

Дисциплина «**Иностранный (английский) язык**» относится к базовой части блока гуманитарных и социально-экономических дисциплин, является обязательным курсом. Данная программа предназначена для студентов, продолжающих изучать тот иностранный язык, который изучался в среднем учебном заведении, и рассчитана на 720 часов (20 з.е). Преподается в 1,2,4 и 4-м семестрах.

В соответствии с целевой установкой содержание курса составляют иноязычные произведения речи, на базе которых совершенствуются необходимые речевые навыки и умения: чтения, перевода, аннотирования, реферирования, говорения, аудирования, письма. Одновременно, на основе этих же учебных материалов, приобретаются и закрепляются необходимые знания, навыки и умения в области фонетики, лексики, грамматики

#### **Цели и задачи освоения дисциплины.**

1. Чтение с полным или частичным пониманием прочитанного и перевод на русский язык текстов по специальности.
2. Говорение и слушание (умение вести беседу на темы специальности, а также на бытовые и общественно-политические темы.
3. Письмо (умение письменно составлять аннотацию, резюме или реферат по прочитанному тексту или статье. Написать деловое письмо, а также письменно изложить свои мысли на английском языке на заданную тематику.

#### **Требования к результатам освоения содержания дисциплины**

В результате освоения дисциплины студент должен

**знать:** языковой материал, на базе которого развиваются речевые умения и навыки, куда входит: 1. фонетика, 2. лексика и словообразование, 3. грамматика (для активного и пассивного усвоения).

**уметь:** выражать свои мысли в устной форме по пройденной тематике; понимать на слух тексты, содержащие усвоенный лексический и грамматический материал; излагать содержание оригинального текста по специальности на английском языке; читать без словаря оригинальную литературу по специальности; составлять аннотацию-резюме на английском языке по специальности профиля факультета.

**владеть:** речевыми навыками и умениями, необходимыми для чтения оригинальной литературы по специальности, для выражения своих мыслей в монологической и диалогической форме и для восприятия устного речевого сообщения по специальности на иностранном языке.

**иметь опыт деятельности:** вести дискуссии в научной, профессиональной и социально-культурной сферах общения, участвовать в конференциях на иностранном языке.

#### **Структура дисциплины**

Общая трудоемкость дисциплины составляет 340 часов, из них 208 ч. – семинары, 132 ч. - самостоятельная работа по подготовке к текущему и промежуточному контролю.

Вид работы	Семестр				Всего
	1	2	3	4	
<b>Общая трудоёмкость, акад. часов</b>	180	180	180	180	720
<b>Аудиторная работа:</b>	68	68	68	68	272
Лекции, акад. часов	-		-	-	-
Семинары, акад. часов	68	68	68	68	272
<b>Самостоятельная работа, акад. часов</b>	36		42	52	448
<b>Вид итогового контроля (зачёт, зачёт с оценкой, экзамен)</b>	зачет	зачет	зачет	экзамен	

## Семинары

№ темы	Тема	Кол-во часов
1	Overview of Chemistry Revision of Tenses	32
2	History of Chemistry Questions Formation	26
3	Periodic Table and Periodic Law Sequence of Tenses	32
4	Matter in the Universe Modal Verbs	26
5	Why is Water So Important? Infinitive, Gerund, Participle	26
6	The Precious Envelope Complex Object, Complex Subject. Participle and Gerundial Constructions	26
7	Organic Chemistry Subjunctive Mood, Emphatic Constructions. Suppositional Mood	26
8	The Age of Polymers Incomplete Clauses with Participle. Emphatic Constructions	26
9	Man and his Environment Additional Difficulties of English Grammar	30
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### Задания для текущего контроля

Тесты из учебника "The World of Chemistry"

#### PART I. LISTENING COMPREHENSION

Directions: In this part of the test you'll hear a short talk. After that, you'll be asked some questions. You'll hear the talk and the questions about it only one time. They will not be written out for you. After you hear a question, read the four possible answers and decide which one is the best answer to the question you heard. Then in your notebook put the number of the question and the letter of the answer you've chosen. Answer the questions on the basis of what is stated or implied in the talk.

- (A) a student  
(B) a laboratory technician  
(C) a doctor  
(D) a teacher of a laboratory class
- (A) They will be allowed to enter the class, and the teacher will repeat the information for them.  
(B) They will not be given any special consideration.  
(C) They will be expelled.  
(D) They will be dropped from the class if they are tardy three times.
- (A) They can make up the classes.

- (B) They may be allowed to remain if they have a good excuse.
- (C) They will be dropped from the class.
- (D) They will be dropped only if they also miss three lectures classes.

4. (A) Tardy.  
 (B) Careless.  
 (C) Dead.  
 (D) Something that causes disease.
5. (A) It must be secured.  
 (B) It will be cut.  
 (C) The student will be asked to leave the class.  
 (D) The student will have points deducted from his or her grade.

## VARIANT 1

### PART II. STRUCTURE AND WRITTEN EXPRESSION

Directions: This section measures how well you can recognize appropriate language for standard written English. In the following questions there are underlined words or phrases in each sentence, marked (A), (B), (C) and (D). Find the one underlined word or phrase that must be changed to make the sentence correct.

6. A chemical element is an aggregate of atom, all of which have the same atomic number.  
 A B C D
7. Therefore it is not possible to change matter into simple substances than pure elements.  
 A B C D
8. There are 103 internationally known elements, the last 11 of which were discovered recently.  
 A B C D
9. The 93<sup>d</sup> element, neptunium (Np), and the 94<sup>th</sup> element, plutonium ( ${}_{94}\text{Pu}^{239}$ ), have been discovered during the development of atomic fission.  
 A B C D
10. They are product of element ninety-two, uranium.  
 A B C D
11. Neptunium has usually been represented as  ${}_{93}\text{Np}^{239}$ , and plutonium as  ${}_{94}\text{Pu}^{239}$ , - the subscripts specify their atomic numbers, and superscripts - their atomic weights.  
 A B C D
12. Neptunium and plutonium are isobars, that is, elements with the some atomic weight (239), but different atomic numbers (93 and 94).  
 A B C D

13. The 95<sup>th</sup> and 96<sup>th</sup> elements, discovered in 1945 at the University of  
 A B C  
 California, are obtained by means of cyclotron.  
 D
14. In 1946, G.T. Seaborg, the codiscoverer of these elements has announced their  
 A B C  
names.  
 D
15. The 95<sup>th</sup> element was called americium in honor of Americas.  
 A B C D

Directions: Open the brackets and put the verb into the correct tense and voice.

Mendeleev well (to be known)<sup>16</sup> in many countries during his own life and (receive)<sup>17</sup> over 130 honorary degrees and titles from Russian and foreign academies. In 1894 a doctorate (to confer)<sup>18</sup> on him by the Universities of Oxford and Cambridge and in 1905 he (to award)<sup>19</sup> the Copel medal. In Russia Mendeleev prizes (to award)<sup>20</sup> by the Russian Academy of Sciences for outstanding work in physics and chemistry. Since 1965 the Presidium of the D.I Mendeleev All-Union Society together with the Presidium of the Academy of Sciences (to award)<sup>21</sup> the D.I. Mendeleev Gold Medal for works of theoretical and practical importance in chemical science and technology. Mendeleev's name also (to bear)<sup>22</sup> by the Institute of Metrology, The Russian University of Chemical Technology and the Tobolsk State Pedagogical Institute. Mendeleev Congresses on general and applied chemistry (to become)<sup>23</sup> a tradition in Russia. The first Mendeleev Congress (to take)<sup>24</sup> place in 1907 in St.Petersburg. Since then lectures (to present)<sup>25</sup> by a great number of Russian and foreign outstanding scientists.

### PART III. VOCABULARY AND READING COMPREHENSION

Directions: Choose the word or phrase that has nearly the same meaning as the underlined word or phrase:

26. Two of the main procedures carried out by chemists are analysis and synthesis.  
 (A) ways (B) fashions (C) plans (D) processes
27. Analysis is finding out exactly what a substance consists of in terms of mixtures, compounds and elements.  
 (A) separation (B) investigation (C) examination (D) discovery
28. Synthesis is making complex materials from simpler ones.  
 (A) sophisticated (B) difficult (C) hard (D) compound
29. Such complex materials include 5 plastics and synthetic fibers.  
 (A) substances (B) matters (C) fabrics (D) stuffs
30. In both analysis and synthesis it is often necessary to separate solids from liquids.  
 (A) watery (B) fluent (C) fluid (D) flawing
31. Some solid substances seem to disappear when they are mixed with a liquid.  
 (A) rigid (B) dense (C) compact (D) hard
32. They dissolve to form a solution as when salt dissolves in water to form a salt solution.  
 (A) explanation (B) answer (C) decision (D) liquid
33. A dissolved substance, or solute can be separated from the liquid in which it is dissolved by boiling any solvent.  
 (A) divided (B) shared (C) disconnected (D) isolated
34. This process is called evaporation.  
 (A) disappearance (B) change into steam (C) change into liquid (D) change into solid
35. The vapour is then cooled so that it condenses again.

- (A) steam (B) fog (C) smog (D) mist

Directions: Complete the following sentences with appropriate scientific and chemical terms. Use the given words: decomposition, elements, solution, reaction, properties, substances, man-made, mixtures

36. Chemistry is finding out about \_\_\_\_\_ and making the new ones.  
37. Most of the matter of the Universe is made of \_\_\_\_\_ of substances.  
38. No two substances have the same set of \_\_\_\_\_.  
39. Many substances are found in nature, but many are \_\_\_\_\_.  
40. If one substance dissolves in another, a \_\_\_\_\_ is formed.  
41. Chemical change (chemical \_\_\_\_\_) results in the formation of new substances.  
42. A \_\_\_\_\_ happens when a substance changes into more than one substance.  
43. \_\_\_\_\_ are the simplest kinds of substance.

Directions: Read the following texts and answer the questions.

### TEXT I

What is a scientific law? Who makes it, who obeys? Who uses it, the great thinker or the engineer? The use of the word “Law” in scientific literature is not fortunate. We know of no legislation or decree that established the rules we describe; it is probably more accurate to think of Laws as discovered rather than invented. Historical records reveal the origin of some laws; others are concealed, because the man who first proposed them did not let us know how they had occurred to him first. Scientific knowledge grew up with the early civilizations from simple noticing natural phenomena to systematic observing. The observations were not real science but they set the pattern of a speculative scheme to “explain” the facts. When Greek civilization formed, the wisest thinkers brought a new attitude to observations: their aim was to make a scheme that could account for facts. This was a grander business than either collecting facts or telling a new tale for each fact. This was an intellectual advance, the beginning of great scientific theory. The scientists of Alexandria made more accurate observations, devising new methods and new mechanical devices, producing better and more sophisticated mathematical and astronomical theories. The man whose work best epitomizes the character of the Alexandrian age is Archimedes whose fame was based for many centuries not upon the immortal achievements explained in his own works, but upon the legends around his name. These legends had a core of truth: he did invent machines, such as compound pulleys, burning mirrors, etc., but these activities were secondary, he was primarily a mathematician, the greatest of antiquity and one of the very greatest of all times. Archimedes lacked the encyclopedic tendencies of Euclid who tried to cover the whole field of geometry; he was, on the contrary, a writer of a number of works limited in their scope, but his treatment of any subject was masterly its order and clarity.

44. What might be the title to the text? (A) Ancient Civilizations. (B) Scientific Knowledge. (C) Scientific Laws. (D) Early Observations.  
45. According to the text, the laws are: (A) discovered (B) invented (C) introduced (D) developed  
46. What words referring to science are not present in the text? (A) scientific law (B) scientific knowledge (C) scientific theory (D) scientific method.  
47. What might be the paragraph following the text? (A) Archimedes’s law (B) Development of chemistry (C) Euclidean’s contribution (D) History of science

### TEXT II

Unlike most other great men of science, Newton continued to have long periods when he was not

interested in physics, during which he devoted all his time and writing to chemistry, alchemy, and religious matters. Much of his religious writing was collected and published after his death, including a historical account of *Two Notable Corruptions of the Scriptures*, *The Chronology of the Ancient Kingdoms*, and *Observations of the Prophecies of Daniel and the Apocalypse of St. John*. On the subject of chemistry and alchemy, Newton left behind a large library of books. In addition, he engaged in extensive correspondence with his friend, the famous English chemist Robert Boyle, concerning matters of chemical combinations and experiments. In keeping with Newton's secretive personality, he never revealed the purpose or results of his own chemical experiments.

Obviously, even great men are not perfect. Isaac Newton was easily irritated, overly sensitive to the slightest criticism of his work, intent on gaining revenge on his enemies (both real and imagined), and impatient with people of questionable talent or low motivation. Between 1690 and 1692, after he'd served in Parliament and when his interest in science was at one of its low ebbs, he repeatedly accused his close associates and friends John Locke and Charles Montagu of deceiving him and attempting to harm his reputation. He recovered from these paranoid delusions by 1693. He seemed to relish his public disputes with other scientists, such as the British astronomer John Flamsteed, who challenged Newton's work in optics and astronomy, and the German mathematician Gottfried Wilhelm Leibniz, whom Newton accused of plagiarizing his own work in optics and the development of differential calculus. In the first year of his presidency of the Royal Society, Newton wrote, "Our Society decays and produces nothing remarkable ... governed by persons that either value nothing but their own interests, or understand little but vegetables ..." (referring to the naturalist Sir Hans Sloane, the Secretary of the Royal Society). These disputes and others flamed throughout Newton's life and were either the cause or the effect of his imbecility.

48. What might be the title of the text? (A) Newton's Life and Work (B) Newton's Contribution to Science (C) Newton's Scientific Interests (D) Newton's Religious Writings

49. What branches of science are not mentioned in the text? (A) Physics (B) Optics (C) Calculus (D) Mechanics

50. What proves that Newton was engaged in chemical experiments?

(A) His public speeches (B) His letters to R. Boyle

(C) His presidency of the Royal Society (D) His disputes with Leibniz

51. According to the text Newton

(A) all his life was interested in physics (B) had periods of other scientific interests

(C) did not write many scientific books (D) always published the results of his experiments.

## VARIANT 2

### PART II. STRUCTURE AND WRITTEN EXPRESSION

Directions: This section measures how well you can recognize appropriate language for standard written English. In the following questions there are underlined words and phrases in each sentence marked (A), (B), (C), and (D). Find the one underlined word or phrase that must be changed to make the sentence correct. Write the correct variant.

6. The 76<sup>th</sup> element was given the name in honour of Curies who contributed radium to the

A

B

C

world and opened the way to discovery of the nine latest elements all radioactive, lustrous

D

metals.

7. The symbol is Am for americium and Cm for curium.

A

B

C

D



(A) basic (B) fundamental (C) sophisticated (D) modest

28. When two or more elements combine, they form a compound.

(A) aggregate (B) combination (C) mixture (D) joint

29. When elements combine to form a compound, there is a chemical reaction.

(A) result (B) response (C) reception (D) change

30. Some properties of the elements change during the chemical reaction.

(A) possessions (B) traits (C) wealth (D) belongings

31. For example, the element chlorine (Cl) is a poisonous yellow gas.

(A) corruptive (B) infectious (C) toxic (D) contaminated

32. Sodium (Na), on the other hand, is a soft silvery-white metal which reacts violently with water.

(A) strongly (B) powerfully (C) angrily (D) furiously

33. Thus the mixture of sand and salt is yellowish-white in color.

(A) diversity (B) variety (C) combination (D) sort

34. If we put the mixture in water, the salt will dissolve, because it is soluble.

(A) liquefy (B) disappear (C) end (D) cease

35. Sometimes the property of a substance change when it changes its state highly magnetic.

(A) condition (B) situation (C) country (D) status.

Directions: Complete the sentences with appropriate scientific and chemical terms. Use the given words: science, world, theory, chemistry, scientific method, hypothesis, experiments, properties.

\_\_\_\_\_ <sup>36</sup>, which is the study of the composition and \_\_\_\_\_ <sup>37</sup> of matter and of the changes that it undergoes, is a branch of \_\_\_\_\_ <sup>38</sup>, which itself provides us with a way of knowing and understanding the universe we live in. In the operation of the \_\_\_\_\_ <sup>39</sup> we ask questions of the universe through tests and \_\_\_\_\_ <sup>40</sup>. By observing the results that we get we can formulate additional questions, perform additional experiments, and finally develop a tentative explanation of what we have learned. If this tentative explanation or \_\_\_\_\_ <sup>41</sup> is confirmed by others and becomes widely accepted it becomes a \_\_\_\_\_ <sup>42</sup> and helps to understand better the \_\_\_\_\_ <sup>43</sup> around us.

Directions: Read the following texts and answer the questions:

### TEXT I

There is a good deal of variety amongst the elements. We know examples of reactive gases and unreactive gases, reactive solids and unreactive solids. Just think of the contrast between elements like fluorine and carbon, or sodium and argon, for example.

However, some elements do show resemblances to one another. These similarities were noticed early in the history of chemistry.

One of the first people to draw attention to these 'family resemblances' amongst the elements was a German chemist called Johann Dobereiner. In 1829 he pointed out that many of the elements could be grouped together in threes. He called these groups of three 'triads'. The metals lithium, sodium and potassium are an example of such a triad. The elements chlorine, bromine and iodine form another.

Dobereiner also noticed that there was often a pattern in the relative atomic masses of the elements in the triads. If the three elements were arranged in relative atomic mass order, the relative atomic mass ( $A_r$ ) value of the one in the middle was close to the average of the other two.



Nearly 40 years later, in 1866, the English chemist John Newlands went a step further. He suggested that a pattern could be seen when the elements were written out in order of atomic mass. Similar elements seemed to crop up at regular intervals. So, according to Newlands, starting with any element in the list a related element was to be found seven places further on. He called this relationship the 'Law of Octaves'

The noble gases are not included because they had not been discovered at the time of "Newlands' work. The fact that there were other elements as well as the noble gases waiting to be discovered resulted in the pattern breaking down: Newlands did not realize that he might have to leave spaces in the list of the elements.

44. What elements are mentioned in the text? (A) Br, I (B) Fe, Hg (C) Ag, Au (D) O, H

45. According to the text (A) all the elements differ from each other (B) there are family resemblances (C) no scientists noticed any similarities (D) all metals differ greatly from each other.

46. According to the text what is true about J. Newlands (A) discovered noble gases (B) left open spaces for gases (C) suggested the Law of Octaves (D) worked at the same time as J Doberiener

## TEXT II

How do you as a student approach a subject such as chemistry with its unfamiliar terminology, symbols, formulas, theories, and laws? All the generally accepted habits of good study are applicable to the study of chemistry. Budget your study time and spend it wisely. In particular, you can spend your time more profitably in regular, relatively short periods of study rather than in one prolonged session.

Chemistry has its own language, and learning this language is of prime importance to the successful study of chemistry. Chemistry is a subject of many facts. At first you will simply have to memorize some of them. However, you will also learn these facts by referring to them frequently in your studies and by repetitive use. For example, you must learn the symbols of 30 or 40 common elements in order to be able to write chemical formulas and equations. As with the alphabet, repetitive use of these symbols will soon make them part of your vocabulary.

The need for careful reading of assigned material cannot be overemphasized. You should read each chapter at least twice. The first time, read the chapter rapidly, noting especially topic headings, diagrams, and other outstanding features. Then read more thoroughly and deliberately for better understanding. It may be profitable to underline and abstract material during the second reading. Isolated reading may be sufficient for some subjects, but it is not sufficient for learning chemistry. During the lectures, become an active mental participant and try to think along with your instructor, do not just occupy a seat. Lecture and laboratory sessions will be much more meaningful if you have already read the assigned material.

Your studies must include a good deal of written chemistry. Chemical symbolism, equations, problem solving, and so on, require much written practice for proficiency. One does not become an accomplished pianist by merely reading or listening to music—it takes practice. One does not become a good baseball player by reading the rules and watching baseball games—it takes practice. So it is with chemistry. One does not become proficient in chemistry by only reading about it—it takes practice. You will encounter many mathematical problems as you progress through this text. To solve a numerical problem, you should read the problem carefully to determine what is being asked. Then develop a plan for solving the problem. It is a good idea to start by writing down the pertinent material—a formula, a diagram, an equation, the data given in the problem. This information will give you something to work with, to think about, to modify, and finally to expand into an answer. When you have arrived at an answer, consider it carefully to make sure that it is a reasonable one. The solutions to problems should be recorded in a neat, orderly, stepwise fashion. Fewer errors and saved time are the rewards of a neat and orderly approach to problem solving. If

you need to read and study still further for complete understanding, do it!

47. The author believes that (A) in student's approach chemistry does not differ from other subjects. (B) chemistry requires much more time to be studied. (C) you should study only terminology, symbols and formulas in chemistry (D) you cannot spend your time wisely on chemistry.

48. According to the text (A) to solve a numerical problem (B) diagrams (C) the reading of the assigned material (D) the language of chemistry is of prime importance.

49. The author thinks that the purpose of the first reading is (A) better understanding (B) skimming facts, figures, diagrams, headings (C) memorizing the symbols (D) understanding all the facts.

50. What does "become an active mental participant" mean? (A) to attend lectures (B) to take notes (C) to try to think with the teacher (D) to ask questions

51. The function of the last paragraph is (A) to explain how to write down a formula or diagram (B) to tell you what you are going to read next (C) to give you an example of why you will meet many mathematical problems (D) to explain how to solve a numerical problem.

### **Основная литература**

1. Учебник "English" практический курс английского языка для студентов-химиков (авт. Головкова Н.М., Москва, Изд-во Московского Университета, 1986 г)

2. Методическая разработка "The Present Tenses" (авт. Дружинина Л.Н., Москва, хим. фак, МГУ, 2004 г)

3. Методическая разработка "The Past Tenses" (авт. Тарасенко Л.В., Москва, хим. фак. МГУ, 1991г)

4. Учебник "Streamline" (Departures), (авт. В.Hartley, P.Viney, England, Oxford University Press, 1985г)

5. Учебник "Beginning Scientific English" (авт. D.E. Royds-Irmark, Москва, хим. фак. МГУ, 2000г), Book I

6. Методическая разработка "The Future Tenses" (авт. Шведова Е.В., Марьяновская О.В., Москва, хим. фак. МГУ, 2000г)

7. УМК "Английский язык для химиков" "The World of Chemistry" (авт. Куменова М.М., Москва, Книжный дом "Университет" 2005 г)

8. Учебник «Практический курс грамматики английского языка» (авт. Успенская Н.В. Михельсон Т.Н., Санкт-Петербург, "Специальная литература", 1995г),

9. Методическая разработка «Неличные формы глагола» (авт. Дружинина Л.Н., Москва, хим. фак. МГУ, 2002 г)

10. Методическая разработка «Модальные глаголы и сослагательное наклонение» (авт. Большунова Н.Н., Москва, хим. фак. МГУ, 1990г)

11. Методическая разработка «111 предложений» (авт. Агапова Т.Н., Москва, хим. фак. МГУ, 1987г)

12. Методическая разработка "Переходно-подготовительный курс для студентов-химиков" (авт. Семенова Н.П., Москва, хим. фак. МГУ, 1989г)

13. Методическая разработка "The Modal Verbs" (авт. Тарасенко Л.В., Москва, хим. фак. МГУ, 1989г)

14. Методическая разработка "The Subjunctive Mood" (авт. Тарасенко Л.В., Москва, хим. фак. МГУ, 1990г)

15. Пособие "Chemistry & Chemical Technology" (авт. Фабрикант М.Л., Иршинская М.Г., Москва, Изд-во лит-ры на ин. языках, 1985г)

### **Интернет-ресурсы**

1. Электронный учебник "The World of Chemistry" для студентов.

2. Газеты на английском языке

3. Статьи по профилю «Химия» на английском языке