;
— For irrigation during diagnostic examinations.

Contraindications: None have been reported.
Side effects: None have been reported.
Interaction: None have been reported.

Dosage: For internal and external irrigation.
Application: For the lubrication of wounds and surgical dressings. Unless otherwise prescribed, the amount of solution required corresponds to the area of application.

Note: Do not use for intravenous injection or infusion. The sterility and apyrogenicity of Ringer's Solution are guaranteed only until the opening of the container. The contents must be used at once. Do not keep any remaining solution for later use. Discard all left-over solution.
Keep out of the reach of children.
Do not use Ringer's Solution for Irrigation after the expiry date.
Use only if the solution is clear and the container undamaged.

Presentation 10 bags of 1 000 ml each in one carton.
4 bags of 3 000 ml each in one carton.
2 bags of 5 000 ml each in one carton.
Container of 10 l.

PANADOL EXTRA SOLUBLE TABLETS

Description

Panadol Extra Soluble contains an additional ingredient to provide extra relief from pain is based on paracetamol, which is gentle on the stomach. This special Panadol Extra Soluble Tablets formulation is absorbed into the bloodstream faster than conventional tablets to provide fast and effective pain relief. Each effervescent tablet contains Paracetamol Ph. Eur. 500 mg and Caffeine Ph. Eur. 65 mg.

Indications

Panadol Extra Soluble is suitable for headache, migraine, backache, rheumatic and muscle pains, neuralgia, toothache and period pains. Panadol Extra Soluble also relieves discomfort in colds, influenza, sore throats and helps reduce temperature. Panadol Extra Soluble contains no aspirin.

Dosage

ADULTS: 2 tablets dissolved in at least half a tumblerful of water up to 4 times daily.

- Dose should not be repeated more frequently than every 4 hours.
- No more than 8 tablets should be given in 24 hours.
- Panadol Extra Soluble should only be given to children under 12 years of age on medical advice.

Cautionary notes

Do not exceed the stated dose. If symptoms persist, consult your doctor. Avoid drinking too much tea or coffee whilst taking this product. For professional advice on medicines consult your pharmacist.

Keep out of the reach of children.

Store below 30 ºC.

STERLING HEALTH — Guildford, Surrey. Made in England.

III. <u>Using the prescribing information, choose the most appropriate antibiotic for these patients.</u>

1. A 4 year old boy with meningitis due to pneumococcus. He is allergic to penicillin.
2. A 67 year old man with a history of chronic bronchitis now suffering from pneumonia. The causative organism is resistant to tetracycline.
3. A 27 year old woman with urinary tract infection in early pregnancy. She complains of nausea.
4. A 4 year old girl with septic arthritis due to haemophilus influenzae.
5. An 18 year old man with left leg amputation above the knee following a road traffic accident.
6. A 50 year old woman with endocarditis caused by strep. viridans.

7. A 13 year old girl with disfiguring acne.
8. An 8 year old boy with tonsillitis due to B-haemolytic streptococcus.
9. A 43 year old dairyman with brucellosis.
10. A 4 year old unimmunised sibling of a 2 year old boy with whooping cough.

AMPICILLIN

Indications: urinary-tract infections, otitis media, chronic bronchitis, invasive salmonellosis.

Cautions: history of allergy; renal impairment.

Contra-indications: penicillin hypersensitivity.

Side-effects: sensitivity reactions, fever, joint pains; angioedema; anaphylactic shock in hypersensitive patients; diarrhea after administration by mouth, erythematous rashes in glandular fever and chronic lymphatic leukaemia; reduce dose in renal impairment.

Dose: orally, 0,25–1 g every 6 hours, at least 30 minutes before food.

Urinary-tract infections, 500 mg every 8 hours.

By intramuscular injection or intravenous injection or infusion, 500 mg every 4–6 hours; higher doses in meningitis.

CHILD, any route, ½ adult dose.

BENZYLPENICILLIN (Penicillin G)

Indications: tonsillitis, otitis media, erysipelas, streptococcal endocarditis, meningococcal and pneumococcal meningitis, prophylaxis in limb amputation.

Cautions: history of allergy; renal impairment.

Contra-indications: penicillin hypersensitivity.

Side-effects: sensitivity reactions, fever, joint pains; angioedema; anaphylactic shock in hypersensitive patients; diarrhea after administration by mouth.

Dose: by intramuscular injection, 300–600 mg 2–4 times daily; CHILD up to 12 years, 10–20 mg/kg daily; neonate, 30 mg/kg daily.

By intravenous infusion, up to 24 g daily.

By intrathecal injection, 6–12 mg daily.

Prophylaxis in dental procedures and limb amputation.

CO-TRIMOXAZOLE

A mixture of sulphamethoxazole 5 parts, trimethoprim 1 part.

Indications: invasive salmonellosis, typhoid fever, bone and joint infections due to Hodgkin's influenzae, urinary-tract infections, sinusitis, exacerbations of chronic bronchitis.

Cautions: blood counts in prolonged treatment, maintain adequate fluid intake, renal impairment, breast-feeding; photosensitivity.

Contra-indications: pregnancy, infants under 6 weeks, renal or hepatic failure, jaundice, blood disorders.

Side-effects: nausea, vomiting, rashes, erythema multiforme, epidermal necrolysis, eosinophilia, agranulocytosis, granulocytopenia, purpura, leucopenia; megaloblastic anaemia due to trimethoprim.

Dose: orally, 960 mg every 12 hours, increased to 1,44g in severe infections; 480 mg every 12 hours if treated for more than 14 days; child, every 12 hours, 6 weeks to 5 months, 120 mg; 6 months to 5 years, 240 mg; 6–12 years, 480 mg.

By intramuscular injection or intravenous infusion, 960 mg every 12 hours.

Note: 480 mg of co-trimoxazole consists of sulphamethoxazole 400 mg and trimethoprim 80 mg.

ERYTHROMYCIN

Indications: alternative to penicillin in hypersensitive patients; sinusitis, diphtheria and whooping cough prophylaxis; legionnaires' disease; chronic prostatitis.

Cautions: hepatic impairment.

Contra-indications: estolate contra-indicated in liver disease.

Side-effects: nausea, vomiting, diarrhea after large doses.

Dose:orally, 250–500 mg every 6 hours; child, 125–250 mg every 6 hours

By slow intravenous injection or infusion, 2g daily in divided doses, increased to 4 g in severe infections; child, 30–50 mg/kg daily in divided doses.

GENTAMICIN

Indications: septicaemia and neonatal sepsis; meningitis and other CNS infections; biliary tract infection, acute pyelonephritis or prostatitis, endocarditis caused by Strep. viridans or faecalis (with penicillin).

Cautions: increase dose interval in renal impairment.

Contra-indications: pregnancy, myasthenia gravis.

Side-effects: vestibular damage, reversible nephrotoxicity.

Dose: by intramuscular injection or slow intravenous injection or infusion, 2–5 mg/kg daily, in divided doses every 8 hours. In renal impairment the interval between successive doses should be increased to 12 hours when the creatinine clearance is 30–70 ml/minute, 24 hours for 10–30 ml/minute, 48 hours for 5–10 ml/minute, and 3–4 days after dialysis for less than 5 ml/minute.

Child, up to 2 weeks, 3 mg/kg every 12 hours; 2 weeks — 12 years, 2 mg/kg every 8 hours.

By intrathecal injection, 1 mg daily, with 2–4 mg/kg daily by intramuscular injection in divided doses every 8 hours.

PHENOXYMETHYLPENICILLIN (Penicillin V)

Indications: tonsillitis, otitis media, erysipelas, rheumatic fever prophylaxis, endocarditis prophylaxis.

Cautions: history of allergy; renal impairment.

Contra-indications: penicillin hypersensitivity.

Side-effects: sensitivity reactions, fever, joint pains; angioedema; anaphylactic shock in hypersensitive patients; diarrhea after administration by mouth.

Dose: 250–500 mg every 6 hours, at least 30 minutes before food; child, every 6 hours, up to 1 year 62,5 mg, 1–5 years — 125 mg, 6–12 years 250 mg.

TETRACYCLINE

Indications: exacerbations of chronic bronchitis; infections due to brucella, mycoplasma, and rickettsia; severe acne vulgaris.

Cautions: breast-feeding; rarely causes photosensitivity. Avoid intravenous administration in hepatic impairment.

Contra-indications: renal failure, pregnancy, children under 12 years of age.

Side-effects: nausea, vomiting, diarrhea; super-infection with resistant organisms; rarely allergic reactions.

Dose: by mouth, 250–500 mg every 6 hours.

By intramuscular injection, 100 mg every 8–12 hours, or every 4–6 hours in severe infections.

By intravenous infusion, 500 mg every 12 hours; maximum 2 g daily.

THE EFFECTS OF DRUGS

I. Choose a suitable verb from the box to complete the phrases below. Use each one once only.

alleviate, be absorbed, cause, dilate, have, impair, interfere, promote, reduce, soothe, stimulate, suppress, replace.

The effects of drugs:

1) _____ sleep;
2) _____ into the blood stream;
3) _____ the production of hormones;
4) _____ with other drugs;
5) _____ nausea;
6) _____ an inhibitory effect;
7) _____ the ability to drive;
8) _____ the blood vessels;
9) _____ side effects;
10) _____ the heart rate;
11) _____ pain;
12) _____ inflammation;
13) _____ abnormal losses of body fluids.

II. Read the texts using a dictionary:

Text 1

Drug dosage

«Dose» is the appropriate amount of a drug needed to produce a certain degree of response in a patient. Accordingly, dose of a drug has to be qualified in terms of the chosen response, for example the analgesic dose of aspirin for headache is 0,3–0,6 g, while its anti-inflammatory dose for rheumatoid arthritis is 3–6 g per day. Similarly there could be prophylactic dose, a therapeutic dose or a toxic dose of the same drug.

The dose of a drug is governed by its inherent potency, or the concentration at which it should be present at the target site, and its pharmacokinetic characteristics. In addition, it is modified by a number of factors. However, different strategies are adopted for individualizing drug dosage.

1. Standard dose. The same dose is appropriate for most patients — individual variations are minor or the drug has a wide safety margin so that enough can be given to cover them, for example oral contraceptives, penicillin, chloroquine, mebendazole, amantadine.

2. Regulated dose. The drug modifies a finely regulated body function which can be easily measured. The dosage is accurately adjusted by repeated measurement of the affected physiological parameter, for instance antihypertensives, hypoglycaemics, anticoagulants, diuretics, general anaesthetics.

3. Target level dose. The response is not easily measurable but has been demonstrated to be obtained at a certain range of drug concentration in plasma. An empirical dose aimed at attaining the target level is given in the beginning and adjustments are made later by actual monitoring of plasma concentrations. When facilities for drug level monitoring are not available, crude adjustments are made by observing the patient at relatively long intervals, for example antidepressants, antiepileptics, digoxin, lithium,theophylline.

4. Titrated dose. The dose needed to produce maximal therapeutic effect cannot be given because of intolerable adverse effects. Optimal dose is arrived at by titrating it with an acceptable level of adverse effect. Low initial dose and upward titration (in most non-critical situations) or high initial dose and downward titration (in critical situations) can be practised. Often a compromise between submaximal therapeutic effect but tolerable side effects can be struck, for instance anticancer drugs, corticosteroids, levodopa.

1. Add the missing parts:

1. «Dose» is … .
2. Analgesic dose of aspirin for headache is … .
3. Anti-inflammatory dose of aspirin for rheumatoid arthritis is … .
4. The dose of a drug is governed by … .
5. The same dose is appropriate for … .

6. The dosage is accurately adjusted by … .
7. An empirical dose is given in the beginning and adjustments … .
8. Optimal dose is arrived at by titrating it … .
9. Different strategies are adopted … .
10. … is modified by a number of factors.

2. Answer the following questions:

1. What different types of doses do you know?
2. Give the definition of a «dose».
3. What is the analgesic dose of aspirin for headache?
4. What is the anti-inflammatory dose of aspirin for rheumatoid arthritis?
5. What is the dose of a drug governed by?
6. Is the same dose appropriate for most patients?
7. How do you understand the regulated dose?
8. When is an empirical dose given?
9. When are crude adjustments made?
10. What is a target level dose?
11. What is a titrated dose?

3. Fill in the chart:

Dose of the drug	**medicine**
standard dose	penicillin
…	antihypertensives
…	anticancer drugs
…	amantadine
…	diuretics
regulated dose	… …
…	antidepressants

Text 2

Adverse drug effects

Adverse effect is «any undesirable or unintended consequence of drug administration». It is a broad term, includes all kinds of noxious effect — trivial, serious or even fatal.

For the purposes of detecting and quantifying only those adverse effects of a drug which are of some import and occur in ordinary therapeutic setting, the term *adverse drug reaction* has been defined as «any noxious change which is suspected to be due to a drug, occurs at doses normally used in man, requires treatment or decrease in dose or indicates caution in the future use of the same drug». This definition excludes trivial or expected side effects and poisonings or overdose.

All drugs are capable of producing adverse effects and whenever a drug is given a risk is taken. The magnitude of risk has to be considered along with magnitude of expected therapeutic benefit in deciding whether to use or not to use a particular drug in a given patient, for example even risk of bone marrow depression may be justified in treating cancer while mild drowsiness caused by an antihistaminic in treating common cold may be unacceptable.

Adverse effects may develop promptly or only after prolonged medication or even after stoppage of the drug. Adverse effects are not rare; an incidence of 10–25 % has been documented in different clinical settings. They are more common with multiple drug therapy and in the elderly. Adverse effects have been classified in many ways. One may divide them into:

Predictable (Type A) reactions. These are based on pharmacological properties of the drug; include side effects, toxic effects and consequences of drug withdrawal. They are more common, dose related and mostly preventable.

Unpredictable (Type B) reactions. These are based on peculiarities of the patient and not on drug's known actions; include allergy and idiosyncrasy. They are less common, often non-dose related, generally more serious and require withdrawal of the drug. Some of these reactions can be predicted and prevented if their genetic basis is known and suitable test to characterize the individual's phenotype is performed.

Severity of adverse drug reactions has been graded as*:*

Minor: No therapy, antidote or prolongation of hospitalization required.

Moderate: Requires change in drug therapy, specific treatment or prolongs hospital stay by at least one day.

Severe: Potentially life threatening, causes permanent damage or requires intensive medical treatment.

Lethal: Directly or indirectly contributes to death of the patient.

Prevention of adverse effects to drugs

Adverse drug effects can be minimized but not altogether eliminated by observing the following practices:

1. Avoid all inappropriate use of drugs in the context of patient's clinical condition.
2. Use appropriate dose, route and frequency of drug administration based on patient's specific variables.
3. Elicit and take into consideration previous history of drug reactions.
4. Elicit history of allergic diseases and exercise caution (drug allergy is more common in patients with allergic diseases).
5. Rule out possibility of drug interactions when more than one drug is prescribed.
6. Adopt correct drug administration technique (for example intravenous injection of aminophylline must be slow).
7. Carry out appropriate laboratory monitoring (for instance prothrombin time with warfarin, serum drug levels with lithium).

1. Side effects

These are unwanted but often unavoidable pharmacodynamic effects that occur at therapeutic doses. They can be predicted from the pharmacological profile of a drug and are known to occur in a given percentage of drug recipients. Reduction in dose generally ameliorates the symptoms.

A side effect may be based on the same action as the therapeutic effect, for example atropine is used in preanaesthetic medication for its antisecretory action — produces dryness of mouth as a side effect; acetazolamide acts as a diuretic by promoting bicarbonate excretion — acidosis occurs as a side effect.

Side effect may also be based on a different facet of action, for example promethazine produces sedation which is unrelated to its antiallergic action; estrogens cause nausea which is unrelated to their antiovulatory action.

Many drugs have been developed from observation of side effects, for instance sulfonamides used as antibacterial were found to produce hypoglycaemia and acidosis as side effects which directed research resulting in the development of hypoglycaemic sulfonylureas and carbonic anhydrase inhibitor — acetazolamide.

2. Secondary effects

These are indirect consequences of a primary action of the drug, for example suppression of bacterial flora by tetracyclines paves the way for superinfections; corticosteroids weaken host defence mechanisms so that latent tuberculosis gets activated.

3. Toxic effects

These are the result of excessive pharmacological action of the drug due to overdosage or prolonged use. Overdosage may be absolute (accidental, homicidal, suicidal) or relative (or usual dose of gentamicin in presence of renal failure). The effects are predictable and dose related. They result from functional alteration (high dose of atropine causing delirium) or drug induced tissue damage (hepatic necrosis from paracetamol overdosage). The CNS, CVS, kidney, liver, lung, skin and blood forming organs are most commonly involved in drug toxicity.

4. Intolerance

It is the appearance of characteristic toxic effects of a drug in an individual at therapeutic doses. It is the converse of tolerance and indicates a low threshold of the individual to the action of a drug.

- A single dose of triflupromazine induces muscular dystonias in some individuals, specially children.
- Only few doses of carbamazepine may cause ataxia in some people.
- One tablet of chloroquine may cause vomiting and abdominal pain in a occasional patient.

5. Idiosyncrasy

It is genetically determined abnormal reactivity to a chemical. Certain adverse effects of some drugs are largely restricted to individuals with a

particular genotype. In addition, certain uncharacteristic or bizarre drug effects due to peculiarities of an individual (for which no definite genotype has been described) are included among idiosyncratic reactions, for example:

- Barbiturates cause excitement and mental confusion in some individuals.
- Quinine/quinidine cause cramps, diarrhea, purpura, asthma, vascular collapse in some patients.

6. Drug allergy

It is an immunologically mediated reaction producing stereotype symptoms which are unrelated to the pharmacodynamic profile of the drug and are largely independent of dosage. This is also called drug hypersensitivity; but does not refer to increased response which is called supersensitivity.

Allergic reactions occur only in a small proportion of the population exposed to the drug and cannot be produced in other individuals at any dose. Chemically related drugs often show cross sensitivity. One drug can produce different types of allergic reactions in different individuals, while widely different drugs can produce the same reaction. The course of drug allergy is variable; an individual previously sensitive to a drug may subsequently tolerate it without a reaction and vice versa.

Answer the following questions:

1. What is an adverse effect?
2. When does an adverse drug reaction occur?
3. Are all drugs capable of producing adverse effects?
4. What happens whenever a drug is given?
5. When may adverse effects develop?
6. How are adverse effects classified?
7. What are predictable reactions based on?
8. What are unpredictable reactions based on?
9. Which of them are more common?
10. Which of them are more serious?
11. In what case can some of these reactions be prevented?
12. Describe the severity of adverse drug reactions.
13. Can adverse drug effects be eliminated?
14. What must we do to prevent or minimize adverse drug effects?
15. What is a side effect? What is it based on?
16. What do we call secondary effects?
17. What are toxic effects?
18. What organs are most commonly involved in drug toxicity?
19. Give the examples of intolerance.
20. What is idiosyncrasy? Give examples.
21. Who may have allergic reactions?
22. Can one drug produce different types of allergic reactions in different individuals?

UNIT 4

ADDITIONAL READING

I. Read the text once and say what it is about.

Text 1

Doctor's Prescription

I remember going to the British Museum one day to read up the treatment for some slight illness of which I had a tough … I got down the book and read all I came to read and then, in an unthinking moment, I turned the pages and began to study illnesses generally. I forget which was the first I read but before I had looked down the list of symptoms, I was sure that I had got it.

I sat for a time in horror; and then I again turned over the pages. I came to typhoid fever — read the symptoms — discovered that I had typhoid fever — wondered what else I had got, and so started to read alphabetically. I read through the 26 letters and found out that I had got all the illnesses but one.

I sat and thought what an interesting case I must be from a medical point of view. Students would have no need to walk the hospitals if they had me. I was a hospital in myself. All they needed to do would be to walk round me, and, after that, take their diploma.

Then I wondered how long I had to live. I tried to examine myself. I felt my pulse. I could not at first feel my pulse at all. Then, all of a sudden, it seemed to start off. I took out my watch and timed it. I made it a hundred and forty-seven to the minute. I tried to feel my heart. But I could not feel or hear anything … I went to my medical man. He is an old friend of mine, and feels my pulse, and talks about the weather, all for nothing, when I think I'm ill.

«What a doctor wants,» I said, «is practice. He will have me. He will get more practice out of me than out of 1 700 patients.»

So I went straight up. The doctor looked at me and said:

«Well, what's the matter with you?»

I said, «I shall not take up your time, dear boy, with telling you what is the matter with me. Life is short and you might die before I had finished. But I shall tell you what is not the matter with me.»

And I told him everything.

Then he opened me and looked down me. After that, he sat down and wrote out a prescription, and gave it to me, and I put it in my pocket and went out.

I did not open it. I took it to the nearest chemist's and handed it in. The man read it, and then handed it back. He said he didn't keep it.

I said, «Are you a chemist?»

He said, «I am a chemist, not a co-operative store and family hotel combined.»
I read the prescription:
«1 pound of beefsteak, with
1 bottle of beer every six hours.
1 ten-mile walk every morning.
1 bed at 11 every night.
And don't fill up your head with things you don't understand.»

From «Three Men in a Boat» (by Jerome K. Jerome)

II. Check your understanding of the text. Mark the right sentences.

1. The man read a technical book in the British Museum.
2. He studied all the illnesses described in the book.
3. He found out that he had all the illnesses.
4. The man examined himself and couldn't at first feel his pulse and his heart.
5. The man wanted his doctor to get medical practice out of him.
6. The man wanted the doctor to examine him.
7. The doctor examined the patient and found him very ill.
8. The chemist gave the man the medicine.
9. The chemist gave the prescription back to the man because he did not need any medicine.
10. He was really a very sick man.

Text 2

A Teaspoonful of Pharma

Pharmacy is the science which treats of medicinal substances. It deals not only with medicines and the art of compounding and dispensing them, but with their combination, analysis and standardization.

The word «pharmacy» is also used to define the place where medicines are compounded, dispensed and sold. The title «pharmacist» is conferred upon a person who demonstrates that he is scientifically and professionally capable to engage in the practice of pharmacy. The compounding of medicines which requires the scientific combination of two or more ingredients and their dispensing demand special knowledge, experience and high professional standards. To become a pharmacist one should achieve knowledge of different subjects, such as physics, chemistry, botany etc.

Pharmacognozy is the science, dealing with the history, source, cultivation, collection, preparation, distribution, composition, purity and preservation of drugs of vegetable and animal origin.

Pharmacology is the science of drugs. The two main divisions of pharmacology are pharmacodynamics and pharmacokinetics. Pharmacodynamics (Greek: *«dynamis»* — power) — what the drug does to the body. This includes physiological and biochemical effects of drugs and their mechanism of action.

Pharmacokinetics (Greek: *«Kinesis»* — movement) — what the body does to the drug. This refers to the movements of the drug in and alteration of the drug by the body; includes absorption, distribution etc.

A Pharmacopoeia is a book containing a list of medical substances with formulae for their preparation.

The pharmacopoeia describes also the proper method of packing and storing the drug.

Notes:

1) medical substances — лекарственные вещества;
2) dispensing — расфасовка;
3) constitution — состав;
4) property — свойство, качество;
5) composition — структура, состав;
6) pharmacopoeia — фармакопея;
7) to confer — присваивать.

I. Read and translate the following words using the knowledge of Latin:

Pharmacy, medicine, drug, compound, dispense, pharmacist, medicinal, prescribe, prescription.

II. Give the definition to the following terms:

Pharmacy, pharmacist, pharmacognozy, pharmacology, Pharmacopoeia.

III. Find the equivalents of the following words in the text:

Лекарственные вещества; искусство составления и расфасовки лекарств; присваивать; требует специальных знаний, опыта; формулы для приготовления лекарственных веществ; метод упаковки и хранения лекарств.

Text 3

Tablets

The tablet is the most common form for the administration of a drug in a dry state.

A tablet shows definite properties of mechanical strength and is characterized by a definite rate of disintegration with water.

It is observed that tablets can be made from certain drugs, even without the addition of auxiliary substances.

But for some drugs, the addition of auxiliary substances is found to be necessary to overcome certain difficulties in their tabletting.

The application of different pressure during tabletting plays a very important role. It helps to avoid unnecessary complications. Tablets, which should dissolve in the mouth, must be more strongly compressed than other tablets for internal administration.

Another important effect of higher pressures is an increase in friction, which demands the use of greater amounts of lubricants and glidants. Glidants are added to the tablets to improve their flow properties.

Notes:

1) the most common form of medication — самая распространенная форма лекарственных препаратов;
2) without the addition — без добавления;
3) auxiliary substances — вспомогательные (добавленные) вещества;
4) to overcome difficulties — преодолеть трудности;
5) friction — трение;
6) lubricants — смазывающие вещества;
7) glidants — скользящие вещества;
8) flow property — скользящее свойство.

I. Find the equivalents of the following words and word combinations in the text:

Самая распространенная форма лекарственных препаратов; определенные свойства; вспомогательные вещества; преодолеть определенные трудности; применение определенного давления; растворяться во рту; для внутреннего применения; увеличение трения; смазывающие вещества; скользящие вещества.

II. Answer the following questions:

1) What is a tablet?
2) How are tablets made?
3) What is the role of auxiliary substances?
4) What is specific about tablets which should dissolve in the mouth?
5) Why are glidants added to the tablets?

Text 4

Solution

Any chemically and physically homogeneous mixture of two or more substances is said to be a solution. It is possible to have a solution of solids in liquids, gases in liquids, solids in solids, etc.

Depending upon the size of the dispersed particles we recognize true solutions, colloidal solutions and suspensions.

If sugar is dissolved in water and the ultimate sugar particle is of molecular dimensions, then a true solution is formed. On the other hand, if very fine sand is mixed with water, consisting of many molecules, then a colloidal solution is formed.

From the pharmaceutical point of view solutions of solids in liquids are of the greatest importance.

The extent of solubility of different substances varies, but it has a constant value at constant temperature.

Notes:
1) solution — раствор;
2) solid — твердое тело;
3) liquid — жидкость;
4) dimension — размер, величина;
5) extent — степень;
6) dispersed — рассеянные, распространенные;
7) ultimate — элементарный.

I. Find English equivalents of the following word combinations in the text:

Рассеянные частицы (взвешенные частицы); растворяться в воде; элементарная частица; молекулярного размера; истинный раствор; коллоидный раствор; взвесь; с другой стороны; с фармацевтической точки зрения; степень растворимости; постоянная температура.

II. Answer the questions:

1) What is said to be a solution?
2) What solutions is it possible to have?
3) What solutions do we recognize?
4) How is a true solution formed?
5) How is a colloidal solution formed?
6) What can you say about the extent of solubility of different substances?

III. Read the text. While you are reading try to find the answers to the following questions:

1. Who discovered penicillin and when?
2. What is the year 1939 famous for?
3. What did the colleagues succeed in?
4. What methods did the Oxford team develop?
5. When were improved methods developed?
6. What were Fleming, Florey and Chain awarded?
7. What did British firms play an outstanding part in?
8. When was the first semi-synthetic penicillin synthesized?

Text 5

Penicillin

Penicillin, the 1 of the antibiotics, was discovered by Sir Alexander Fleming in 1928. It remained little more than a scientific curiosity for 10 years but in 1938 Sir Howard Florey and Professor E. B. Chain decided to make a systematic study of antibiotics at Oxford, and they selected penicillin as one of

the first to be studied. Working together with a group of colleagues, they succeeded in concentrating and purifying the active substance, for which they retained the name of penicillin, and demonstrated for the first time its remarkable curative property when it was introduced into the bloodstream, first on experimental infections in mice and then on human patients suffering from serious staphylococcal and other infections. The Oxford team developed methods of production and extractions, and number of British pharmaceutical firms began production. Improved methods, allowing large-scale production, were developed in the United States in 1943, in time for penicillin to be of inestimable value in treating casualties during World War II. In 1945 Fleming, Florey and Chain were jointly awarded the Nobel Prize for Medicine and Physiology.

British firms played an outstanding part in the continued research into the original penicillin (penicillin G) and into new penicillins. Scientists first isolated the penicillin nucleus and methods were later devised to produce it in quantity. A wide variety of side chains could then be coupled to this nucleus resulting in a considerable number of new semi-synthetic penicillins having different properties. The first semi-synthetic penicillin of medical importance, as it is active against staphylococci resistant to penicillin G, was synthesized in 1960, and in the same year the first broad-spectrum penicillin was synthesized. In addition there is a group of semi-synthetic penicillins which can be given orally.

I. After reading the text say which new facts about penicillin you have learned from it.

II. Add the beginnings to the following sentences:

a) … decided to make a systematic study of antibiotics at Oxford.
b) … succeeded in concentrating and purifying the active substance.
c) … suffering from serious staphylococcal and other infections.
d) … methods of production.
e) … in treating casualties during World War II.
f) … played an outstanding part in the continued research into the original penicillin.

III. Make up questions to which the following sentences might be the answers:

1. The first of antibiotics was discovered in 1928.
2. Fleming Florey and Chain were jointly awarded the Nobel Prize for Medicine and Physiology.
3. The first semi-synthetic penicillin of medical importance was synthesized in 1960.
4. In 1938 Florey and Chain decided to make a systematic study of antibiotics.
5. They selected penicillin.
6. They demonstrated penicillin’s remarkable curative properties.

IV. Make a summary of the text.

The inferior of an apothecary's shop is shown in figure 3, the 19th century apothecary in Old Salem (North Carolina, USA) — figure 4.

Figure 3 — The Interior of an Apothecary's Shop

Figure 4 — A 19th century apothecary in Old Salem, North Carolina, USA

Text 6

Apothecary

Apothecary is a historical name for a medical professional who formulates and dispenses material medica to physicians, surgeons and patients — a role now served by a pharmacist (or, especially in British English, a chemist or dispensing chemist).

In addition to pharmacy responsibilities, the apothecary offered general medical advice and a range of services that are now performed solely by other

specialist practitioners, such as surgery and midwifery. Apothecaries often operated through a retail shop which, in addition to ingredients for medicines, sold tobacco and patent medicines.

According to Sharif Kaf al-Ghazal, the first apothecary shops were founded during the Middle Ages in Baghdad. By the end of the 14th century, Geoffrey Chaucer (1342–1400) was mentioning an English apothecary in the Canterbury Tales, specifically «The Nun's Priest's Tale» as Pertelote speaks to Chauntecleer (lines 181–184):

... since you shouldn't tarry,
And in this town there's no apothecary,
I will myself go find some herbs for you
That will be good for health...

By the 15th century, the apothecary gained the status of a skilled practitioner, but by the end of the 19th century, the medical professions had taken on their current institutional form, with defined roles for physicians and surgeons, and the role of the apothecary was more narrowly conceived as that of pharmacist (dispensing chemist in British English).

One famous mention of an apothecary appears in William Shakespeare's play Romeo and Juliet, in which a poor apothecary sells Romeo an elixir of death with which Romeo commits suicide.

In England the Worshipful Society of Apothecaries was founded in 1617. Elizabeth Garrett Anderson became the first woman to gain a medical qualification in Britain when she passed the Society's examination in 1865.

Apothecaries used their own measurement system, the apothecaries' system, to provide precise weighing of small quantities. Apothecaries also were known to accept special requests for poisons. This meaning of the term «apothecary» has not passed into archaic oblivion, as in William Faulkner's still widely read story «A Rose for Emily» the main character, Miss Emily Grierson, goes to an «apothecary» and buys arsenic, ostensibly to kill a rat (which turns out later to have been her Yankee boyfriend who had apparently become bent on jilting her).

Words which are cognate to apothecary have the meaning of «phatmacist» or «dispensing chemist» in certain modern languages. In Swedish, for example, a pharmacy is ett apotek. The pharmacist (dispensing chemist) is called en apotekare.

I. Answer the questions:

1. Who is an apothecary?
2. Where did an apothecary work?
3. When and where were the 1 apothecary shops founded?
4. When did the apothecary gain the status of a skilled practitioner?
5. What happened in the 19th century?
6. Which of the authors mention an English apothecary?

7. When and where was the Society of Apothecaries founded?
8. Who was the 1 woman to gain a medical qualification?
9. Why did apothecaries use their own measurement system?
10. What were apothecaries famous for?

II. Give a summary of the text.

III. Discuss the text. Work in pairs.

Pharmacy of the 14th century is shown in figure 5.

Figure 5 — Pharmacy of the 14th century

I. Read the text and try to retell it either in English or in Russian.

Text 7

History of pharmacy

The earliest known compilation of medicinal substances was ARIANA the *Sushruta Samhita*, an Indian treatise attributed to Sushruta in the 6th century before Christ (B.C.). However, the earliest text as preserved dates to the 3rd or 4th century anno Domini (A.D.).

Many Sumerian (late 6th millennium B.C. — early 2nd millennium B.C.) cuneiform clay tablets record prescriptions for medicine.

Ancient Egyptian pharmacological knowledge was recorded in various papyri such as the *Ebers Papyrus* of 1550 B.C., and the *Edwin Smith Papyrus* of the 16th century B.C.

The earliest known Chinese manual on material medica is the Shennong *Bencao Jing (The Divine Farmer's Herb-Root Classic)*, dating back to the 1st century A.D. It was compiled during the Han dynasty and was attributed to the mythical Shennong. Earlier literature included lists of prescriptions for specific

ailments, exemplified by a manuscript «Recipes for 52 Ailments», found in the Mawangdui tomb, sealed in 168 B.C.

The Greek physician Pedanius Dioscorides is famous for writing a 5 volume book in his native Greek in the 1st century A.D. The Latin translation *De Materia Medica (Concerning medical substances)* was used a basis for many medieval texts, and was built upon by many middle eastern scientists during the Islamic Golden Age.

In Japan, at the end of the Asuka period (538–710) and the early Nara period (710–794), the men who fulfilled roles similar to those of modern pharamacists were highly respected. The place of pharmacists in society was expressly defined in the Taihō Code (701) and re-stated in the Yōrō Code (718). Ranked positions in the pre-Heian Imperial court were established; and this organizational structure remained largely intact until the Meiji Restoration (1868). In this highly stable hierarchy, the pharmacists — and even pharmacist assistants — were assigned status superior to all others in health-related fields such as physicians and acupuncturists. In the Imperial household, the pharmacist was even ranked above the two personal physicians of the Emperor.

There is a stone sign for a pharmacy with a tripod, a mortar, and a pestle opposite one for a doctor in the Arcadian Way in Ephesus near Kusadasi in Turkey. The current Ephesus dates back to 400 B.C. and was the site of the Temple of Artemis one of the seven wonders of the world, the home of Mark Anthony and Cleopatra, Mary Magdalen and where St Paul read his letter to the Ephesians.

In Baghdad the 1st pharmacies were established in 754 under the Abbasid Caliphate during the Islamic Golden Age. By the 9th century, these pharmacies were state-regulated.

The advances made in the Middle East in botany and chemistry led medicine in medieval Islam substantially to develop pharmacology. Muhammad ibn Zakariya Rāzi (Rhazes) (865–915), for instance, acted to promote the medical uses of chemical compounds. Abi al-Qasim al-Zahrawi (Abulcasis) (936–1013) pioneered the preparation of medicines by sublimation and distillation. His *Liber servitoris* is of particular interest, as it provides the reader with recipes and explains how to prepare the «simples» from which the complex drugs were compounded and then generally used. Sabur Ibn Sahl (869), was, however, the 1st physician to initiate pharmacopoedia, describing a large variety of drugs and remedies for ailments. Al-Biruni (973–1050) wrote one of the most valuable Islamic works on pharmacology entitled Kitab al-Saydalah (The Book of Drugs), where he gave detailed knowledge of the properties of drugs and outlined the role of pharmacy and the functions and duties of the pharmacist. Ibn Sina (Avicenna), too, described no less than 700 preparations, their properties, mode of action and their indications. He devoted in fact a whole volume to simple drugs in *The Canon of Medicine*. Of great impact were also the works by al-Maridini of Baghdad and Cairo, and Ibn al-Wafid (1008–1074), both of which were printed in Latin more than 50 times, appearing as *De Medicinis*

universalibus et particularibus by Mesue the younger, and the *Medicamentis simplicibus* by Abenguefit. Peter of Abano (1250–1316) translated and added a supplement to the work of al-Maridini under the title *De Veneris*. Al-Muwaffaq's contributions in the field are also pioneering. Living in the 10th century, he wrote *The foundations of the true properties of Remedies*, amongst others describing arsenious oxide, and being acquainted with silicic acid. He made clear distinction between sodium carbonate and potassium carbonate, and drew attention to the poisonous nature of copper compounds, especially copper vitriol, and also lead compounds. He also describes the distillation of sea-water for drinking.

In Europe pharmacy-like shops began to appear during the 12th century. In 1240 emperor Frederic II issued a decree by which the physician's and the apothecary's professions were separated.

In Europe there are old pharmacies still operating in Dubrovnik Croatia located inside the Franciscan monastery, opened in 1317 ; and one in the Square Tallinn Estonia dating from at least 1422. The oldest is claimed to be set up in 1221 in the Church of Santa Maria Novella in Florence Italy, which now houses a perfume museum. Another in Llívia few kilometres from Puigcerdà is a Catalan enclave in Spain almost within France which is also now a museum dating back to the 15 century.

II. Answer the following questions:

1. What have you learned about the earliest known compilation of medical substances?
2. What did earlier literature include?
3. What is the Greek physician famous for?
4. Who was highly respected in Japan?
5. Where is a stone sign for a pharmacy situated?
6. When were the 1st pharmacies established in Baghdad?
7. Who acted to promote the medicinal uses of medical compounds?
8. Why are Islamic works on pharmacology the most valuable?
9. What did Avicenna describe?
10. What interesting information was written in the foundations of the true properties of remedies?
11. When did pharmacy-like shops begin to appear in Europe?
12. What decree did the emperor Frederic II issue?
13. Where are old pharmacies still operating located?

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