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РОССИЙСКОЙ ФЕДЕРАЦИИ

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ ОБРАЗОВАТЕЛЬНОЕ  
УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ

ИРКУТСКИЙ ГОСУДАРСТВЕННЫЙ АГРАРНЫЙ УНИВЕРСИТЕТ  
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**АНГЛИЙСКИЙ ЯЗЫК**

МЕТОДИЧЕСКИЕ УКАЗАНИЯ И КОНТРОЛЬНЫЕ ЗАДАНИЯ ДЛЯ  
СТУДЕНТОВ ЗАОЧНОЙ ФОРМЫ ОБУЧЕНИЯ I-II КУРСОВ  
АГРОНОМИЧЕСКОГО ФАКУЛЬТЕТА

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Методические указания и контрольные задания предназначены для самостоятельной работы студентов заочной формы обучения I, II курсов агрономического факультета всех направлений подготовки, изучающих английский язык. Методические указания включают четыре контрольных задания (пять вариантов каждый), образцы выполнения заданий, указания по оформлению контрольных работ, а также дополнительные тексты для чтения, которые могут быть использованы при аудиторной работе с преподавателем.

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## **МЕТОДИЧЕСКИЕ УКАЗАНИЯ**

Основной целью обучения студентов английскому языку в неязыковом вузе на заочной форме обучения является формирование умения самостоятельно читать литературу профессионально-ориентированной направленности с целью извлечения информации из иноязычных источников.

Особенностью изучения иностранного языка в заочной системе обучения является то, что большая часть языкового материала прорабатывается самостоятельно. На аудиторские занятия отводится не менее 32 часов, на самостоятельную работу - 292 часа, общее количество часов - 324.

По окончании первого года обучения студенты заочной формы обучения (35.03.04) выполняют две контрольные работы (контрольное задание №1 и контрольное задание №2), письменно переводят все тексты из раздела «Тексты для самостоятельной работы», сдают два зачёта (зачёт и зачёт с оценкой).

По окончании второго года обучения студенты заочной формы обучения (35.03.04) выполняют две контрольные работы (контрольное задание №3 и контрольное задание №4), сдают зачёт и экзамен.

По окончании первого года обучения студенты заочной формы обучения (21.03.02) выполняют две контрольные работы (контрольное задание №3 и контрольное задание №4), письменно переводят все тексты из раздела «Тексты для самостоятельной работы», сдают зачёт и экзамен.

### **ВЫПОЛНЕНИЕ КОНТРОЛЬНЫХ ЗАДАНИЙ И ОФОРМЛЕНИЕ КОНТРОЛЬНЫХ РАБОТ**

1. Количество контрольных заданий, выполняемых Вами на каждом курсе, устанавливается учебным планом университета. У методиста заочного отделения Вашего факультета или в библиотеке, Вы можете получить методические указания для выполнения контрольных работ.

2. Каждое контрольное задание в данном методическом указании предлагается в пяти вариантах. Вам необходимо выполнить контрольное задание

№1 и № 2, выбрать вариант в соответствии с последними цифрами студенческого шифра: студенты, шифр которых оканчивается на 1 или 2, выполняют вариант № 1; на 3 или 4 – № 2; на 5 или 6 – № 3; на 7 или 8 – № 4; на 9 или 0 – № 5.

3. **Контрольные работы выполняются в формате Word.** Обязательно заполняется титульный лист, на котором необходимо указать Вашу фамилию, имя и отчество, факультет, курс, номер контрольного задания, Ваш вариант и номер Вашего шифра (номер зачетной книжки).

4. Контрольные работы выполняются в той последовательности, в которой они даны в настоящем методическом указании.

5. В контрольном задании выделяются один или два абзаца для проверки умения читать без словаря, понимать основную мысль, изложенную в абзаце. После текста даются контрольные вопросы, с помощью которых проверяется, насколько правильно и точно Вы поняли мысль, изложенную в абзаце (или абзацах).

6. Если контрольная работа выполнена без соблюдения указаний или не полностью, она возвращается без проверки.

## КОНТРОЛЬНЫЕ ЗАДАНИЯ

### КОНТРОЛЬНОЕ ЗАДАНИЕ № 1

Для того, чтобы правильно выполнить задание № I, необходимо усвоить следующие грамматические темы:

1. **Имя существительное.** Множественное число имен существительных. Артикли. Выражение падежных окончаний в английском языке с помощью предлогов и окончания -s. Существительное в функции определения и его перевод на русский язык.

2. **Имя прилагательное.** Степени сравнения прилагательных и наречий.

3. **Числительные.**

4. **Местоимения:** личные, притяжательные, вопросительные, указательные, неопределенные и отрицательные.

5. **Глагол:** формы настоящего (**Present**), прошедшего (**Past**) и будущего (**Future**) времени групп **Indefinite (Simple)** в действительном залоге изъявительного наклонения. Спряжение глаголов **to be, to have** в **Present, Past, Future Indefinite**.

6. **Простое распространенное предложение:** прямой порядок слов в утвердительной и отрицательной формах повествовательных и побудительных предложений; обратный порядок слов вопросительного предложения.оборот *there is/there are*.

7. **Бессоюзное подчинение в определительных и дополнительных придаточных предложениях.**

8. **Основные случаи словообразования.**

Используйте следующие образцы выполнения упражнений:

#### ОБРАЗЕЦ ВЫПОЛНЕНИЯ 1 (К УПР. 1)

##### Грамматическая функция окончания - s

1. She visited her friends.

Она навестила своих друзей.

*friends* - множественное число от имени существительного *a friend* - друг.

2. He likes to work in

Ему нравится каждый день

his garden every day.

работать в своем саду.

*likes* - 3-е лицо единственного числа от глагола *to like* в *Present Indefinite*.

3.1 couldn't answer

Я не мог ответить

my teacher's question.

на вопрос учителя.

*В слове teacher's -s — окончание притяжательного падежа имени существительного в единственном числе.*

The teachers' room is

Учительская находится

on the ground floor.

на первом этаже.

*Слово teachers ' - форма притяжательного падежа имени существительного a teacher во множественном числе.*

### ОБРАЗЕЦ ВЫПОЛНЕНИЯ 2 (К УПР. II)

Особенности перевода на русский язык английских имен существительных, употребляющихся в функции определения, стоящего перед определяемым словом.

There is a bus stop

Сразу за углом -

just round the corner.

автобусная остановка.

### ОБРАЗЕЦ ВЫПОЛНЕНИЯ 3 (К УПР. VI)

He brought an interesting

Он *принес* интересную книгу

book yesterday.

вчера.

**brought** - *Past Indefinite Active* от нестандартного глагола **to bring**.

### ОБРАЗЕЦ ВЫПОЛНЕНИЯ 4 (К УПР. VIII)

1. What is the name  
of the book you are reading?

Как называется книга,  
которую ты читаешь?

2. The methods we have just  
described are very effective.

Методы, которые мы только  
что описали, очень  
эффективны.

## **ВАРИАНТ I**

**I. Перепишите следующие предложения. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s, и какую функцию это окончание выполняет, т.е. служит ли оно:**

**а) показателем 3-его лица единственного числа глагола в Present Indefinite;**

**б) признаком множественного числа имени существительного;**

**в) показателем притяжательного падежа имени существительного (см. образец выполнения 1).**

**Переведите предложения на русский язык.**

1. Many families live in an apartment house.
2. This crop grows well in dry climate.
3. My friend's farm is not far from Moscow.
4. The cereals are crop plants belonging to the grass family.
5. The growing of rice presents special irrigation problems.

**II. Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным (см. образец выполнения 2).**

1. He is a second-year student of the Agronomy department.
2. They have been living in a large four-room flat since 1991.
3. This iron bridge was built not long ago.
4. Sugar cane is grown in Argentine.
5. Home market prices rise steadily.

**III Перепишите следующие предложения, содержащие разные формы сравнения и переведите их на русский язык.**

1. The Trans-Siberian Railway is the longest in the world.
2. This exercise is better than the last one.
3. This text is the most difficult for me.
4. He speaks English worse than the other students.

5. Mary is the tallest girl in our group.

**IV. Перепишите и переведите на русский язык предложения, обращая внимание на перевод местоимений.**

1. The doctor whom I visited yesterday is a specialist in diseases of the heart.

2. Have you got any interesting books?

3. Here are some letters for you.

4. When I saw him he was talking with somebody.

5. There was nothing new in his lecture.

**V. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 3).**

1. He studies English at the Institute.

2. I saw this film last week.

3. The meeting won't begin at 9 A.M.

4. My parents will soon come back to Moscow.

5. She wanted to go to Kiev during the holidays.

**VI. Заполните пропуски глаголами *to be* или *to have (to have got)* в нужной форме. Переведите предложения.**

1. We ... our breakfast at the Institute dining-room.

2. My brother ... many friends.

3. The flats in this house ... very comfortable.

4. He ... a member of our school hockey team.

5. They ... time to play chess.

**VII. Перепишите предложения, поставив глагол *to be* в правильную форму. Переведите предложения.**

1. There ... a pen and two pencils on the desk.

2. There ... two books and a copy-book in his bag.

3. ... there much food in the fridge?

4. There ... news from them.

5. There ... many photos in the album.



**VIII. Перепишите предложения и переведите их, обращая внимание на бессоюзное подчинение.**

1. The hostel our students live in is situated not far from the Academy.

2. I think he has made some mistakes in his test.

**IX. Прочитайте и устно переведите на русский язык текст. Перепишите и письменно переведите 1, 2, 5, 6-й абзацы.**

**TIMIRYAZEV K.A.**

1. Kliment Arkadyevich Timiryazev belongs to the scientists who are most popular and most respected and honored by the Russian people.

2. He was born in St. Petersburg on the third of June, 1843. His parents, well-educated and progressive people of the time directed his education and greatly influenced his world outlook. Later Timiryazev dedicated his work "Science and Democracy" to his parents. In the dedication he wrote that his parents had taught him to love truth in everything. In 1868 after graduating from the Petersburg University, he made a report on his experiments in the field of plant nutrition from the air at the 1st Congress of Naturalists in Petersburg. The same year he went abroad and worked in the laboratories of famous scientists till 1870 when he returned to Russia and became the head of the Chair of Botany at the Petrovskaya Academy. He was very popular with the students and the tsarist government was afraid of his influence over them. That's why he had to leave the Academy.

3. As a scientist Timiryazev was the researcher who devoted his whole life to solving one and the same problem - the problem of photosynthesis. This problem is very important because it is connected with the existence of life on the Earth. His brilliant lecture on the cosmic part of plants read by him at the Royal Society of London, was the result of his 35 years of research.

4. His books "The Life of Plants", "Charles Darwin and His Teaching", "The Historical Method in Biology" and many others have been published and republished in many countries.

5. His work "The Historical Method in Biology" is a classical work in the study of

life. Timiryazev was one of the greatest historians of the science of life. His works "The Main Features of Development in Biology in the 19th Century" (1908), "The Main Achievements in Botany at the Beginning of the 20th Century" (1920) and many others are considered major works.

6. Timiryazev died on the 28th of April, 1920. A monument to the great scientist and citizen was put up in Moscow. Many educational establishments bear the name of Timiryazev, among them the oldest Agricultural Academy of our country.

**X. Прочитайте 3-й абзац текста и ответьте на вопрос: *What was the result of his 35 years of research?***

## **ВАРИАНТ II**

**I. Перепишите следующие предложения. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s, и какую функцию это окончание выполняет, т.е. служит ли оно:**

**а) показателем 3-его лица единственного числа глагола в Present Indefinite;**

**б) признаком множественного числа имени существительного;**

**в) показателем притяжательного падежа имени существительного (см. образец выполнения 1).**

**Переведите предложения на русский язык.**

1. He often tells us about his trip to Egypt.

2. There are some parks like countries.

3. The student's report was very interesting.

4. Plant formations and their environment are natural resources which man always used and uses now.

5. Tea is one of India's leading export products.

**II. Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным (см. образец выполнения 2).**

1. Their first five-year plan dates back to 1951.
2. This is our school teacher of English.
3. What is his office telephone number?
4. I'd like to go to a picture gallery.
5. A space research laboratory was opened in this city last year.

**III. Перепишите следующие предложения, содержащие разные формы сравнения и переведите их на русский язык.**

1. His plan is more practical than yours.
2. In summer the days are longer than the nights.
3. The shortest days of the year are in December.
4. One of the most famous building in the USA is the Capitol.
5. He speaks English worse than I do.

**IV. Перепишите и переведите на русский язык предложения, обращая внимание на перевод местоимений.**

1. We saw a mountain whose top was covered with snow.
2. He asked whether I had any books on agronomy.
3. He gave me some postcards.
4. Did you find anything new in this article?
5. No one scored a goal during the match yesterday.

**V. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 3).**

1. He goes to the Institute every day.
2. They will return in a month.
3. We went to the cinema a week ago.
4. My friend doesn't take part in the discussion.
5. She finished her work in time.

**VI. Заполните пропуски глаголами *to be* или *to have (to have got)* в нужной форме. Переведите предложения.**

1. A round table ... in the middle of the room.

2. My parents ... a nice house in a village not far from Moscow.
3. I ... a student of the Agronomy department.
4. He ... not many children, he ... two children.
5. All our students ... in the library.

**VII. Перепишите предложения, поставив глагол *to be* в правильную форму. Переведите предложения.**

1. There ... few pieces of cake on the plate.
2. There ... a lawn in front of the house.
3. There ... some interesting stories in this magazine.
4. There ... a lot of fruit in the basket.
5. In the newspaper there ... a lot of information about computers.

**VIII. Перепишите предложения и переведите их, обращая внимание на бессоюзное подчинение.**

1. The students studied the machines they had to use on the farm.
2. Give me the book you are speaking about.

**IX. Прочитайте и устно переведите на русский язык текст. Перепишите и письменно переведите 1,3, 4-й абзацы.**

### **WHY LEAVES CHANGE THEIR COLOUR IN THE FALL**

1. Early each autumn, celestial hunters slay the Great Bear. His blood reddens many leaves while his fat, splattering from the hunter's kettle, tints others yellow.

2. Thus Indians once explained the brilliant colours of autumn leaves. Today, the many people who credit fall's scarlet and gold to "frost" are just as inaccurate as the Indians, and not so poetic. Botanists say frost has zero effect, that the real culprit is reduced sunlight.

3. Sunshine is vital to trees, of course. As many high-school biology texts put it, each leaf is a nutrient "factory" that combines water collected by the roots with carbon dioxide from the air to produce a simple sugar. This process, photosynthesis, is carried out in the chloroplasts (chlorophyll-containing bodies in the leaf cells), and it is powered by sunlight's red, blue, indigo and violet wave lengths. The reaction's waste product, oxygen,

disperses into the atmosphere. The sugar is converted into a variety of nutrients - starch, cellulose, sucrose, fats, oils, proteins - and distributed to all of the tree.

4. The key ingredient in this process is chlorophyll, a compound of carbon, hydrogen, oxygen, nitrogen and magnesium that happens to be dark green. During summer's long and sunlit days, chlorophyll production is in high gear; the leaf creates more than it consumes. As a result, each leaf brims with green pigment and its other colours are masked. But in the fall, when short days mean fewer hours of sunlight and more indirect rays, the leaves must cut down on chlorophyll production. Soil quality and availability of moisture influence the rate of this slowdown, but reduced sunlight is the prime cause. The result is that as chlorophyll's green fades from the leaves, other colours shine through and create the botanical fireworks. If the weather combines warm, sunny days with cool (below 45° F) nights, the leaves over-produce sugar compounds, which are trapped in the leaves. This accumulation of sugars produces red anthocyanin pigment, and the result is a scarlet leaf. If the weather fails to join warm days with cool nights, yellow xanthophyll pigments dominate, creating a golden leaf. Because of varying soil, moisture, shade and temperature conditions, nearby trees often produce different leaf colours. As plant tissues die, however, all leaves turn brown.

5. During this spectacular colour change, a layer of corky cells (called the abscission layer) forms at the base of the leaf stalk. Gradually, this layer of cells closes off the stalk, seals the twig and severs their connection. The first gust of wind or pelting raindrop sends the dead leaf fluttering to the ground.

6. Even these leaves serve a purpose. While the dormant trees sustain themselves through the winter on nutrients stored in their cells, the decaying leaves are fertilizing the soil. They also add to the layer humus that covers the ground.

**X. Прочитайте 5-й абзац текста и ответьте на вопрос: *Why do the leaves flutter to the ground?***

### ВАРИАНТ III

**I. Перепишите следующие предложения. Определите по грамматическим признакам, какой частью речи являются слова,**

**оформленные окончанием -s, и какую функцию это окончание выполняет, т.е. служит ли оно:**

**а) показателем 3-его лица единственного числа глагола в Present Indefinite;**

**б) признаком множественного числа имени существительного;**

**в) показателем притяжательного падежа имени существительного (см. образец выполнения 1).**

**Переведите предложения на русский язык.**

1. People made parks in cities many thousand years ago.
2. At that time animals had no food enough in the forests.
3. When Pete comes home he will read today's «Moscow News».
4. Most of the grasslands are used for agriculture.
5. High yields of important crops are grown there.

**II. Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным (см. образец выполнения 2).**

1. I have been talking to my school teacher for an hour.
2. There are always high quality products in this shop.
3. City traffic is a serious problem for all large cities of the world.
4. The Tretyakov Art Gallery is well known all over the world.
5. Several first-class foreign architects were invited to build a number of architectural monuments in western style.

**III. Перепишите следующие предложения, содержащие разные формы сравнения и переведите их на русский язык.**

1. Silver is heavier than copper.
2. London is the largest city in England.
3. He reads less than the other students.
4. The more I studied French the more I liked it.
5. He was one of the most experienced engineer at the plant.

**IV. Перепишите и переведите на русский язык предложения, обращая**

**внимание на перевод местоимений.**

1. The article which I translated yesterday was very easy.
2. Any student of our group can read English well.
3. Put some sugar in my tea, please.
4. I could find the key nowhere.
5. Everyone has come.

**V. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 3).**

1. The teacher gives us English magazines.
2. My father left London last week.
3. Her parents will soon come back to Moscow.
4. They stayed there all summer.
5. My working day doesn't begin very early.

**VI. Заполните пропуски глаголами *to be* или *to have (to have got)* в нужной форме. Переведите предложения.**

1. You ... welcome.
2. They ... a small cottage. It ... far away.
3. The metro station ... far from my house.
4. She ... a nice flat.
5. Mary and Nelly ... good friends.

**VII. Перепишите предложения, поставив глагол *to be* в правильную форму. Переведите предложения.**

1. There ... much cheese on the plate.
2. There ... a lot of noise there.
3. ... there any chalk on the blackboard?
4. There ... nobody in the room.
5. There ... four rooms in her flat.

**VIII. Перепишите предложения и переведите их, обращая внимание на бессоюзное подчинение.**

1. The fertilizers the farmers applied last year increased the yield greatly.
2. The soil we use as a seedbed should be fine and mellow.

**IX. Прочитайте и устно переведите на русский язык текст.**

**Перепишите и письменно переведите 1, 3, 5-й абзацы.**

### **A BOUQUET OF FIVE MILLION PLANTS**

1. The history of the Russian state herbarium goes back to the first quarter of the last century. By the middle of the 19th century its collections numbered nearly 200.000 plant species. Among them you could find unique collections. For example, one of them was received by the Petersburg Academy of Sciences from the site of excavations of the Pharaoh tombs in 1861. These plants had been decorating the tomb of Ramses II (the Great) and the tomb of princess Xi-Khonsu from 1000 — 1100 B.C. Areskin, a physician of Peter the Great, and Ens, a physician of the Empress Elizaveta Petrovna, made very interesting collections.

2. At present our country's herbarium is one of the world's largest. It contains more than five million samples. The long path of its development was almost broken off during the fascists' siege of Leningrad in 1941 - 1944. Fortunately, thanks to the measures taken and the efforts and dedication of Russian botanists, the collection has remained unharmed. At present this central repository demonstrates all species of the plants of the Russian Federation as well as rich floral samples from different countries.

3. Botanists, geographers, zoologists, ethnographers, soil scientists, and scientists in other fields, who have been taking part in expeditions and journeys around the RF and abroad, have considered it their duty to hand over their floral collections to the herbarium. At the end of the 19th century, Professor Yelenkin started off a herbarium of sporophytes - mosses, lichens, fungus, and algae. Now it has about a million samples.

4. An exchange of samples with foreign botanical centres and individual scientists is spreading. On the average, the herbarium is enriched with about 10.000 samples annually.

5. Professor V. Grubov, head of the herbarium, thought that the gathered collections had become an important source for the development of all branches of botany. Without



the herbarium it would be unthinkable to study the geographical prevalence of plants and compile data on the locations of plant types, one of the main methods of knowledge of the vegetable kingdom. In addition, the herbarium in many cases serves practical goals (where it concerns plants important to the national economy).

6. The unique funds of the herbarium have facilitated the creation of the 30-volume flora of our country as well as a number of monographs and investigations.

**X. Прочитайте 4-й абзац текста и ответьте на вопрос: *How is the herbarium enriched annually?***

#### **ВАРИАНТ IV**

**I** Перепишите следующие предложения. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием *-s*, и какую функцию это окончание выполняет, т.е. служит ли оно:

а) показателем 3-его лица единственного числа глагола в **Present Indefinite**;

б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного (см. образец выполнения 1).

**Переведите предложения на русский язык.**

1. My friend learns English at the Institute.
2. There is no industry on these territories.
3. His father's office is not far from their house.
4. We must preserve forests, grasslands and soil.
5. Timiryazev's work had great influence on modern research in agriculture.

**II.** Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным (см. образец выполнения 2).

1. They will have dinner at our school canteen.
2. Trade talks will be held this year.
3. He was a member of the North Pole Expedition.

4. Their research methods helped them in their work.

5. There are a lot of masterpieces in this art gallery.

**III. Перепишите следующие предложения, содержащие разные формы сравнения и переведите их на русский язык.**

1. Iron is the most useful of all metals.

2. English is easier than other foreign languages.

3. This building is the highest in our town.

4. The patient feels better today.

5. July is the hottest month in the year.

**IV. Перепишите и переведите на русский язык предложения, обращая внимание на перевод местоимений.**

1. These are the words which you mispronounce.

2. He didn't make any mistakes in his dictation.

3. He has some French books at home.

4. He put something on the desk and went out.

5. You will find the book somewhere in that bookcase.

**V. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 3).**

1. The student takes book in the library.

2. She will accept your invitation to spend the week-end at your place.

3. We listened to the latest news over the radio.

4. They won't watch TV tomorrow.

5. He didn't stay with us.

**VI. Заполните пропуски глаголами *to be* или *to have (to have got)* в нужной форме. Переведите предложения.**

1. She ... two mistakes in the test. Her mistakes ... bad.

2. It... not good for her to say so.

3. They ... a big car. It... red.

4. She ... in her last year at the University.

5. He ... a good job.

**VII. Перепишите предложения, поставив глагол *to be* в правильную форму. Переведите предложения.**

1. How many pages ... there in the book?
2. There ... a lot of vegetables in the market.
3. There ... a key in his pocket.
4. ... there much or little money in the purse?
5. There ... some flowers on the window sill.

**VIII. Перепишите предложения и переведите их, обращая внимание на бессоюзное подчинение.**

1. The machines the farm got last year can be used both for harvesting and cultivation of vegetables.
2. Plants are important sources man uses to make food and clothing.

**IX. Прочитайте и устно переведите на русский язык текст. Перепишите и письменно переведите 1, 3-й абзацы.**

### **THE MAN WHO IMPROVED NATURE**

1. Luther Burbank was born in America in 1849. His family grew fruits and vegetables and sold them. When Burbank got his own farm after his father died, he said to himself: "If I could go to a college that would be fine. I should learn everything about gardening there. Since I cannot, books and my farm will have to become my teachers".

2. He began to work and to experiment, reading books all the while. He studied Darwin's theory of natural selection, and it occurred to him that if he used artificial selection instead of natural, he would be able to guide the development of plants. And he began to work along these lines. He planted hundreds and thousands of trees and vegetables. Of each generation he selected the best and planted their seeds again; the rest he destroyed by burning them. In the course of several generations, he developed much improved, and sometimes greatly changed, varieties of plants.

3. In 1893 Burbank published his first catalogue of new and much improved plants. It attracted everybody's attention. The newspapers at once called his garden "a magic

garden". And it did look like a magic garden, indeed, with its stoneless plums, black tulips and blue poppies. Hundreds of people began to write to Burbank and to come to his farm. He disliked it. His magic garden was a business firm selling wonders and the secrets of this firm were guarded as carefully as those of any other firm. If people learned his secrets, the firm would make less money. So Burbank put the following notice on his gate: "Ladies and gentlemen! Mr. Burbank is no less busy than the ministers of Washington and wishes not to be disturbed". After that, if you wanted to visit his garden, you had to write to him and to wait for an invitation. If no invitation came, it meant you were not welcome. Burbank worked on and on with his experiments. Michurin, his contemporary, greatly approved of his constant labour and his talent, but greatly disapproved of his method of selecting only the best plants and destroying all the rest. Since Burbank burned down a very large number of young trees every year, Michurin used to say that Burbank should also run a timber-yard. But Burbank was quite satisfied with his method. He was not a revolutionary in science, like Michurin was, and methods which answered the practical needs of his farm were good enough for him.

4. When Burbank died he took all his secrets to the grave with him. His work stopped. His garden does not exist any more. Burbank died in 1926 and was buried in the city of Santa Rosa, where he had lived and worked.

**X. Прочитайте 2-й абзац текста и ответьте на вопрос: *What idea occurred to Burbank when he studied Darwin's theory of natural selection?***

#### **ВАРИАНТ V**

**I. Перепишите следующие предложения. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s, и какую функцию это окончание выполняет, т.е. служит ли оно:**

**а) показателем 3-его лица единственного числа глагола в Present Indefinite;**

**б) признаком множественного числа имени существительного;**

**в) показателем притяжательного падежа имени существительного (см.**

**образец выполнения 1).**

**Переведите предложения на русский язык.**

1. She writes letters to her mother every week.
2. Almost every country has its national parks.
3. Many elements make up a plant's environment.
4. Botanists classify the world into five natural plant formations.
5. Desert covers about a fifth part of the earth's land.

**II. Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным (см. образец выполнения 2).**

1. I am a first-year student of the Agronomy department.
2. My school friend studies at the University.
3. Consumer goods are sold in this supermarket.
4. Could you tell me where the nearest bus stop is?
5. London is one of the largest river ports.

**III. Перепишите следующие предложения, содержащие разные формы сравнения и переведите их на русский язык.**

1. This room is smaller than all the rooms in the house.
2. His plan is the most practical of all.
3. It is difficult to say which month is the best or better.
4. Let's do it later.
5. Summer is the warmest season of the year.

**IV. Перепишите и переведите на русский язык предложения, обращая внимание на перевод местоимений.**

1. My brother, whom I have not seen for a year, has just returned to Moscow.
2. He asked me some questions.
3. If there are any new magazines in the library take some for me.
4. I want somebody to copy this text.
5. I have never seen him and I knew nothing of him.

**V. Перепишите следующие предложения, определите в них видо-**

**временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 3).**

1. My sister looks through the morning newspapers every day.
2. She studied English a year ago.
3. Yesterday I didn't leave home.
4. In summer we shall spend much time in the open air.
5. He doesn't like coffee.

**VI. Заполните пропуски глаголами *to be* или *to have (to have got)* в нужной форме. Переведите предложения.**

1. They ... married.
2. I ... a new hat. It... nice.
3. Bill ... the best football player in our school.
4. They ... absent-minded.
5. Tom ... a new bicycle.

**VII. Перепишите предложения, поставив глагол *to be* в правильную форму. Переведите предложения.**

1. There ... a lot of snow in the streets.
2. There ... much bread on the table.
3. There ... twelve chairs and a table in the room.
4. ... there much water in the jug?
5. There ... some money for you to spend.

**VIII. Перепишите предложения и переведите их, обращая внимание на бессоюзное подчинение.**

1. The depth the tap root penetrates to varies greatly in different soils.
2. The agronomist we spoke about had helped us in our work.

**IX. Прочитайте и устно переведите на русский язык текст. Перепишите и письменно переведите 1, 2, 3-й абзацы.**

## **ENVIRONMENTAL PROTECTION**

1. Environmental protection is one of mankind's primary concerns and the people

have the duty to use the natural resources sparingly. Much is being done to conserve nature.

2. The Russian Federation has always been concerned with the protection of flora and fauna and the initial decrees "On Hunting", "On the Protection of Outstanding Natural Phenomena", "Gardens and Parks", and "On the Protection of Fish and Marine Animals" all played a great role in conserving the animal and plant world. We succeeded in preserving and re-establishing the numbers of 18 rare species of beasts, including the bison, onager, mountain antelope, tiger, desman, as well as 30 species of rare birds: bustard, flamingo, etc.

3. Thanks to the natural preserves, many valuable animals which were on the verge of extinction were preserved and transported to many parts of the country where they have re-established their numbers. For instance, by the time we had set up the Barguzin natural preserve, there were not more than 20-30 sables left; now there are thousands of these valuable fur-bearing animals. Then, there were only a few pairs of beavers left in the Voronezh Natural Preserve; now, however, there are beaver colonies in 73 districts of Russia. As for the almost exterminated bison, it has been given a new lease of life in the Prioksko-Terrasny and the Oka natural preserves. The same goes for other species such as the deer, elk and water fowl.

4. The Russian Ministry of Agriculture has produced "The RF Red Data Book". The purpose of its publication is to encourage state bodies and public organizations to pay more attention to preserving wildlife and plants.

5. The book is full of basic information on the species in need of urgent protection. It includes 63 species and subspecies of mammals, 63 species of birds, 8 of amphibians, 21 of reptiles and 438 of plants.

6. Our country cooperates with a number of the countries in protecting nature. We have wide contacts with Bulgaria, Poland, Hungary, the USA, the UK, France, Sweden, Norway, Belgium and some other countries.

**X. Прочитайте 4-й абзац текста и ответьте на вопрос: *What is the purpose of publication of the «Red Data Book»?***

## КОНТРОЛЬНОЕ ЗАДАНИЕ № 2

Для того, чтобы правильно выполнить задание № 2, необходимо усвоить следующие разделы курса английского языка:

**1. Видо-временные формы глагола:** а) активный залог - формы Indefinite (Present, Past and Future); формы Continuous (Present, Past, Future); формы Perfect (Present, Past and Future); б) пассивный залог - формы Indefinite (Present, Past and Future). Особенности перевода пассивных конструкций на русский язык.

**2. Модальные глаголы:** а) выражающие возможность: *can (could), may* и эквивалент глагола *can - to be able*; б) выражающие долженствование: *must*, его эквиваленты *to have to, to be to, should*.

**3. Простые неличные формы глагола:** Participle I (Present Participle), Participle II (Past Participle) в функциях определения и обстоятельства. Gerund герундий, простые формы. Infinitive -инфинитив в функции: а) подлежащего; б) составной части сказуемого; в) определения; г) обстоятельства цели.

**4. Функции глаголов *to be, to have, to do*.**

**5. Грамматические функции и значения слов *that (who), one, it*.**

**6. Определительные и дополнительные придаточные предложения (союзные); придаточные обстоятельственные предложения времени и условия.**

**7. Интернациональные слова.**

Используйте следующие образцы выполнения упражнений.

### ОБРАЗЕЦ ВЫПОЛНЕНИЯ 1 (К УПР. 1)

а) By the end of the year  
he had learnt to speak English.

К концу года он научился  
говорить по-английски.

***had learnt* - Past Perfect Active от нестандартного глагола *to learn*.**

б) Our luggage was examined  
by the customs officers yesterday.

Наш багаж был осмотрен  
таможенниками вчера.

***was examined* - Past Indefinite Passive от стандартного глагола *to examine*.**



## ОБРАЗЕЦ ВЫПОЛНЕНИЯ 2 (К УПР. II)

1. The growth of all cultivated plants depends on the fertility of the soil.

*cultivated* - Participle II, определение.

2. When heated to the boiling point water evaporates.

кипения

*(when) heated* - Participle II, обстоятельство.

3 The letters were typed a week ago.

*typed* - Participle II, составная часть видо-временной формы Past Indefinite Passive от глагола *to type*.

Рост всех культурных возделываемых растений зависит от плодородия почвы.

Когда воду нагревают до точки кипения, она испаряется, (или: При нагревании до точки кипения вода испаряется.)

Письма были напечатаны неделю назад.

## ОБРАЗЕЦ ВЫПОЛНЕНИЯ 3 (К УПР. V)

1. It is necessary to use the latest means of control in industry.

2. One must always keep one's word.

3. The people know that their joint efforts can secure peace in the whole world.

Необходимо использовать в промышленности новейшие средства контроля.

Нужно всегда держать свое слово.

Люди знают, что их совместные усилия могут сохранить мир во всем мире.

## ВАРИАНТ I

**I. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. В разделе (б) обратите внимание на перевод пассивных конструкций.**

- а) 1. I will be waiting for you at 5 o'clock tomorrow.  
2. When I woke up this morning, the sun was shining high in the sky.  
3. He wanted to go to the Far East as he had never been there.
- б) 1. On a global scale, the tropical rain forest have been called the world's most threatened ecosystem.  
2. This book on problems of agriculture is often referred to in diploma papers.

**II. Перепишите следующие предложения; подчеркните *Participle I* и *Participle II* и установите функции каждого из них, т.е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.**

1. Each farm food contains protein, the amount varying from one crop to another.  
2. Scientists working on barley and sorghum have found genes that raise the protein quality in those crops.  
3. When given the book read the article about environment protection.  
4. The work done by the young specialist gave good results.  
5. The rising sun was hidden by the clouds.

**III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык.**

1. We are to do this experiment today.  
2. Some plants can live in desert region.  
3. The expert admits that the goods may have been damaged in transit.  
4. We had to cover the bags with tarpaulin, otherwise they could have been wetted the rain.

5. You should have asked permission before you took the book.

**IV. Перепишите предложения и переведите их на русский язык, обращая внимание на разные значения глаголов *to be, to have, to do*.**

1. She does not live in the suburbs, she lives in the centre of the city.

2. He had ten minutes before he had to leave for work.

3. Our plant is to increase the output of consumer goods.

4. They have got a nice house in the country.

5. The students are writing test now.

**V. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на разные значения слов *it, that, one*.**

1. It is clear that he will not come.

2. The territory of Moscow is larger than that of London.

3. One should be careful when crossing the road.

**VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на герундий и его функцию.**

1. He felt satisfaction in helping them.

2. There are different ways of solving this problem.

3. On finding that the engine was working badly, the pilot was obliged to land.

4. The captain is against loading goods on deck.

5. Reading this book I did not use a dictionary.

**VII. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива.**

1. To know how a plant grows, you must study botany.

2. Much moisture is necessary for crops to grow well.

3. To provide big cities with dairy products is very important.

4. The agricultural experimental stations in many countries are conducting tests in order to determine the varieties to be best suited for various soil and climate conditions.

**VIII. Прочитайте и переведите текст "Drought Control in Russia".  
Перепишите и письменно переведите 1, 2, 4-й абзацы.**

### **Пояснения к тексту**

1. multi-purpose - *комплексный (многоцелевой)*
2. sprinkler installation - *дождевальная установка*
3. irrigation by sprinkling - *орошение дождеванием*
4. water application rate - *норма орошения*

### **DROUGHT CONTROL IN RUSSIA**

1. The most fertile lands in Russia are in the south where droughts occur systematically. In the Volga region, this exceedingly rich black earth area yielding 25 per cent of the total wheat harvest in the Russian Federation, droughts occurred in 41 out of 50 years. About one half of arable area lies in arid and semiarid regions and in deserts or semi-deserts where agriculture can develop only under irrigation.

2. At present irrigation work is being carried on in all arid regions, the whole cotton and rice production and two thirds of grain production being concentrated here. Rivers, lakes and underground water are successfully used for irrigation purposes. Gigantic dams were built, water reservoirs were created and canals excavated in steppe and desert zones. Many multi-purpose water reservoirs which combine at the same time the functions of irrigation, power developments and flood prevention has been built in Russia.

3. The yields of cereals in the irrigated areas have increased by 60 per cent. The average wheat yields on many farms exceed 5 tons per hectare. Due to the combined efforts of irrigation engineers, agronomists and farmers crop yields have increased immeasurably.

4. In the central zone of the country where droughts also occur it has been considered unprofitable to build large canals. Various sprinkler installations are being successfully used in this area. In irrigation by sprinkling water is applied to plants and soils in a manner the same as natural rainfall. The most important disadvantage is the cost of installing the system.

5. The high degree of water efficiency is the main advantage of sprinkler irrigation over other methods of irrigation. Water application rates can be as low as 0.10 inches per hour, thus permitting irrigation of all kinds of soil without erosion and excessive water

losses. Sprinkler systems have additional advantages such as fertilizer application, frost protection, temperature control.

**IX. Выпишите из текста предложение, которое является ответом на вопрос: *Why are large irrigation canals not built in the central zone of Russia?***

## ВАРИАНТ II

**I. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. В разделе (б) обратите внимание на перевод пассивных конструкций.**

- a) 1. When we came to the station the train had left.  
2. I was working in the garden when my friend came to see me.

б) 1. At the last lecture on agronomy we were shown a number of crops growing in Moscow region.

2. New discoveries are usually followed by still new ones.  
3. Man cultivated fruit trees where no vegetables had been grown before.

**II. Перепишите следующие предложения; подчеркните *Participle I* и *Participle II* и установите функции каждого из них, т.е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.**

1. These are the embryo and the store of plant food surrounding it.  
2. All field crops grown may be classified according to their uses.  
3. I picked up the letter lying on the floor.  
4. Among the factors affecting potato production climate is the most important one.  
5. At our station the agronomist raised a new-rooted variety of carrot some years age.

**III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык.**

1. A good potato crop cannot be produced unless the soil is well supplied with vegetable matter.

2. This plant must be introduced into our region.

3. I had to stay at home last night.

4. The roots of this plant should penetrate deeply into the soil.

5. One object may be larger than another one, but it may weigh less.

**IV. Перепишите предложения и переведите их на русский язык, обращая внимание на разные значения глаголов *to be, to have, to do*.**

1. The farm has large irrigated fields.

2. Some substances do not conduct heat.

3. The central part of India is a rather dry and poor agricultural area.

4. The builders had to work one more week on the farm.

5. They were sowing wheat when we came to the farm last spring.

**V. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на разные значения слов *it, that, one*.**

1. It is very difficult to translate such texts without a dictionary.

2. One must take part in scientific work.

3. The Bratsk-power-station on the Angara is much more powerful than that on the Dnieper.

**VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на герундий и его функцию.**

1. Applying stable manure, we may increase the fertility of the soil.

2. The students' working on the farm in summer helps them to study many agricultural processes.

3. He began working at the problem of electric motor's selection two months ago.

4. Solving this problem is a very difficult task.

5. People cannot live without producing food, fodder and industrial crops.

**VII. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива.**

1. To facilitate control of wind erosion and increase the harvest of grain crops, a

new soil-protective system of agriculture has been introduced.

2. Here are the machines to work on our farm.

3. To know foreign languages is very important for specialists in agriculture.

4. We must irrigate this soil to get high yields.

**VIII. Прочитайте и переведите текст "Plants and Their Uses".**

**Перепишите и письменно переведите 1, 3, 4, 7, 8-й абзацы.**

#### **Пояснения к тексту**

1. no longer - *больше не*

2. to work out - *разрабатывать*

### **PLANTS AND THEIR USES**

1. From earliest times plants are known to play an important part in everyday life of man. We know plants to provide us with food, clothing, shelter and many other necessary things. People are still as dependent upon plants as primitive man was many thousand years ago. Great necessity caused primitive man to grow plants. And the cultivation of plants is thought to be closely connected with man's progress. In order to grow plants man had to settle down and to begin building homes.

2. Civilization has increased man's wants to a surprising extent. The man of today is no longer satisfied with merely having food to eat and house to live in. He wants raw materials which can be made into useful things and products.

3. Man' food and clothing are produced directly or indirectly by plants. Many animals feed on plants and produce food and raw materials used by man. Without plant life neither animals nor men will be able to live.

4. Many things people use in everyday life are made from plants. The paper they write on, the clothes they wear, the tables they sit at, all come from plants. Plants are used as timber in the making of furniture and as fuel. Many drugs are made from plants.

5. There exist very many species of plants. But the best known to most people are those that are useful to men. They are grown and cultivated by farmers and are called farm crops. These crops are used for many different purposes.

6. Some are used directly by man, some are consumed by animals, others are used

in industry and medicine. We can certainly expect new uses to be found and the value of other plants to be discovered.

7. As plants are so important to man, they must be well cared for and grown under suitable conditions. Then they will give greater yields.

8. For the plants to grow well they must also be well protected against pests and diseases.

**IX. Выпишите из текста предложение, которое является ответом на вопрос: *What things made from plants are used in everyday life by people?***

### **ВАРИАНТ III**

**I. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. В разделе (б) обратите внимание на перевод пассивных конструкций.**

a) 1. Science in Russia has made enormous progress since 1917.

2. He hurt his leg while he was playing football.

3. After the cases had been counted, I left the warehouse.

б) 1. Sugar beet has been introduced to Britain from the Continent since the first World War.

2. Wheat is cultivated throughout the world.

**II. Перепишите следующие предложения; подчеркните *Participle I* и *Participle II* и установите функции каждого из них, т.е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.**

1. These are different kinds of plants growing in the Polar regions.

2. The harvest time is also dependent upon the method of harvest used.

3. It is desirable to sow winter wheat early enough, the time of sowing varying with the locality.

4. The translation made without a dictionary was very good.

5. A barometer is an instrument measuring atmospheric pressure.



**III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык.**

1. Such plants may have grown in this region many years ago.
2. He was to be here at 9 o'clock but he didn't come.
3. Every student should know the difference between the roots of alfalfa and those of wheat.
4. If I had a good dictionary I could translate the article.
5. We had to cover the bags with tarpaulin, otherwise they could have been wetted by the rain.

**IV. Перепишите предложения и переведите их на русский язык, обращая внимание на разные значения глаголов *to be, to have, to do*.**

1. The farmers have built new cottages.
2. She is looking at the woman sitting in the corner of the room.
3. They had to get good harvest.
4. We are to begin this work at once.
5. Do you study economy?

**V. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на разные значения слов *it, that, one*.**

1. It was necessary to tranship the goods in Riga.
2. The new machine works better than the old one.
3. It was the Russian scientist Ladygin who invented the electric lamp.

**VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на герундий и его функцию.**

1. He went away without leaving his address.
2. The seeds do not germinate when the freezing of soil takes place.
3. I am obliged to you for helping me.
4. On the lecturer's appearing in the hall, there was loud applause.
5. Loading heavy weights requires great skill.

**VII. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива.**

1. He knew himself to be strong enough to take part in the expedition.
2. There is every reason to suppose that the cargo will arrive in time.
3. To drive a car in a big city is very difficult.
4. The root is usually the first part of the plant to break through the seed coat.

**VIII. Прочитайте и переведите текст "The Man Who Remade Nature".**

**Перепишите и письменно переведите 1, 3, 5, 6, 8-й абзацы.**

#### **Пояснения к тексту**

1. the Michurins - *семья Мичуриных*
2. both ... and - *как ... так и*
3. mean - *означать*
4. frost-resisting - *морозоустойчивый*
5. heredity - *наследственность*

#### **THE MAN WHO REMADE NATURE**

1. Ivan Vladimirovich Michurin was born in the village of Dolgoye, near Koslov, in 1855. All the Michurins had always been gardeners, and all of them had experimented in improving the varieties of apples. They say that Ivan Michurin's grandfather was an especially talented experimenter, but he had no money with which to carry on his experiments. Perhaps if he had received an encouragement and help from the tsarist government, he would have achieved better results. But no help came.

2. The first period of I.V. Michurin's life was also very hard. He had no assistants and no financial help from the government.

3. The task which he set himself when he was still a young man was to develop frost-resisting varieties of plants which could grow as far to the North as possible. To his mind, the black tulips and the blue poppies could wait. What he wanted to do was to move the South northward.

4. If Michurin had used only the method of artificial selection which Burbank and other were using at that time, he would not have fulfilled this gigantic task. He had to

work out new methods.

5. The selectionists did what nature did, only much quicker, using artificial selection instead of natural. Michurin, however, clearly saw the main drawback of selection, namely that it copied nature and its methods instead of interfering with nature and creating new methods: Michurin did what nature never did. In his creative work he went beyond the stage of using selection and turned to hybridization, that is, getting new forms by cross-breeding plants of different species and varieties.

6. In his wish to remake nature Michurin crossed not only different varieties of the same plant, but different plants, for instance, apples and pears. This is something which can never be found in nature.

7. In the course of his long and fruitful life Michurin developed 350 varieties of plants that had not existed before, many of them of the frost-resisting type.

8. His greatest contribution to science, however, was the actual revolution in biology which he made. He proved that heredity can be directed, that inherited qualities can be changed if the conditions of life are changed.

**IX. Выпишите из текста предложение, которое является ответом на вопрос: *What Michurin's greatest contribution to science?***

#### **ВАРИАНТ IV**

**I. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. В разделе (б) обратите внимание на перевод пассивных конструкций.**

a) 1 . What were they doing at this time yesterday?

2. He will have finished translating the article by the end of the week.

б) 1. Wheat and other small grains have been less improved by selection than com.

2. The new laboratory equipment was sent for yesterday.

3. Electric car will be widely used in future.

**II. Перепишите следующие предложения; подчеркните *Participle I* и *Participle II* и установите функции каждого из них, т.е. укажите, является ли**

**оно определением, обстоятельством или частью глагола-сказуемого.**

**Переведите предложения на русский язык.**

1. The improved methods of work in the fields have good results.
2. Rivers connected by canals form long-water-ways.
3. These are different kinds of plants growing in the Polar regions.
4. When carrying out the experiment the scientist made a lot of calculation.

**III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык.**

1. Such plants may have been cultivated by man long ago.
2. They must have chosen the way.
3. Every student should know the difference between the roots of alfalfa and those of wheat.
4. If I had a good dictionary I could translate the article.
5. These cells may be easily found in as well as on the stem of that plant.

**IV. Перепишите предложения и переведите их на русский язык, обращая внимание на разные значения глаголов *to be, to have, to do*.**

1. The farm has to irrigate its fields.
2. The increase has been followed by its spreading.
3. The existing agricultural machines are not always good to perform necessary production operations.
4. They had to work hard to get good harvest.
5. He doesn't drive a car.

**V. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на разные значения слов *it, that, one*.**

1. It is hydrogen that will be the main source of energy in the car of the future.
2. The distance from the Sun to the Earth is much longer than that from the Moon.
3. If you don't want to read this story, I will bring you another one.

**VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на герундии и его функцию.**

1. They discussed different methods of environmental protection.
2. Improving soil fertility in this area is the main task for the farmers.
3. There is no harm in doing that.
4. On finding that the engine was working badly, the pilot was obliged to land.
5. When planting this crop, we must take into consideration whether it will be used for grain or for green fodder.

**VII. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива.**

1. To solve this problem is very important both for industry and agriculture.
2. The plant must have better equipment in order to increase its produce.
3. To survive, every species must modify its environment.
4. The agronomist does not expect the plant to grow under dry conditions.

**VIII. Прочитайте и переведите текст "Utilization of Natural Resources".**

**Перепишите и письменно переведите I, 2, 3, 4, 7-й абзацы.**

#### **Пояснения к тексту**

1. all over the world - *во всем мире*
2. pollution of the environment - *загрязнение окружающей среды*
3. as a whole - *в целом*
4. on the one hand - *с одной стороны*
5. on the other hand - *с другой стороны*
6. from ... point of view - *с ... точки зрения*

### **UTILIZATION OF NATURAL RESOURCES**

1. The problem of rational utilization of natural resources is of greatest importance all over the world today. There are two main aspects of the problem: first - all natural resources are to be used more economically as they are not unlimited, and second - measures are to be taken to prevent harmful effect of waste products of industrial enterprises on the environment.

2. Now, in the period of most intensive development of industry and agriculture, the programme of nature conservation is of special importance. According to this programme,

practical measures on rational and economic utilization of natural resources in different spheres of economy are planned.

3. One of the means to solve both aspects of the problem is to build complex enterprises. It means that the production process in the complex must be organized so that waste products of one enterprise could be utilized and processed by another. On the one hand, it will have great economic effect, and, on the other hand, will protect air and water from pollution.

4. Though complex enterprises will require rather big capital investments, it is better both from economic and ecological point of view to prevent pollution of the atmosphere than to liquidate its effect.

5. When we use natural resources we should be careful not to destroy the balance of the biosphere in order to preserve nature not only for people living now, but also for those who will live many thousand years after.

6. To solve ecological problems sociologists, biologists, economists, physicists, biochemists, mathematicians, geologists, agronomists, foresters, engineers are coordinating their work. That is why some basic information on ecology is to be part of professional education of specialists in different spheres of science.

**IX. Выпишите из текста предложение, которое является ответом на вопрос: *What measures on rational and economic utilization of natural resources are planned?***

## **ВАРИАНТ V**

**I. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. В разделе (б) обратите внимание на перевод пассивных конструкций.**

а) 1. It was raining when I left the house.

2. The plant had carried out its yearly plan by the first of December.

б) 1. Triticale is being widely researched and developed both as a commercial crop and as a feed grain.

2. Many varieties of potato have been derived from breeding work.

3. The new tractor will have been made by next autumn.

**II. Перепишите следующие предложения; подчеркните *Participle I* и *Participle II* и установите функции каждого из них, т.е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.**

1. Look at the trees growing in our garden.

2. Well-known all over the world the Russian book on agronomy was also translated into English.

3. When translated the Russian text will be of interest to the students.

4. You should know the factors the work of harvesting machine depends upon.

5. Both fall and spring plowing have their place in growing corn in the USA.

**III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык.**

1. No variety of this plant can develop normally under such unfavorable conditions.

2. These cells may be easily found in as well as on the stem of that plant.

3. They must have chosen another way.

4. Soils used for growing vegetables should be well provided with organic matter.

**IV. Перепишите предложения и переведите их на русский язык, обращая внимание на разные значения глаголов *to be*, *to have*, *to do*.**

1. The letter was written by secretary.

2. The seeds do not germinate because it is cold.

3. Corn, like wheat, has a fibrous root system.

4. The moisture requirements of this farm crop are quite unlike those of flax.

5. Too much water in the soil has been found to cause rotting of the seed.

**V. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на разные значения слов *it*, *that*, *one*.**

1. It is necessary to finish the construction of the new irrigation canal by the end of July.

- 2 The year on Mars is twice as long as that on the Earth.
3. One knows well that mathematics is very important for an engineer.

**VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на герундий и его функцию.**

1. The soil we use for planting must be fine and mellow.
2. To know the new methods of cultivating is very useful.
3. Harrowing the soil thoroughly, we may prepare a good seedbed for wheat.
4. Though it is not sufficiently fertile, such soil can be used for growing this crop.
5. Some considered heavy manuring to have favoured the development of this disease.

**VII. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию инфинитива.**

1. To absorb plant nutrients from the soil the plant must have roots.
2. He has studied botany long enough to know it well.
3. The growing of this legume is to improve the fertility of the soil.
4. The seeds started to germinate after a heavy rain.

**VIII. Прочитайте и переведите текст "Nature Conservation". Перепишите и письменно переведите 1, 3, 4, 5, 6-й абзацы.**

### **NATURE CONSERVATION**

1. Man's interference in nature continually increases, leading to various negative changes in the environment. Among the negative factors that result in the disfunction of ecological systems are the pollution of water and air and the destruction of natural landscapes.

2. Ecological imbalance has become a global problem, drawing the attention of practically all countries.

3. Along with the problem of the struggle for peace and for general and complete disarmament it must be regarded as one of the most pressing problems facing mankind.

4. Nature conservation, the sparing utilization of natural resources and the improvement of the environment in our country are important features of our social and



economic development programmes. A series of measures for protecting and improving the environment are taken on the basis of government decisions.

5. The Russian Federation and other countries are convinced supporters of large-scale collective environmental protection. The recognition of the importance of the problem for our continent is illustrated by the fact that it was precisely in Europe that the greatest efforts to find cardinal and rapid solutions to many of the environmental problems were undertaken.

6. Specifically, the Final Act of the Conference on Security and Cooperation in Europe, signed in Helsinki by the leaders of 33 European countries, and of the USA and Canada, devoted a special section to the problem of environmental protection and improvement.

**IX. Выпишите из текста предложение, которое является ответом на вопрос: *Why is nature conservation one of the most pressing problems of the global?***

## ТЕКСТЫ ДЛЯ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

**Все тексты данного раздела необходимо перевести на русский язык письменно.**

### Text I

#### THE NATURE AND IMPORTANCE OF PLANTS

Man has always lived with plants but most of us probably do not realize how important plants are in our daily life and that we are still just as dependent upon plants as primitive man was thousands of years ago. Not only some plants provide us with food clothing and shelter but other necessary or desirable articles as well. All our food and clothing are produced either directly or indirectly by plants. There exist more than 250000 species of plants on the earth.

When grouped together they are known as plant kingdom. As to the size, some plants such as bacteria are made up of only one cell and are so small that they can be distinguished only with the aid of a microscope. Others are very large, as, for instance, redwood trees growing in California that may be 350 feet high with a diameter of 20 feet at the base. There are plants such as fungi that have neither true stems nor leaves and do not produce flowers and seeds.

Some plants grow only under rather moist conditions whereas others prefer dry conditions rather than moist and are limited to hot dry areas.

The plant forms best known to most people are those that are useful to man. Many of these are grown and cultivated by the farmer and therefore are called farm crops. Many of the farm crops, however, are not used directly by man, being rather sources of feed for animals which in turn produce valuable food products used by man. Then, too, some crops are used by in industry in the manufacture of various articles. Certain plants are constantly being put to new uses and many crops are used for a number of purposes. Certainly there may be plants the value of which has not been as yet discovered. Undoubtedly we do not yet know all the uses that can be made of farm crops and other plants, but as scientists continue their work many more uses will be found.

## **Text II**

### **RYE**

Rye, like corn, wheat, oats, barley, millet and rice, is included in the group of field crops which are referred to as cereals or grain crops.

Botanically cereals are grasses and a cereal may be defined as any grass grown because of the value of its seeds as human food and as feed for livestock. It is one of the most valuable grains raised and occupies an important place in agriculture because of its being hardy and able to grow on soils which are not well suited for growing other small grains. Compared to wheat, rye is a relatively new crop. It has not been under cultivation as long as wheat or barley. The earliest cultivation of rye appears to have been in western Asia or southern Russia. Unlike the other small grains grown, the rye plant is normally cross-fertilized, its flowers being often self-sterile. Thus, for seed to be produced on one plant, pollen must be provided by another plant. In other words, rye cross-pollinates very readily. Its straw unlike that of wheat is not hollow but filled with a pith.

There exist both winter and spring varieties of rye.

Rye is most productive on fertile well-drained soils. However, it is seldom grown under such conditions, since due to the heavy growth that results plants often lodge badly and this makes harvesting difficult, and because winter wheat is usually preferred on such soils, if climatic conditions permit.

On the other hand, as rye yields better than the other cereals on sandy, acid or infertile soils, farmers usually sow it on soils which are not sufficiently fertile to grow other small grains profitably. Rye and wheat are alike in that they are widely used as food crop. Rye is also of great value as a cover crop, green manure and hay or pasture crop. As a hay crop rye appears to have its greatest value in dry frosty northern regions where other crops can be grown with only a little success.

Rye straw is valued highly for bedding and packing.

### **Text III**

#### **BEGINNING OF PLANT CULTURE**

All of the plants known today as cultivated varieties originally existed in the wild state.

Plant culture began a great many years ago; where and when the beginning took place no one can say. It must have started at least 10,000 to 12,000 years ago. The earliest people of whom we have definite knowledge had made rather great progress as agriculturists. Nearly all of the food plants of civilized man came under cultivation before the historical period. The most important food plants in the world were being grown and used at least as long as 4,000 years ago. There have been found evidences that some regions now arid were once productive and were cultivated by man.

At first men lived upon food secured from wild plants and from hunting and fishing. Primitive man learned the value of food plants by experiment. Game and fish could not always be secured; supplies of the more obviously edible roots and fruits sometimes gave out and so all sorts of plant parts were tried, such as stems, leaves, young sprouts, seeds, etc. As the supply of food provided by wild plants and animals became insufficient, attention was then turned to agriculture and primitive man began to grow wild plants. Thus, grim necessity rather than love of plants caused primitive man to grow plants. There can be no doubt that man's progress has been closely associated with the cultivation of plants. The primitive man who hunted and fished for a living did not need a fixed home. Even the earliest livestock keepers could be more or less nomadic, following their herds.

But having started to grow plants, men had to settle down, as there were plantings to be made, weeds to be removed, enemies to be driven off, and harvests to be gathered. Thus, with the culture of plants there developed the building of homes. At first, plants were used by men for food and shelter, later for clothing, medicine and a number of other purposes.

The cultivation of some plants may have begun independently in different places. As time progressed, plants were introduced from one region into another. The less desirable plants were replaced by the more valuable ones of other regions.

Then there came about through centuries a gradual although not always consciously directed improvement in cultivated plants. After plant culture began, man must soon have discovered the value of certain practices in the growing of his crops. But much time had passed before the science of crop production (agronomy) was created. Nowadays any agriculturist should know the fundamentals of crop production and first of all he has to study crop botany dealing with how plants grow and with the functions and parts of the living plants.

#### **Text IV**

### **THE ROOTS**

Roots frequently make up one-half, or even more, of the weight of crop plants. The main functions of the roots are to anchor the plant and absorb water and plant nutrients from the soil.

All roots are alike in that they end in a rather hard pointed portion about a quarter of an inch long called the root cap. It is by means of this root cap that the young, tender root forces its way between the soil particles. The lengthening of the root takes place just back of the root cap rather than along the entire length, the root being enabled to find its way around obstacles, such as pebbles and other objects in the soil, a fine, mellow soil is important in that it allows the roots to grow freely, as it is more easily penetrated by them.

Just back of the root cap are small rootlets, or root hairs, which are feeding roots of the plant. It is through those hairs that the plant absorbs water and nutrients from the soil, the root hairs come into very close contact with the soil particles, as would be found, if a plant was dug up and the earth was washed from the roots carefully. It would be very hard to remove all the fine particles of soil from these root hairs, so closely do they cling. Wherever contact with a solid body is made, a special substance develops on the outside of the cell wall of the root hairs causing a very close contact between them and the soil particles, which makes possible a rapid absorption of moisture and of nutrient materials.

Root hairs may be an inch long, though they are usually much less. They are short-lived, old ones dying and new ones forming continually. As the root gets older, root hairs cease to form.

All the roots and root branches of a plant form a root system. If the central root grows faster than the others, subordinating the side roots, the plant has a tap root system, the examples of which are the roots of alfalfa and carrots.

In other plants, as in grasses, a secondary root system springs from a node in the stem between the seed and the surface of the soil. These secondary roots frequently outgrow the primary ones, giving rise to the so-called fibrous root system of the plant. The roots of cereals belong to the latter and extend outward and downward in all directions from the nodes at or below the surface of the soil.

### **Text V**

#### **THE WATER OF THE SOIL**

Should a plant be deprived of food, it would live for considerable time; but should it lack water, it would very soon wilt and cease to grow. The yield of crops during any particular year is usually determined by the moisture conditions during the periods of growth.

Among the factors connected with agriculture the water in the soil is one to be most carefully studied and most thoroughly understood.

The control of moisture through known means may determine the success or failure of crops in arid regions during a crucial period, and during the other periods of their growth it means the difference between a moderate and a good yield.

Even in humid climates it is absolutely necessary to store as much as possible of the water that falls because rainfall may be often scant during some parts of the growing seasons, and as plants draw heavily upon the water previously stored in the soil, there may not be sufficient moisture to produce crops.

Evaporation from the soil is affected by the same factors as that from a water surface. Heat, wind, sunshine, air humidity, and altitude all play their part.

Evaporation from a free water surface in the arid and semi-arid regions ranges from about 35 to 60 inches during the growing seasons whereas the total yearly rainfall in these regions is only from 3 to 30 inches. Should this rainfall be allowed to remain near the surface of the soil, it would evaporate at about the same rate as from a free water surface.

The problem of moisture conservation is that one must prevent the capillary rise and consequent evaporation of the water. The former is very slow in dry soil and taking advantage of this fact constitutes the most practical means for preventing the latter.

Having stirred the upper three inches of a saturated soil, one may cause the disturbed area to form a soil mulch which effectively checks further loss of moisture from below.

The quantity of moisture in the soil is largely due to the nature of the soil as well as to the precipitation of that region. The rainfall cannot be influenced by the man, but one can do much to save water after it falls.

Thus, it is highly important that the farmer pay proper attention to securing the best possible moisture conditions when raising his crops.

## КОНТРОЛЬНОЕ ЗАДАНИЕ № 3

### ВАРИАНТ I

#### I. Прочитайте текст и переведите 1, 2-й абзацы.

Good soil management means proper use of many factors such as natural conditions, land, crops, livestock, machinery, fertilizers and some others. All these factors have to be put it together to farming system work successfully. One of the most important things to be taken into consideration in producing plants and crops is the soil, which is known to be a natural resource that supports plant life. It is a mixture of particles of rock, organic materials, living forms, air and water.

During his entire existence upon the Earth man has depended upon the soil either directly or indirectly. Grain, fruit and food products obtained by man directly from the soil, domestic animals consume grain and forage and provide people with meat, milk, eggs and other products used as human food. These are the products obtained from the soil indirectly.

Some good clay and loamy soils are naturally highly fertile; some light sandy soils are naturally poor. Various factors that make up the soil fertility are moisture conditions, plan food, and soil structure. All these components may be regulated by proper management of the soil. Soil management is the science of tillage operations, cropping practices, using fertilizers, lime and other treatments conducted on, or applied to, soil for the production of crops.

Plant growth and yields can be increased by applying certain recommended soil management practices, liming, fertilization and irrigation producing, as a rule, immediate yield increases. Good soil management results in better yield and lower cost per unit of production. Fertile soils produce plants that are less affected by diseases and less attacked by insects. In this case we have smaller losses of crops. Some time ago attention was centered on such macro elements as phosphorus, nitrogen and potassium. Now, it is well known that in addition to primary plant food elements mentioned, so called secondary elements (calcium, magnesium, and sulphur) as well as microelements (boron, copper, manganese, zinc, and molybdenum) may be highly important, for crop yields, for livestock and human health.



That is why all farmers should make soil tests in order to determine whether any essential elements are lacking in the soil and to determine the rate of fertilizers to be applied. Thus, the most important thing for the farmer is to get the land into good condition and to keep it that way. Such land is more easily cultivated and provides better conditions for seed germination and plant growth. The quality and yields of crops producer partially depend on the soil management followed. They also depend on the quality of the seed to be used, the variety of the crop to be grown, and some other factors.

### **Vocabulary**

farming - сельское хоз-во, занятие сельским хозяйством, хозяйствование

loamy soils – суглинки

consume – потреблять

consumer - потребитель

to till - возделывать, обрабатывать землю

tillage - обработка почвы (с помощью с-х орудий)

tiller- 1) земледелец, 2) культиватор

tilth - состояние почвы после обработки

lime - известь, известковать

treatment - обработка

to lack -испытывать недостаток, не хватать

rate - норма, степень, скорость, темп

germination – прорастание

**II. Придумайте заголовок к тексту.**

**III. Подберите из текста английские эквиваленты к словам в скобках.**

**Полученные предложения переведите на русский язык.**

1. Some good clay and (суглинки) are naturally highly fertile; some light sandy soils are naturally poor.

2. Grain, fruit and food products obtained by man directly from the soil, domestic animals (потреблять) grain and forage and provide people with meat, milk, eggs and other products used as human food.

3. Soil management is the science of (обработка почвы) operations, cropping

practices, using fertilizers, (известь) and other treatments conducted on, or applied to, soil for the production of crops.

4. That is why all farmers should make soil tests in order to determine whether any essential elements are (испытывать недостаток, не хватать) in the soil and to determine the (норма, степень) of fertilizers to be applied.

5. Such land is more easily cultivated and provides better conditions for seed (прорастание) and plant (рост).

**IV. Подберите к следующим терминам их определения, используя словарный минимум текста:**

1. conservation
2. seedbed
3. soil improvement
4. dryland farming
5. insecticide
6. plant nutrient
7. environment
8. drainage

a). The protection of natural resources according to principles that will assure their highest economic or social efficiency.

b). The removal of excess water from land.

c). The practice of crop production in low rainfall areas without irrigation.

d). All the external conditions that may act upon an organism to influence its development or existence.

e). The soil prepared for sowing seed.

f). Making the soil more productive for growing plants.

g). A chemical used to kill insects.

h). A chemical required for plant growth and development.

**V. Определите, верными или неверными являются следующие утверждения, согласно информации из текста, если нет, то обоснуйте письменно ваш ответ.**

1. Dairy and meat products are obtained directly from the soil.
2. Loamy soils are less fertile than sandy ones.
3. Ploughing and harrowing are tillage operations.
4. Liming is harmful for the soil and does not produce any yield increases.
5. Irrigation is usually done on watery soils.

**VI. Дополните следующие предложения, используя информацию и словарный минимум текста:**

1. Good soil management means . . . .
2. Soil management is . . . .
3. Plant growth and yields can be increased by . . . .
4. All farmers should make . . . .
5. The most important thing for the farmer is . . . .

**VII. Найдите в тексте: а) синонимы, б) антонимы к следующим словам и словосочетаниям:**

а) domestic animals, to take into account, whole, to eat, to get, different, to concentrate, harvests, usually, rapid, quick, cultivation, besides, kind, sort

б) artificial, man-made, fertile, inorganic, the same, directly, decrease, neither . . . nor, drainage, produce, worse

**VIII. Ответьте на следующие вопросы:**

1. What does good soil management mean?
2. Has man depended on the soil during his entire existence?
3. What should people do to get good soil?
4. What microelements do you know?
5. Why should farmers make soil tests?

**IX. Переведите следующие фразы, которые Вы можете использовать при написании эссе:**

The author limits this article to a study of . . . .

These examples illustrate . . . .

The author concentrates on . . . .

This argument is based on . . . .

There is a plenty of evidence that ... .

The first set of examples illustrates that ... .

This presents a serious problem for the second theory ... ,

The purpose of this article is to argue two points ... .

**X. Напишите эссе на одну из предложенных тем:**

1. Agriculture and Environment.
2. Soil Conservation.
3. Fertilization: Its Effect.
4. Weeds, Plant Diseases and Insect Problems.
5. Climatic Requirements for Plants.

**ВАРИАНТ II**

**I. Прочитайте текст и переведите 1, 2-й абзацы.**

Water is the natural resources we all know very well. We know its many forms – rain, snow, ice, hail, vapour, fog. Yet, water is the natural resource we least understand.

How does water get into the clouds? What happens when it reaches the Earth? Why is there sometimes too much and other times too little of it? And, most important, is there enough water for all the plants, and all the animals, and all people?

Water covers nearly three fourths of the Earth, most being sea water. But sea water contains various salts, including those that are harmful to most land plants and animals. Still, it is from the salty seas and oceans that most of our fresh water comes – no longer salty and harmful. Water moves from clouds to land and back to the ocean in a never-ending cycle.

Of the total annual world precipitation over 70 per cent is lost to man immediately since it falls on the sea. From the remaining amount of water falling on the land, some water is lost as result of evaporation, some runs through the ground. It is estimated that the amount of water actually under control is only 0,3 cent of the total annual precipitation. That's a valuable part of precipitation, that's the part that is used for almost all human needs, and they as you know are rapidly growing.

By the year 2100 the problem of water supply is expected to be one of the most

urgent problems. According to some specialists the world's fresh water resources, surface and subterranean, may become exhausted within 20-30 years.

The continuing growth of the cities, industrial development have greatly increased the amount and changed the composition of used water that flows away and accumulates in rivers, lakes and seas, thus creating a problem of water pollution. At present this problem faces all industrially advanced countries.

Russia is rich in both surface and ground water resources. Over a period of one year, the country receives more than 11,690 cubic kilometers of water in the form of rain and snow.

Russia has sufficient resources of fresh water to satisfy the growing needs of industry, agriculture and population. But it has been estimated that in the coming 15-20 years fresh water requirements in Russia will more than double.

However, Russia's water resources are not inexhaustible. In fact some areas of the country have insufficient fresh water. In some places there is also a considerable waste of fresh water which is often used for technological needs in industry.

**II. Придумайте заголовок к тексту.**

**III. Подберите из текста английские эквиваленты к словам в скобках.**

**Полученные предложения переведите на русский язык.**

1. Some (вода) is lost as result of evaporation.
2. By the year 2100 the problem of water supply is expected to be one of the (самый) urgent problems.
3. Industrial development have greatly increased the amount and changed the composition of (использованный) water.
4. The continuing (рост) of the cities, industrial development have greatly increased the amount.
5. That's a valuable (часть) of precipitation.

**IV. Дополните предложения следующими словами из текста и переведите предложения:**

*Earth, resources, forms, plants, salts,*

1. Water is the natural ... we all know very well.
2. We know its many ... – rain, snow, ice, hail, vapour, fog.

3. Water covers nearly three fourths of the ... , most being sea water.

4. Sea water contains various ... .

5. Including those that are harmful to most land ... and animals.

**V. Определите, верными или неверными являются следующие утверждения, согласно информации из текста, если нет, то обоснуйте письменно ваш ответ.**

1. Russia isn't rich in both surface and ground water resources.

2. Over a period of one year, the country receives more than 6000 cubic kilometers of water in the form of rain and snow.

3. Russia hasn't sufficient resources of fresh water to satisfy the growing needs of industry, agriculture and population.

4. Russia's water resources are not inexhaustible.

5. In fact some areas of the country have insufficient fresh water.

**VI. Дополните следующие предложения, используя информацию и словарный минимум из текста:**

1. Russia is rich in ... .

2. The country receives more than ... .

3. Russia has sufficient resources of ... .

4. Russia's water resources ... .

5. Some areas of the country have ... .

**VII. Выберите правильный ответ согласно информации в тексте:**

1. Water covers nearly ... fourths of the Earth.

a) three; b) five; c) two.

2. Sea water contains various ... .

a) sugar; b) salts; c) water.

3. Including those that are ... to most land plants and animals.

a) mineral; b) organic; c) harmful.

4. Water moves from ... to land.

a) clouds; b) sky; c) clothes.

5. Water is back to the ... in a never-ending cycle.

a) clouds; b) sea; c) ocean.

**VIII. Ответьте на следующие вопросы:**

1. What is water?
2. How does water get into the clouds?
3. What happens when it reaches the Earth?
4. Has Russia sufficient resources of fresh water to satisfy the growing needs of industry, agriculture and population?
5. What isn't inexhaustible?

**IX. Переведите следующие фразы, которые Вы можете использовать при написании эссе:**

The author limits this article to a study of ... .

These examples illustrate ... .

The author concentrates on ... .

This argument is based on ... .

There is a plenty of evidence that ... .

The first set of examples illustrates that ... .

This presents a serious problem for the second theory ... ,

The purpose of this article is to argue two points ... .

**X. Напишите эссе на одну из предложенных тем.**

1. The natural resources as water.
2. Water is life.
3. Water and Nature.
4. Water Conservation.
5. Russia's water resources.

**ВАРИАНТ III**

**I. Прочитайте текст и переведите 1, 2-й абзацы.**

Energy is the capacity to do work. Energy comes in many forms. Heat, light, electricity, magnetism, motion are various forms of energy.

The most common form of energy is the Sun's heat and light. We know the Sun's

heat and light is a form of energy because it can do work. It can heat the ocean and evaporate it and lift astronomical quantities of water vapour high into the air.

Water vapour falls as rain to the Earth. Rain that falls on high ground flows back to the sea in the form of rivers. We know the moving water contains energy. Long ago, people began to use the energy of flowing water that comes from the energy of the sunlight.

The sunlight also heats the air. The air nearer the equator gets more heat than the air nearer the poles. The warm bodies of air rise, and the cold bodies of air fall, which causes winds all over the world. The winds contain energy. Long ago people started to use the energy of the wind that comes from the energy of the Sun.

There are some forms of energy that do not come from the Sun. There is heat inside the Earth. In some places, the hot regions appear quite near the surface of the Earth in the form of volcanoes, geysers and hot springs.

The most important forms of energy for man, however, are various kinds of chemical energy. Green plants grow in sunlight (provided they also have water and certain chemicals from the air and the soil). The green plants make use of the energy of sunlight and store it in their leaves in the form of certain substances. When these substances are slowly combined with oxygen from the air, a chemical reaction takes place that releases energy. It is on this “chemical energy” that the plant lives and grows.

Plants are able to store more energy than they are using. Animals can eat the plants and change the plant chemicals into their own, which they then store in their own body. The energy of animals’ muscles comes from the energy of sunlight. In the process about 80 to 90 per cent of the energy stored in the plants is lost, 10 to 20 per cent being stored in the animal. It takes about seven kilograms of plant life to support one kilogram of animal life.

There is always a balance or “equilibrium” between plant and animal life in nature. If animals eat more plants than can be replaced by plant growth, the amount of food for animals grows less. Some animals die and the plants grow better than usual, there being fewer animals to eat them.

The total amount of energy is constant. When energy is spent there is as much energy as before, though its form can be changed. All the transformations that are always



taking place are only changes of energy from one form into another without affecting the whole. This is the Law of Conservation of Energy discovered by M.V. Lomonosov, one of the greatest Russian scientists.

**II. Придумайте заголовки к тексту.**

**III. Подберите из текста английские эквиваленты к словам в скобках.**

**Полученные предложения переведите на русский язык.**

1. (Энергия) is the capacity to do work.
2. It can heat the ocean and evaporate it and lift astronomical quantities of (вода) vapour high into the air.
3. The energy of flowing water comes from the energy of the (солнечный свет).
4. Green (растения) grow in sunlight.
5. These substances are slowly combined with (кислород) from the air.

**IV. Дополните предложения следующими словами из текста и переведите предложения:**

*Sunlight, change, energy, constant, Conservation.*

1. Plants are able to store more ... than they are using.
2. Animals can eat the plants and ... the plant chemicals into their own.
3. The energy of animals' muscles comes from the energy of ... .
4. The total amount of energy is ... .
5. This is the Law of ... of Energy.

**V. Определите, верными или неверными являются следующие утверждения, согласно информации из текста, если нет, то обоснуйте письменно ваш ответ.**

1. The sunlight also doesn't heat the air.
2. The air nearer the equator gets more heat than the air nearer the poles.
3. The warm bodies of air rise, and the cold bodies of air fall, which causes winds all over the Earth.
4. The winds don't contain energy.
5. There are some forms of energy that do not come from the Earth.

**VI. Дополните следующие предложения, используя информацию и**

**словарный минимум из текста:**

1. There is always a balance or “equilibrium” between ... .
2. If animals eat more plants ... .
3. Some animals die and ... .
4. The total amount of ... .
5. When energy is spent ... .

**VII. Выберите правильный ответ согласно информации в тексте:**

1. All the transformations that are always taking place are only changes of ... from one form into another.  
a) Sun; b) energy; c) nature.
2. This is the ... of Conservation of Energy.  
a) text; b) law; c) article.
3. M.V. Lomonosov is one of the greatest Russian ... .  
a) scientists; b) teachers; c) writers.
4. Animals ... eat the plants and change the plant chemicals into their own.  
a) should; b) can; c) will.
5. The energy of animals' muscles comes from the energy of ... .  
a) sunlight; b) wind; c) sun.

**VIII. Ответьте на следующие вопросы:**

1. What is Energy?
2. In what forms does Energy come?
3. Which various forms of energy are there?
4. Are plants able to store more energy than they are using?
5. Who can eat the plants?

**IX. Переведите следующие фразы, которые Вы можете использовать при написании эссе:**

The author limits this article to a study of ... .

These examples illustrate ... .

The author concentrates on ... .

This argument is based on ... .

There is a plenty of evidence that ... .

The first set of examples illustrates that ... .

This presents a serious problem for the second theory ... ,

The purpose of this article is to argue two points ... .

**X. Напишите эссе на одну из предложенных тем.**

1. Law of Conversation of Energy.
2. Plant and Animal Life with the Energy.
3. Forms of Energy.
4. Energy Conservation.
5. Russia's Energy resources.

**ВАРИАНТ IV**

**I. Прочитайте текст и переведите 1, 2-й абзацы.**

Soil is a residue composed of two main ingredients: mineral material and organic material. Organic material originates from dead plants and animals and materials other than this are derived from rocks of various kinds. These rocks are broken down into small particles by mechanical disintegration and chemical decomposition. This breaking down process, known as weathering, may thus be both physical and chemical.

When weathering process are largely physical – by heat or wind, for instance – the composition of the soil is very similar to that of the parent rock. In arid regions weathering is mostly by physical means. But in humid regions chemical processes of weathering are equally important. In such regions rock particles are affected by water which may contain carbonic or other weak acids. These acids dissolve some of the particles in the rocks. The mineral material that is left behind is insoluble. Consequently, the insoluble mineral residues in the soils have less resemblance to the original rocks. There are larger amounts of organic matter in the soil, too.

The process of soil formation results in the development of the soil profile. This is made up of a succession of horizontal layers, or “horizons”, of varying thickness, from the surface to the parent rock. Generally speaking, there are three distinct horizons, known as A, B and C. A is a top soil, which is coarse-grained, and dark in colour because of the presence of humus. B is known as the sub-soil which contains some of the products

leached, or washed, out of the A horizon. The C horizon consists of parent material which has been weathered in the upper part, and unweathered rock below.

An sample of soil contains particles of different sizes. Soils range from pure clays to pure sands. Most of them contain various proportions of sand, silt and clay and these varying proportions make up a soil's textural class. The principal classes in order of increasing fineness of material are sand, loamy sand, loam, silt loam, silty clay loam, clay loam, silt and clay.

Any soil contains both mineral and organic matter. Clay particles are the most important of the mineral particles because they are the smallest. Smaller sized particles have a greater exposed surface area than larger sized particles. The smaller the size of a particle, the greater is its reactivity. That is to say, smaller sized particles can react or combine with water, nutrients and humus more easily than larger sized particles. Thus, a clay soil is more reactive than any other type of soil. Humus from decomposed organic matter is vital to a soil as it makes a heavy soil lighter. In addition, it helps to bind the mineral particles together in "crumbs".

**II. Придумайте заголовок к тексту.**

**III. Подберите из текста английские эквиваленты к словам в скобках.**

**Полученные предложения переведите на русский язык.**

1. The soil system is made up of mineral (частицы) which are mixed with decomposed dead (растения) and (животные).
2. The top soil consists of this (смесь), which is so vital for plant growth.
3. The process of soil (образование) results in the development of the soil profile.
4. The succession of (почвенные горизонты) from the surface to the (материнская порода) is known as the soil profile.
5. (Частицы глины) are the most important of the mineral particles.

**IV. Дополните предложения следующими словами из текста и переведите предложения:**

*weathering, mechanical disintegration, increasing fineness, chemical decomposition, organic material, sub-soil.*

1. Soil is composed of mineral material and .....
2. Rocks of various kinds are broken down into small particles. This process is

known as ...

3. Weathering may be both ... and ... .
4. Sand, loamy sand, loam, silt loam are arranged in order of... particles.
5. Below the top soil is the... which is largely composed of mineral matter.

**V. Докажите, верны ли следующие утверждения согласно тексту, если нет, то обоснуйте письменно Ваш ответ.**

1. Soil is a residue composed by organic and inorganic matter.
2. Soil erosion is mainly of two types: chemical and physical.
3. Mineral materials in soil are derived from various kinds of dead plants.
4. In humid regions rock particles are affected by water which may contain weak acids.
5. In arid regions erosion is mostly by chemical means.

**VI. Дополните следующие предложения, используя информацию и словарный минимум из текста:**

1. The breaking down process is known as ... .
2. Rocks are broken into...
3. The soil profile is the succession of...
4. The top soil is dark in color because of...
5. Soils range from...to....

**VII. Выберите правильный ответ согласно информации в тексте:**

1. From the surface to the parent rock there are a succession of horizontal layers, or.  
a) horizons; b) verticals; c) top layers.
2. Any sample of soil contains particles of different ...  
a) texture; b) sizes; c) classes.
3. Humus from ... is vital to a soil.  
a) decomposed mineral matter; b) solid organic matter; c) decomposed organic matter.
4. The ... the size of a particle, the ... is its reactivity.  
a) smaller / greater; b) greater / greater; c) greater / smaller.
5. Physical and chemical weathering ... rocks into small particles.  
a) breaks down; b) break of; c) break out.

### **VIII. Ответьте на следующие вопросы:**

1. What is soil?
2. What are the advantages of using humus?
3. Which factors influence the soil erosion?
4. What are the different types of soil?
5. What are the size-dependent properties of soils?

### **IX. Переведите следующие фразы, которые Вы можете использовать при написании эссе:**

The author limits this article to a study of ... .

These examples illustrate ... .

The author concentrates on ... .

This argument is based on ... .

There is a plenty of evidence that ... .

The first set of examples illustrates that ... .

This presents a serious problem for the second theory ... ,

The purpose of this article is to argue two points ... .

### **X. Напишите эссе на одну из предложенных тем:**

1. Agriculture and Environment.
2. Soil Conservation.
3. Fertilization: Its Effect.
4. Weeds, Plant Diseases and Insect Problems.
5. Climatic Requirements for Plants.

## **ВАРИАНТ V**

### **I. Прочитайте текст и переведите 1, 2-й абзацы.**

The life cycle of a typical annual plant can be divided into several stages. The first stage is germination. Seeds remain dormant, or in a resting state, if they are kept cool and dry. When the amount of moisture and the temperature level are right, the seeds germinate and start growing.

Certain conditions are necessary for this to happen. An essential condition is that the seeds must be alive. Sometimes seeds are dried at a temperature which is too high. This has two effects: the water content in seeds is reduced too much, and certain essential

proteins are destroyed. As a result, the seeds die.

Other conditions for germination concern the amount of moisture in the soil. If dry seeds are planted in a dry soil, they will not germinate until it rains. On the other hand, if there is too much water in the soil, the seeds will not germinate either. This is because wet soils remain cold for a longer period of time than drier, well-drained soils. If the soil is too cold germination will not occur. An additional reason for seeds not germinating is that badly drained soils may lack sufficient oxygen. Dormant seeds require very little oxygen in order to stay alive, but when they start to germinate they require more.

If the first stage of germination the primary root, or, radical, emerges. Then the stem pushes its way upward until it appears above the surface of the soil. At the same time the root system grows downward, and begins to spread through the soil. In the early stages of development the seedling depends entirely on the foodstore in the seed but as soon as the first leaves are produced, it is able to manufacture food for itself. The seedling begins photosynthesis.

Next, the plant enters the stage of rapid growth. In this stage of the life cycle, the plant begins to grow to its full size. When it is mature enough, it flowers, and when this happens pollination and fertilization are ready to take place. In the process of pollination the pollen is carried by wind or insects from the stamens to the stigma of the carpel. It germinates on the stigma and grows down the style into the ovary, where fertilization takes place.

**II. Придумайте заголовок к тексту.**

**III. Подберите из текста английские эквиваленты к словам в скобках.**

**Полученные предложения переведите на русский язык.**

1. (Стебель) pushes its way upward until it appears above the surface of the (почва).

2. An additional reason for (семена) not germinating is that (плохо дренированные) soils may lack sufficient oxygen.

3. After (растение) has appeared above (поверхность земли) it enters the stage of rapid (рост).

4. In the process of (опыление) the pollen is carried by wind or insects from the stamens to the (рыльце) of the (плодолистик).

5. One of conditions for germination concerns the amount of (влага) in the soil.

**IV. Дополните предложения следующими словами из текста и переведите предложения:**

*dormant, germinate, photosynthesis, enough, pollen.*

1. The seed ... when there is enough air or water and the temperature is right.
2. A seed will only germinate when there is ... air in the soil.
3. Seeds which are ... require very little air to remain alive.
4. As soon as the stem and leaves appear above the surface of the soil, they begin  
....
5. ... is brought about by wind or insects.

**V. Определите, верными или неверными являются следующие утверждения, согласно информации из текста, если нет, то обоснуйте письменно ваш ответ.**

1. The soil was too heavy and clayey so the seed could not germinate.
2. Soil aeration is inadequate and consequently the plant can receive a proper supply of oxygen.
3. It was too cold and as a result photosynthesis could not take place.
4. Because the land is waterlogged, it is impossible to produce a healthy crop.
5. If there is too much water in the soil, it must be drained off.

**VI. Дополните следующие предложения, используя информацию и словарный минимум из текста:**

1. If seeds are kept cool and dry they ... .
2. When seeds are dried at too high ... .
3. A soil which is badly drained may not have ... .
4. The first stage of germination is the emergence of the ... .
5. The foodstore in the seed contains enough ... .

**VII. Выберите правильный ответ согласно информации в тексте:**

1. The first stage in the life cycle of a plant is ... .  
a) root system; b) stem; c) leaf.
2. Conditions necessary for germination are ... .



a) sufficient air and little moisture; b) sufficient air and moisture; c) wet and badly drained soil.

3. If there is ... in the soil, seeds will not germinate

a) too little moisture; b) no oxygen; c) badly drained soil.

4. The first stage in the germination of, for example, a bean is the splitting of the ....

a) cotyledon; b) bark; c) testa.

5. The radicle emerges and start to grow ... .

a) up; b) upwards; c) downwards.

### **VIII. Ответьте на следующие вопросы:**

1. What are the stages of a typical annual plant life?

2. Enumerate three conditions important for the germination.

3. What does the seedling depend on in the early stages of its development?

4. When does the radicle form?

5. When does the fertilization take place?

### **IX. Переведите следующие фразы, которые Вы можете использовать при написании эссе:**

The author limits this article to a study of ... .

These examples illustrate ... .

The author concentrates on ... .

This argument is based on ... .

There is a plenty of evidence that ... .

The first set of examples illustrates that ... .

This presents a serious problem for the second theory ... ,

The purpose of this article is to argue two points ... .

### **X. Напишите эссе на одну из предложенных тем:**

1. Agriculture and Environment.

2. Soil Conservation.

3. Fertilization: Its Effect.

4. Weeds, Plant Diseases and Insect Problems.

5. Climatic Requirements for Plants.

## КОНТРОЛЬНОЕ ЗАДАНИЕ № 4

### Вариант I

#### The Article

#### Выберите правильный вариант ответа:

1. In 1998 Nestle brought half of its products to \_\_\_\_\_ Russian market from abroad.

a) a (an); b) the; c) –

2. Twenty five specialists have already undergone training in \_\_\_\_\_ Germany.

a) a (an); b) the; c) –

3. Many millions of \_\_\_\_\_ people enjoy a quality of life.

a) a (an); b) the; c) –

#### Глагол to be

#### Выберите нужную форму глагола to be:

4. He \_\_\_\_\_ at work now.

a) am; b) is; c) are

5. There \_\_\_\_\_ a lot of Institutes, Universities, libraries and museums in Moscow.

a) am; b) is; c) are

6. \_\_\_\_\_ we to offer you the job, would you accept it?

a) Were; b) Was; c) Have been

#### Глагол to do

#### Выберите нужную форму глагола to do:

7. She \_\_\_\_\_ most of her writing on a computer.

a) do; b) does

8. What \_\_\_\_\_ you do for a living ?

a) does; b) do

9. Where \_\_\_\_\_ you work?

a) do; b) does; c) –

#### Глагол to have

#### Выберите нужную форму глагола to have:

10. She \_\_\_\_\_ a day-off every week.

a) have; b) has

11. I \_\_\_\_\_ a good job last year.

a) have; b) had

12. They \_\_\_\_\_ orders next week.

a) will have; b) have

### **The Plural**

**Выберите правильный вариант ответа:**

13. No news \_\_\_\_\_ good news.

a) is; b) are

### **The Possessive Case**

**Выберите нужную форму существительного:**

14. He had a \_\_\_\_\_ holiday last summer.

a) month's; b) month

**There is /are, there was /were, there have/has been, there will be**

**Выберите нужную форму глагола to be:**

15. \_\_\_\_\_ there a flight to Paris this evening?

a) Are; b) Is

### **The Present Simple / The Present Continuous Tense**

**Выберите нужную форму глагола в настоящем простом или в настоящем продолженном времени:**

16. We usually \_\_\_\_\_ our work at 6.

a) finishes; b) finish; c) are finishing

### **The Present Perfect Tense**

**Выберите правильную форму глагола:**

17. I ...my exams and have a good time now.

a) is passing; b) have passed

### **The Past Perfect**

**Выберите правильную форму глагола:**

18. We couldn't come in time because the rain...not ... .

a) had stopped; b) has stopped

## The Degrees of Comparison

19. She is...beautiful girl in our group.

- a) more; b) the most; c) much

## The Pronouns

**Выберите правильное местоимение:**

20. ... has lived in this house for years.

- a) nowhere; b) no one; c) nothing

## The Modal Verbs

**Выберите правильный модальный глагол:**

21. You...work hard at your English if you want to know it.

- a) can; b) may; c) must

## The Passive Voice

**Выберите правильную форму глагола:**

22. Newspapers...only in the evening today.

- a) are brought; b) will be brought; c) have brought

## The Participle

**Подберите к причастиям соответствующие русские эквиваленты:**

23. a. heating

1. нагретый

b. heated

2. подогрев

c. having heated

3. нагревая

d. being heated

4. после того, как было нагрето

e. having been heated

5. нагреваемый

## The Gerund

**Укажите, какие слова являются герундием:**

24. a. will stream; b. by streaming; c. stream

## The Infinitive

**Выберите правильную форму инфинитива:**

25. We are glad...the summer in the Crimea.

- a) to spend; b) to have spent

## Вариант II

### The Article

#### Выберите правильный вариант ответа:

1. In \_\_\_\_\_ world there is no perfect economic system.  
a) a (an); b) the; c) –
2. Costs are \_\_\_\_\_ money spent to manufacture goods or provide services.  
a) a (an); b) the; c) –
3. Land is \_\_\_\_\_ factor of production.  
a) a (an); b) the; c) –

#### Глагол to be

#### Выберите нужную форму глагола to be:

4. They \_\_\_\_\_ to begin this work at once.  
a) am; b) is; c) are
5. There \_\_\_\_\_ much work last week.  
a) is; b) are; c) was; d) will be
6. There \_\_\_\_\_ a good crop in Russia this year.  
a) is; b) are; c) was; d) will be

#### Глагол to do

#### Выберите нужную форму глагола to do:

7. What \_\_\_\_\_ she want to do?  
a) do; b) does
8. \_\_\_\_\_ you speak English?  
a) Do; b) Does
9. How long \_\_\_\_\_ he want to stay in his job?  
a) do; b) does; c) –

#### Глагол to have

#### Выберите нужную форму глагола to have:

10. Do you \_\_\_\_\_ to travel on business?  
a) has; b) have
11. He \_\_\_\_\_ to get up early.  
a) has; b) have
12. I \_\_\_\_\_ a holiday last year.

a) haven't; b) didn't have

### **The Plural**

**Выберите правильный вариант ответа:**

13. Many students get \_\_\_\_\_ at colleges and universities.

a) knowledge; b) knowledges

### **The Possessive Case**

**Выберите нужную форму существительного:**

14. The \_\_\_\_\_ cargo consisted of wheat and barley.

a) Neva's; b) Neva

**There is /are, there was /were, there have/has been, there will be**

**Выберите нужную форму глагола to be:**

15. There \_\_\_\_\_ five people in my family.

a) are; b) is

### **The Present Simple / The Present Continuous Tense**

**Выберите нужную форму глагола в настоящем простом или в настоящем продолженном времени:**

16. We don't \_\_\_\_\_ out at weekends.

a) goes; b) go; c) are going

### **The Present Perfect Tense**

**Выберите правильную форму глагола:**

17. I ...her at the University today.

a) saw; b) have seen

### **The Past Perfect**

**Выберите правильную форму глагола:**

18. The rain...before we reached home.

a) stopped; b) had stopped

### **The Degrees of Comparison**

**Выберите правильный вариант:**

19. The Volga is longer...the Thames.

a) as; b) than; c) from

### **The Pronouns**

**Выберите правильное местоимение:**

20. It's easy, you can do it ...

a) your; b) yours; c) yourself

### The Modal Verbs

**Выберите правильный модальный глагол:**

21. He...speak three foreign languages.

a) can; b) may; c) must

### The Passive Voice

**Выберите правильную форму глагола:**

22. Newspapers...only in the evening today.

a) are brought; b) will be brought; c) have brought

### The Participle

**Подберите к причастиям соответствующие русские эквиваленты:**

23. a. drying

1. высушивая

b. dried

2. после того, как было высушено

c. having dried

3. высушив

d. being dried

4. высушенный

e. having being dried

5. высушиваемый

### The Gerund

**Укажите, какие слова являются герундием:**

24. a. will drain; b. without draining; c. are draining

### The Infinitive

**Выберите правильную форму инфинитива:**

25. She likes...tennis.

a) to play; b) to be played

## Вариант III

### The Article

**Выберите правильный вариант ответа:**

1. He was born ... small Russian town.

a) a; b) an; c) the; d) –

2. ... Petrovs are our neighbours.

a) a; b) an; c) the; d) –

3. ... Mississippi is the longest river in the USA.

a) a; b) an; c) the; d) –

#### Глагол to be

**Выберите нужную форму глагола to be:**

4. Ice-cream ... made of milk and sugar.

a) am; b) is; c) are

#### Глагол to do

**Выберите нужную форму глагола to do:**

5. ... she cook breakfast every morning?

a) does; b) did; c) do

#### Глагол to have

**Выберите нужную форму глагола to have:**

6. I ... a lot of English books.

a) have; b) has

#### The Plural

**Выберите правильный вариант ответа:**

7. What color ... walls in your room?

a) is; b) are

**There is /are, there was /were, there have/has been, there will be**

**Выберите нужную форму глагола to be:**

8. There ... flowers on the table.

a) is; b) are

9. There ... the picture on page 20.

a) is; b) are

#### The Present Simple / The Present Continuous Tense

**Выберите нужную форму глагола в настоящем простом или в настоящем продолженном времени:**

10. We ... five days a week.

a) work; b) works; c) are working

11. She ... in the suburbs of London.

a) live; b) lives; c) is living

12. Every morning at 9 o'clock he ... his dog for a walk.



a) is taking; b) takes; c) will take

### **The Present Perfect Tense**

**Выберите правильную форму глагола:**

13. I ... not heard this news.

a) did; b) have

14. He ... school this year.

a) finished; b) has finished

15. I ... not ... your book today.

a) have brought; b) had brought

### **The Past Perfect**

**Выберите правильную форму глагола:**

16. The taxi ... by 5 o'clock.

a) arrived; b) had arrived

17. ... you ... the dinner by the time the guests came?

a) have cooked; b) had cooked

18. I ... not known the truth before she told me.

a) had; b) has

### **The Degrees of Comparison**

19. Tom is their ... son.

a) older; b) elder

### **The Pronouns**

**Выберите правильное местоимение:**

20. I invited my friend to ... place.

a) me; b) my; c) mine

### **The Modal Verbs**

**Выберите правильный модальный глагол:**

21. You ... not go out, the lesson is not over yet.

a) can; b) may; c) have

### **The Passive Voice**

**Выберите правильную форму глагола:**

22. This bag ... for all occasions.

a) is used; b) is using; c) used

## The Participle

**Подберите к причастиям соответствующие русские эквиваленты:**

- |                        |                                     |
|------------------------|-------------------------------------|
| 23. a. pressing        | 1. спрессованный                    |
| b. pressed             | 2. после того, как было спрессовано |
| c. having pressed      | 3. прессуемый                       |
| d. being pressed       | 4. спрессовав                       |
| e. having been pressed | 5. прессующий                       |

## The Gerund

**Укажите, какие слова являются герундием:**

24. a. after filtrating b. will filtrate c. filtrates

## The Infinitive

**Выберите правильную форму инфинитива:**

25. It seems ... now outside.

a) to rain; b) to be raining

## Вариант IV

### The Article

**Выберите правильный вариант ответа:**

1. ... Jack London is a well-known American writer.

a) a; b) an; c) the; d) –

2. ... tea is cold.

a) a; b) an; c) the; d) –

3. ... English are reserved.

a) a; b) an; c) the; d) –

### Глагол to be

**Выберите нужную форму глагола to be:**

4. That ... a good suggestion.

a) am; b) is; c) are

5. Here ... a picture of the town where I was born.

a) am; b) is; c) are

### Глагол to do

**Выберите нужную форму глагола to do:**

6. I ... not always do morning exercises.

a) does; b) did; c) do

### Глагол to have

**Выберите нужную форму глагола to have:**

7. He ... his flat in Moscow.

a) have; b) has

### The Plural

**Выберите правильный вариант ответа:**

8. ... those English books?

a) is; b) are

**There is /are, there was /were, there have/has been, there will be**

**Выберите нужную форму глагола to be:**

9. There ... the picture on page 20.

a) is; b) are

### The Present Simple / The Present Continuous Tense

**Выберите нужную форму глагола в настоящем простом или в настоящем продолженном времени:**

10. The sun ... in the East.

a) will rise; b) rises; c) is rising

11. The earth ... round the sun.

a) goes; b) will go; c) has gone

12. I ... this book easily without a dictionary.

a) am reading; b) read; c) is read

### The Present Perfect Tense

**Выберите правильную форму глагола:**

13. I ... not seen you for ages.

a) has; b) have

14. They ... never met before.

a) has; b) have

15. ... you worked all day?

a) did; b) have

## The Past Perfect

**Выберите правильную форму глагола:**

16. They... the house before our arrival.

a) had cleaned; b) cleaned

17. They told us that they... to a new flat.

a) moved; b) had moved

18. When I came home the family ... their supper.

a) would have; b) had had

## The Degrees of Comparison

19. Her baby is... than mine.

a) less; b) smaller

## The Pronouns

**Выберите правильное местоимение:**

20. Make... a cup of coffee.

a) your; b) yourself

## The Modal Verbs

**Выберите правильный модальный глагол:**

21. He ... be in this room.

a) must; b) is; c) has

## The Passive Voice

**Выберите правильную форму глагола:**

22. The shop... at 6 in the morning yesterday.

a) is opened; b) was opened; c) will be opened

## The Participle

**Подберите к причастиям соответствующие русские эквиваленты:**

23. a. having added

1. добавляемый

b. being added

2. добавив

c. having being added

3. после того, как что-то было добавлено

## The Gerund

**Укажите, какие слова являются герундием:**

24. a. agitates; b. have agitated; c. by agitating

## The Infinitive

**Выберите правильную форму инфинитива:**

25. It must...urgently.

a) be done; b) have done

## Вариант V

### The Article

**Выберите правильный вариант ответа:**

1. It was ... cold day.

a) a; b) an; c) the; d) –

2. I'm looking for ... job.

a) a; b) an; c) the; d) –

3. This is ... very important news.

a) a; b) an; c) the; d) –

### Глагол to be

**Выберите нужную форму глагола to be:**

4. He is ... student of our University.

a) am; b) is; c) are

### Глагол to do

**Выберите нужную форму глагола to do:**

5. When ... first spring flowers appear on the ground?

a) does; b) did; c) do

### Глагол to have

**Выберите нужную форму глагола to have:**

6. He ... his flat in Moscow.

a) have; b) has

**There is /are, there was /were, there have/has been, there will be**

**Выберите нужную форму глагола to be:**

7. There ... a lot of new houses every year.

a) is; b) are

### The Present Simple / The Present Continuous Tense

**Выберите нужную форму глагола в настоящем простом или в**

**настоящем продолженном времени:**

8. It ... dark early in winter.  
a) is getting; b) gets; c) get
9. She is in the library and she ... an article from English.  
a) is translating; b) has translated
10. What ... she doing now?  
a) is; b) does

**The Future Simple**

**Выберите правильный вспомогательный глагол:**

11. They ... come to see us next week.  
a) shall; b) will
12. ... I help you?  
a) shall b) will

**The Present Perfect Tense**

**Выберите правильную форму глагола:**

13. She ... the article from English and wants to show it to the teacher.  
a) is translating; b) has translated
14. They ... yet.  
a) didn't arrive; b) haven't arrived
15. I ... this book from cover to cover.  
a) am reading; b) have read

**The Past Perfect**

**Выберите правильную форму глагола:**

16. After he ... his drawing he gave it to the engineer.  
a) had completed; b) has completed
17. We ... our experiment before the professor came.  
a) had made; b) made

**The Degrees of Comparison**

18. The situation changed from bad to ...  
a) well; b) worse
19. Her husband is twice as ... as she is.  
a) old; b) older

### **The Pronouns**

**Выберите правильное местоимение:**

20. Take ... a cup of coffee.

a) your; b) yourself

### **The Modal Verbs**

**Выберите правильный модальный глагол:**

21. The sky is dark. It ... rain soon.

a) may; b) should; c) has to

### **The Passive Voice**

**Выберите правильную форму глагола:**

22. The letter ... yesterday.

a) wrote; b) was written

### **The Participle**

**Подберите к причастиям соответствующие русские эквиваленты:**

- |                           |   |
|---------------------------|---|
| 23. a. having dissolved   | 1. после того, как что-то было растворено |
| b. being dissolved        | 2. растворяемый                           |
| c. having being dissolved | 3. растворив                              |

### **The Gerund**

**Укажите, какие слова являются герундием:**

24. a. on hearing; b. hear; c. will hear

### **The Infinitive**

**Выберите правильную форму инфинитива:**

25. You may ring them up, they must ... by 5 o'clock.

a) be returned; b) return

## ТЕКСТЫ ДЛЯ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

**Все тексты данного раздела необходимо перевести на русский язык письменно.**

### Text I

#### EROSION OF SOIL

Soil erosion is the removal of soil from the land through the action of wind or water. It is a natural process that occurs even without human intervention. However, most forms of agriculture increase the erosion potential, especially practices that leave the surface of erodible land unprotected. Excessive erosion is a matter for serious concern. In a sustainable agriculture, soil erosion should not exceed the slow process of soil formation, and the prevention of soil erosion is a key issue in increasing the sustainability of agriculture.

Excessive erosion occurs with large variations in extent and causes between and within regions. It is difficult to measure and evaluate the gravity of the problem, but erosion is of special concern in areas such as the humid tropics, along the deserts and in parts of North America. In Europe, erosion is most serious in the Mediterranean regions.

Soil erosion by water generally begins where raindrops strike bare soil. Soil aggregates are broken up, the surface compacted, and water infiltration into the soil obstructed. Water with suspended fine soil particles runs off as surface water, giving sheet erosion, where a thin layer of surface soil is removed. The water flowing over the soil surface can form networks of eroding channels that cut into the topsoil. In the worst cases deep gullies are formed. Suspended particles increase the water density and channeling increases the velocity of water flow. Consequently, erosion starts gently and then rapidly accelerates.

The removal of forests has reduced water infiltration into soil in catchment areas and increased flood frequency and destructiveness. Floods enhance erosion.

Eroded material eventually settles out, filling up water reservoirs and estuaries. The silt deposit can improve the fertility of the receiving areas, but in general soil erosion degrades agricultural land.

Wind erosion occurs when bare soil is exposed to drought and wind, e.g., the dust



bowl in the USA in the thirties and more recently in the USSR.

It follows from the mechanism of erosion that:

-sloping land is at greater risk than flat land, sloping land left fallow during the winter is at special risk

-erosion risks vary with soil type and structure

-vegetation reduces erosion, as leaves intercept raindrops and roots prevent channeling.

Overgrazing has damaged fragile grasslands and caused serious erosion, e.g., in Africa.

Ploughed land is at greater risk to erosion than grasslands. Specialized arable cropping generally suffers more erosion than mixed farming because with mixed farming part of the land is under grass and more organic matter is available for return to the arable part of the land. This gives some protection against erosion.

The extent of erosion is greatly influenced by soil management.

Techniques are available for reducing soil erosion, e.g.,

-water interception with soil banks, strips of grass or forests

-contour ploughing

-use of winter or catch crops, intercropping

-mulching

-no-till practices

-drainage

-terracing, forming horizontal patches of land on steep hills, a characteristic man-made landscape feature both in South-East Asia and elsewhere.

Proper fertilizer use can help minimize erosion by ensuring an ample supply of roots and plant residues. Where erosion has removed topsoil, liming and fertilization help the reestablishment of a good plant cover.

## Text II

### FOOD AND FERTILIZERS

We all, 5000 millions of us, depend on plants for our food, and plants depend on mineral nutrients for their growth and development.

13 elements derived from the soil are indispensable for all plant growth. They are called plant nutrient. An additional 4 or 5 elements are beneficial for proper development of some plants.

Fertilizers are plant nutrients.

#### Plant nutrients

Plant form their complex organic matter from water and nutrients from the soil, carbon dioxide from the air and energy from sunlight.

Plants use six of the nutrients in relatively large amounts: nitrogen, phosphorus, potassium, sulphur, calcium and magnesium. These are called “major nutrients”. They are constituents of many plant components such as proteins, nucleic acids and chlorophyll, and are essential for processes, such as energy transfer, maintenance of internal pressure and enzyme function.

The other nutrients are required in small or trace quantities and are referred to as “micronutrients” or “trace elements”. They have a variety of essential functions in plant metabolism.

The metals are constituents of enzymes.

Micronutrients are Chlorine (Cl), Iron (Fe), Manganese (Mn), Zinc (Zn), Copper (Cu), Boron (B), Molybdenum (Mo).

When deficiencies or gross imbalances of nutrients occur, plant growth and development suffer.

For optimum plant growth, nutrients must be available for plants:

- in solution in the soil water
- in appropriate and balanced amounts
- at the right time.

Plants are supplied with nutrients mainly from:

- release of nutrients from soil reserves

- decomposing plant residues (roots, straw, etc.)
- organic manures
- mineral fertilizers
- biological nitrogen fixation
- aerial deposition.

Nutrients removed from the soil must be replenished, otherwise the soil becomes exhausted and crops will suffer and eventually fail.

Soil contains reserves of nutrients, e.g., the topsoil content of nitrogen ranges from some 3 to 20 t/ha. However, these reserves are mostly in forms unavailable to plants; only a minor portion is released each year through biological activity or chemical processes. Plants can only take up nutrients as water soluble compounds

When the nutrients supply is insufficient for crop needs, additional nutrients can be supplied in fertilizers to make up the difference. Mineral fertilizers are not substances foreign to nature: they contain normal plant constituents.

#### Fertilizer application

Most fertilizers are applied by surface spreading. In arable crops sowing and fertilization are combined in one operation, with the fertilizer placed near the seeds. Later application of nitrogen is spread on the surface. Injection of liquid ammonia into the soil using special equipment and the spreading of fertilizers dissolved in water are also used in some regions.

Plants take part most of their nutrients from the soil solution through the roots, but they can also take up some nutrients sprayed on the leaves. This is the usual application method for correcting deficiencies of micronutrients.

Fertilizers should be used according to fertilizer recommendations published by governmental and agricultural agencies and by fertilizer producers. Increasingly, fertilizer plans are made for each field. Crop requirements, nutrient supply from soils as determined by soil analysis, residues from past cropping, manure application and local soil and climatic conditions are all important in estimating the fertilizer rate.

Application timing is also important. Needs vary with the stage of plant development. Too little fertilizer reduces crop yields, too much is wasteful and result in

environmental problems.

### **Manure**

Organic manure can be of plant or animal origin or a mixture of both. The largest quantities derive from the dung and urine of farm animals.

### **Animal manure**

Depending on the method used for collection and storage, manure can occur in various forms: dry, wet (urine), slurry (mixed dry and wet) or as a compost. Nutrient content depends on the species of animal, type of feed and method of storage. Manure is a source of organic matter and contributes to structure and humus content.

Sewage sludge is used in some areas as a manure through it often has the disadvantage of a high heavy metal content.

Part of the nutrients in manure is in water-soluble form and immediately available to crops. The rest is in insoluble organic matter and must be decomposed (mineralized) by micro-organism before becoming available. The rate of this process depends on many factors so it is difficult to predict the amount and timing of nutrient release following application of organic manure.

Guano, accumulated dropping of birds, seals and other wild animals, is a traditional fertilizer. Peru is the major supplier, but the production is only about 25000 tones per year. This is quite insignificant as a nutrient supply on a world scale.

Manure is a resource that should be utilized fully where available. But the application of manure only returns nutrients to soil. It does not compensate for nutrient losses and exports from the farm unless animal feed is brought in from outside. Farmyard manure was traditionally surface applied on arable land and cultivated into the soil. Slurry is mostly surface spread on grassland. Injecting liquid manure reduces, ammonia losses and this practice is increasing. Handling of manure is labour intensive and requires special equipment. Some regions (e.g., Southern Netherlands) have so many animals fed on imported feed that manure is produced in excess of local needs. Manure is bulky and long distance transport uneconomic. For this reason, drying processes are being developed that make a product which typically contains about 4 per cent nitrogen, 2 per cent phosphorus and 5 per cent potassium. However, processing costs are considerable.

### **Green manure**

When fresh plant material is added directly to the soil without composting or passing through animals, it is termed “green manure”. Use of green manure helps to prevent erosion and conserves nutrients but does not add nutrients except when legumes are used as a source for nitrogen.

### **Text III**

#### **ALTERNATIVE AGRICULTURE**

Different alternative agricultural systems exist. Various names are in use for such systems, e.g., natural, organic, biological, sustainable or ecological farming.

The alternative agricultural systems differ greatly in their basic ideas and recommended practices but have in common that they reject the use of soluble mineral fertilizers and pesticides.

Less than 1 per cent of the farms in Western Europe are presently practicing alternative farming. But in the last decade the movement towards alternative agriculture has gained in popularity and received official political recognition and support in the industrialized countries of the West. Today a main driving force is the market’s demand for agricultural products made without the use of man-made chemicals.

Many people find aspects of current agricultural practices disquieting and objectionable: pesticide residues in soil water and produce, increasing nitrate concentration in many ground and surface waters, landscape changes with reduced variety, animal husbandry methods that are perceived as unnatural, degrading and wasteful depopulation of the countryside and costly production in excess of domestic needs in developed countries.

Objections to the use of fertilizers are not based solely on the perception of fertilizers as a cause of pollution, soil improvement and degradation, reduced plant resistance to diseases and diminished quality of the produce. It is also felt that the easy availability of fertilizers and pesticides has made possible practices that are regarded with distrust such as specialized farming and intensive agriculture.

Organic agriculture is now a rapidly expanding sector. Its adherents are concerned

about an agriculture dependent on non-renewable resources and about “unwholesome” food with residues of chemicals. They fear degradation of the soil and are dismayed at many of the aspects of animal treatment in intensive husbandry.

Organic and other alternative agricultural farms are of various types depending on local conditions. Some are located in areas not readily suited to arable crops, have most of their land as grass-clover meadows and produce mainly milk and some meat. Some small farms are specialized vegetable producers. But more typically, an alternative farm will practice mixed animal arable farming with some 40 per cent of the land kept as grass-clover lays. Some of this is permanent grass; the rest is ploughed every 2-3 years as part of the rotation. Part or all of the cereals, roots and legumes may be used as feed for the animals. The stocking rate should match the feed produced on the farm, e.g., in Sweden about 0,6 cows or equivalent per ha used for feed production. All animals are free range, none are permanently confined.

The organic agricultural movement comprises groups that differ in their views on inputs of manure from other farms. Some restrict such inputs to manure from farms also practicing alternative agriculture. Others permit substantial purchases of animal manure from current farming enterprises provided these follow recognized standards for animal welfare. The latter group support their own production by fertilizer use on these other farms.

So in alternative agriculture nutrient losses are compensated through:

growing legumes for their nitrogen fixation;

application of ground mineral rocks (e.g., stone, phosphate rock, limestone) to supply phosphorus, potassium and other elements.

Soluble mineral fertilizers are not allowed, especially not nitrogen. Rock phosphate and other nutrient minerals with a low solubility can be used. Weed are removed or damaged by mechanical soil treatment or the use of fire. Extensive crop rotation and intercropping are adopted while monocultures are avoided.

Soluble fertilizers are regarded as detrimental to soil life and proper crop development, as they give “unnatural” soil conditions through enhanced nutrient concentrations. This is said to disturb the soil’s processes and ecology and to give an

unbalanced uptake of nutrients by the plants. Soil nutrient inputs should instead enhance soil nutrient reserves; the farmer should “feed the soil and no the plant”. The supply of plant nutrients should derive from mineralization as a natural process.

But cropping patterns in alternative agriculture differ from those in specialized current agriculture. Grass-clover lays and fodder crops are necessary and extensive rotations are more common. Farms in alternative agriculture tend to have markedly less grain and meat production than those in current agriculture, and produce a relatively larger proportion of dairy products, potatoes, pulses and some vegetables.

There is a wide-spread impression that the quality of produce from alternative farm is higher than that from current agriculture. Evaluation principally concerns nutritional value, absence of noxious compounds and taste.

Statements have been made that animals on alternative farms or given feed from such farms have fewer fertility problems, remain productive longer and in general have fewer health problems than animals in current agriculture.

#### **Text IV**

### **ECOLOGICAL FEATURES OF TRADITIONAL AGRICULTURE**

About 60 per cent of the world’s cultivated land is still farmed by traditional subsistence methods. This type of agriculture has benefited from centuries of cultural and biological evolution that has adapted it to local conditions. Thus, small farmers have developed and/or inherited complex farming systems that have helped them meet their existence needs for centuries, even under unfavourable environmental conditions (on marginal soils, in drought or flood-tending areas, with scarce resources) without depending on mechanization or chemical fertilizers and pesticides. Generally, these farming systems consist of a combination of production and consumption activities.

Most small farmers have employed practices designed to optimize productivity in the long term rather than maximize it in the short term. Inputs characteristically originate in the immediate region and farm work is performed by humans or animals that are fueled from local sources. Working within these energy and space limits small farmers have learned to recognize and use locally available resources. Traditional farmers are much

more innovative than many agriculturalists believe. Many scientists in developed countries are beginning to show interest in traditional agriculture, especially in small-scale mixed crop systems, as they search for ways to help in modern agriculture. This transfer of learning must occur rapidly, however, or this wealth of practical knowledge will be lost forever. As more research is conducted, many farming practices once regarded as primitive or misguided are being recognized as knowledgeable and proper. Confronted with specific problems of slope, flooding, drought, pests, diseases and low soil fertility, small farmers throughout the world have developed unique management systems to overcome these difficulties. Traditional agriculturalists generally have met the environmental requirements of their food-producing system by concerning on a few principles and processes.

**Space and time diversity and continuity.** Multiple cropping designs are adopted to ensure constant food production and vegetation cover for soil protection. By ensuring a regular and varied food supply, a diverse and nutritionally adequate diet is assured. Extended crop harvest reduces the necessity for storage, often risky in rainy climates. A continuous sequence of crops also maintains biotic relationships (predator/prey complexes, nitrogen fixing) that may benefit the farmer.

**Optimal use of space and resource.** Assemblages of plants with different growth habits, canopies and root structures allows for better use of environmental inputs such as nutrients, water and solar radiation. Crop mixtures make fullest use of a particular environment. In complex agroforestry systems, crops can be grown underneath tree canopies if enough light gets through.

**Recycling of nutrients.** Small farmers sustain soil fertility by maintaining closed cycles of nutrients, energy, water and wastes. Thus, many farmers enrich their soils by collecting nutrient materials (such as manure and forest litter) from outside their fields, adopting fallow or rotational systems or including legumes in their intercropping patterns.

**Water conservation.** In rainfall areas, the rainfall pattern is the main cropping system determinant, and farmers use cropping patterns adapted to the amount and distribution of rainfall. Thus, in areas with little moisture, farmers prefer drought-tolerant crops, and management techniques emphasize soil cover (such as mulching) to avoid



evaporation and runoff. Where precipitation is more than 1,500 mm/year, most cropping systems are based on rice. Under constant flooding conditions, instead of investing in costly drainage systems, farmers develop integrated agriculture/aquaculture systems.

**Control of succession and protection of crops.** Farmers have developed a number of strategies to compete with undesirable organisms. Crop species are variety mixtures provide guaranty against catastrophic attacks from insect pests or disease. Crop canopies can effectively suppress weed growth and minimize the need for weed control. In addition, cultural practices such as mulching, changes in planting times and durability, use of resistant varieties and use of botanical insecticides and/or repellents can minimize pest interference.

Perhaps one of the most striking features of traditional fanning system in most developing countries is the degree of crop diversity both in time and space. This diversity is achieved through multiple cropping systems, or polycultures. For example, in the Latin American tropics, 60 per cent of the corn is grown intercropped. Similarly, in Nigeria 98 per cent of the cowpea, the country's most important legume, is grown in association with other crops.

Polyculture is a traditional strategy to promote diet diversity, income generation, production stability, minimization of risk, reduced insect and disease incidence, efficient use of labour, intensification of production with limited resources and maximization of returns under low levels of technology. Polyculture systems offer many advantages over the monoculture agriculture practiced in modem countries.

## **Text V**

### **WHAT IS AGROECOLOGY?**

The term agroecology has come to mean many things. Loosely defined, agroecology often incorporates ideas about a more environmentally and socially sensitive approach to agriculture, one that focuses not only on production, but also on the ecological maintenance ability of the production system. This might be called the "normative" use of the term agroecology, because it implies a number of features about society and production that go well beyond the limits of the agricultural field. At its most narrow,

agroecology refers to the study of purely ecological phenomena within the crop fields, such as predator/prey relations, or crop/weed competition.

### **The Ecological View**

At the heart of agroecology is the idea that a crop field is an ecosystem in which ecological processes found in other vegetation formations — such as nutrient cycling, predator/prey interactions, competition, and successional changes — also take place. agroecology focuses on ecological relations in the field, and its purpose is to illuminate the form, dynamics and function of those relations. Implicit in some agroecological work is the idea that by understanding these processes and relations, agroecosystems can be manipulated to produce better, with fewer negative environmental or social effects, more rationally and with fewer external inputs. As a result, a number of researchers in the agricultural sciences and related fields have begun to view the agricultural field as a particular kind of ecosystem — an agroecosystem — and to formalize the analysis of the ensemble of processes and interactions in cropping systems.

### **The Social Perspective**

Social factors such as a collapse in market prices or changes in land using can break up agricultural system as decisively as drought, pest outbreak or soil nutrient decline. The results of the interplay between endogenous biological and environmental features of the agricultural field, and exogenous social and economic factors, generate the particular agroecosystem structure.

### **The Stability of Agroecosystems**

Under conventional agriculture, humans have simplified the structure of the environment over vast areas, replacing nature's diversity with a small number of cultivated plants and domesticated animals. This process of simplification reaches an extreme form in a monoculture. The objective of this simplification is to increase the proportion of solar energy fixed by the plant communities that is directly available to humans. The net result is an artificial ecosystem that requires constant human intervention. Commercial seed-bed preparation and mechanized planting replace natural methods of seed dispersal; chemical pesticides replace natural controls on populations of weeds, insects and diseases; and genetic manipulation replaces natural processes of plant

evolution and selection. Even decomposition is altered since plant growth is harvested and soil fertility maintained, not through nutrient recycling, but with fertilizers. Although modern agroecosystems have proven capable of supporting a growing population, there is considerable evidence that the ecological equilibrium in such artificial systems is very damaged.

An agricultural system differed in several fundamental ways from a “natural” ecological system in its structure and function. Agroecosystems are semi-domesticated ecosystems that fall on a gradient between ecosystems that have experienced minimal human effect, and those under maximum human control, like cities. Here are four major characteristics of agroecosystems:

1. Agroecosystems include helping sources of energy like human, animal and fuel energy to make better productivity of particular organisms.
2. Diversity can be greatly reduced compared with many natural ecosystems.
3. The dominant animals and plants are under artificial rather than natural selection.
4. The controls on the systems are largely external rather than internal by way of subsystem feedback.

This model is primarily based on modernized agriculture, such as that found in the United States. There are, however, many kinds of agricultural systems, particularly in the tropics, that do not fit well with this definition.

Agricultural systems are complex interactions between external and internal social, biological and environmental processes. The degree of external against internal control can reflect intensity of management over time.

Agricultural strategies respond not only to environmental, biotic and cultural forces, but also reflect human existence strategies and economic conditions. Factors like labor availability, subsidies, risk, price information, family size are often critical to understanding the logic of a farming system.

### **Agroecology Demand**

Traditional agricultural scientists have been concerned primarily with the effect of soil, animal or vegetation management practices upon the productivity of a given crop, using a perspective that emphasized a target problem such as soil nutrients or pest

invasions.

Increasingly, however, scientists are recognizing that such a narrow approach could limit agricultural preferences for rural peoples, and that the “target approach” often carries with it unintended secondary consequences that have often been ecologically damaging and had high social costs. Agroecology research does concentrate on target in the agricultural field, but within a wider context that includes ecological and social variables.

Agroecology can best be described as an approach that questions the ideas and methods of several subfields, rather than as a specific discipline. It has roots in the agricultural sciences, in the environmental movement, in ecology (particularly in the explosion of research on tropical ecosystems), in the analysis of native agroecosystems and in rural development studies.

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