South Valley University

Qena Faculty of Arts

English Department

English Language Course

For Science Students

Level One

(2022 / 2023)

Part One

Improving English Language

Preface

Ways of Improving English Language

Learning a second language can be a very stressful task if you let it. Somehow, the words you learn in the books don't seem to apply very well to real life situations. However, to improve Your English Skill you need to *study grammar and do exercises* and also you need to improve the basic four skills of any language which are: Speaking; Reading; Writing; and Listening.

Learning English Language is a process that requires effort and time that doesn't happen overnight. Some people learn English easier than others and that depends on their capability, willingness and goals. There are so many ways and technologies which help to make learning English more flexible and easier. Choosing the best ways for you and using so many different methods will help you to learn English faster. Learning English needs patience and practice so that you will never learn English, unless you practice what you have learned and have a lot of patience. Studying grammar and doing exercises are the most important ways to learn or improve your English.

Studying grammar makes you know the tenses of verbs, and how to talk and write correctly by using them. It isn't a whole process of learning English but it is a part of it. The majority of learners decrease the benefit of doing exercises and taking test.

In fact, those ways are very important to improve your English, to know which level you are and to what extent you are progressing. Also their results will give you motivation to continue.

Speaking Skill:

Q: Is it possible to improve your speaking skill without visiting English speaking country?

Yes, it’s possible because you can improve your English by many ways. Some learners believe that it's impossible to improve their speaking skill unless they visit an English speaking country, but that's not correct because you can improve your English by many ways. At the beginning, it's important to keep in your mind that you should "speak as much as possible, and make mistake as much as possible because when you know that you made mistake you know that you made progress." try to take advantage of all of situations that encounter you. For example, when you go to school you should use the opportunity to speak to your teacher by answering the questions, debating or speaking with other students. Also when you go shopping you have a wonderful opportunity to practice your English by using a small talking by speaking with the Shop assistant, waiters and taxi driver. In addition, you can speak with your friends who speak English fluently. It's good to be in contact with native speakers for instance American, British, Irish and Australian who live in your city. When you talk to them don’t be worried whether your expressions are right or wrong.

They don't care about your grammar at all. They only care about what you say to them, but that doesn't mean that the grammar is not important.

Finally, don't be afraid to speak even if you make mistakes. There's saying "The person who never made mistake, never made any thing." So think of your mistake as something positive and useful.

Writing Skill:

Q: How to improve your Writing Skill?

To improve your writing skill, write everything you want. Write about your hobbies, interests or write e-mail to your pen friend. Good writing is more than just using correct grammar and suitable words. It is a process that helps you to develop your thoughts and some people believe that they are unable to write in English form, but that's wrong if they can think and say some sentences that mean they can think and put their thoughts in sentences on a paper.

Also, writing a personal journal is a good practice for you where it makes you write daily. Constant writing will make your writing more natural, and helps you to get more confidence where the saying was said “The more writing you do, the better you will get”. How to write correctly is an important element.

As I mentioned previously it is not only suitable words or correct grammar, but it is also planning, checking, revising and organization. Making a note and a rough plan for what you are going to write make the task much easier. Your first draft may have lots of mistakes and be incomplete. So, revise and revise and edit what you write, and make sure that your thoughts flow logically that will make your writing well developed and well organized.

Reading Skill:

Q: What's the benefit of reading books?

When you read a book, it shows you structures and expressions that you can use them in writing or speaking, it sees your grammatical roles naturally. And make you encounter new words. It's good to read at the right level for you to understand what you read. That's why you should know which level you are. When you find more than five new words pre page that means that you are not in the right level and you have to choose simpler. Read magazines, novels, short stories, articles, newspapers and what so ever interest you in, to get a good acknowledge of the English language. Now you can practice reading skill wherever you go where you find it in shop's names, advertisements, and car's numbers.

Finally, to learn English and become proficient Read, Read, Read and Read even if you don't understand what you read." Have you forgotten what we said at the beginning “that learning English is gradual process and it doesn’t happen overnight?”

Listening Skill:

Q: What're the materials that help you in improving your listening skill?

There are so many materials that can help you in improving your listening skill such as Radio, Broadcast, and CDs in English you won't learn any language without hearing it first, even your own language. When you were a baby, you didn't understand your language. Then, you got it by listening to your family, and gradually you learned to speak, learned to read and learned to write, but listening comes first. Listening and imitating are ways which help you to be proficient in English. At first time you listen to English, it will sound like "One big long word", but if you keep listening, the big word will be "smaller" and you will be able to know where the word begins and where it ends. It's good to choose the materials that interest you, where being interested will make learning more enjoyable and effective.

Eventually, to improve your English language you have to improve the four skills, as what is written above about how to improve those skills and its related topics, in order to use it in the right way.

Part Two

Reading Comprehension Passages

(1)

Biotechnology

The progress of biotechnology brings the potential for ever more intimate and disruptive interventions into human bodies and the natural environment. Each new technology brings unique possibilities, challenges, and dilemmas. Technologies have different technical implications and different "social constitutions". And yet there are lessons from past technologies that we can apply to those currently emerging. There are ways in which the social, political, and ethical concerns that may come to govern their emergence can be anticipated.

There have been various attempts, especially in the last decade, to improve engagement between scientists and public groups on issues involving biotechnology. Engagement exercises, whether with particular non-science stakeholders or members of the general public, reveal layers of societal concern with these technologies. There is typically concern with the eventual downstream risks and the ethical implications of technologies. But these things are hard to assess in advance due to the profound uncertainty that surrounds emerging technology.

Public engagement typically also reveals a set of "upstream" concerns. When brought into dialogue about emerging technologies, before it is clear what the risks are likely to be, members of the public will typically express concern about the trajectory of technological pathways. A report of one large public

dialogue exercise on Synthetic Biology drew out five questions for scientists that characterized public concerns about this nascent technology: What is the purpose? Why do you want to do it? What are you going to gain from it? What else is it going to do? How do you know you are right?

These questions get to the heart of the politics of emerging technologies and the foundations of public trust in scientific research. Conventional technology assessment considers the downstream products of research and innovation with a focus on technological risk and ethics. More recent anticipatory governance approaches, such as "constructive technology assessment", "real-time technology assessment", and "responsible innovation", attempt to broaden the debate to include consideration of the processes and purposes of research, in line with the five questions above. Such approaches emphasize the importance of democratic deliberation in "opening up" the technological options and trajectories for appraisal.

Questions:

1. It can be inferred from the passage that which of the following would NOT be a "downstream" concern that the public might have in response to an emerging technology?

a. What the long-term impact on the environment will be.

b. Which species will be adversely affected by the implementation of a technology.

c. Which problem the technology is designed to address.

d. What the cost to the public will be.

e. How durable the technology is.

2. The passage suggests that, in the past, which of the following was true with respect to public engagement in biotechnological innovation?

a. Public opinion bore no impact on biotechnological exploration.

b. Political and scientific institutions colluded on technologies for special interest.

c. The public distrusted the motives of biotechnology institutes.

d. Public engagement was limited to the activities of political organizations.

e. The public was less involved in biotechnology.

Answers and Explanations:

1. *It can be inferred from the passage that which of the following would NOT be a "downstream" concern that the public might have in response to an emerging technology?*

   The question asks which of the following concerns would be considered an "upstream" rather than a "downstream" concern.

a. The impact on the environment would be an example of a "downstream" concern, a concern for the future impact of a new biotechnology, rather than of a "downstream" concern, a concern regarding the immediate aspects of an upcoming innovation.

b. The impact on the environment would be an example of a "downstream" concern, a concern for the future impact of a new biotechnology, rather than of a "downstream" concern, a concern regarding the immediate aspects of an upcoming innovation.

c. Correct. The intended purpose of the nascent technology is an "upstream" concern, meaning that it relates to questions of pertinence and purpose.

d. The cost to the public would be would be an example of a "downstream" concern, a concern for the future impact of a new biotechnology, rather than of an "upstream" concern regarding questions of pertinence and purpose upcoming innovation.

e. The technology's durability would be an example of a "downstream" concern, a concern for the future implications of a new biotechnology, rather than of an "upstream" concern regarding questions of pertinence and purpose of an upcoming innovation.

2. The passage suggests that in the past which of the following was true with respect to public engagement in biotechnological innovation?

The question asks what was formerly true regarding the public's engagement with biotechnology, as opposed to its engagement today.

a. The text never makes the absolute assertion that public opinion had never before impacted biotechnological exploration.

b. The text does not imply that there had ever been a negative intent behind public engagement biotechnology.

c. While the text suggests that addressing the public's concern with 'upstream' aspects of biotechnological research will increase public trust, it nowhere suggests that the public distrusted institutes.

d. The text does not discuss the activities of political organizations.

e. Correct. "There have been various attempts, especially in the last decade…" implies that in the past the public was less involved in the direction of biotechnology research.

(2)

Scientific Laws and Theories

Science concepts can often be quite simple or extremely difficult to understand. There are many science-related concepts and ideas. For example, the three states of matter can easily be understood: solid, liquid, and gas. On the other hand, a person may not fully understand why some matter can turn into a solid, and other substances can never turn into a liquid or gas.

There are many other scientific concepts and they are labeled as facts, theories, hypotheses, laws, or beliefs. Each term has a different meaning in the field of science and must be understood by all scientists. However, there are differences between scientific facts, laws, hypotheses, theories, and beliefs.

A fact is a basic statement proven to be true by experiment or observation. If rain is coming from the sky, it is a fact that it is raining. All facts are true under specific conditions, but in science, they may later be proven false when re-tested using better instruments or more thorough observation.

A law is a logical relationship between two or more things, based on a variety of facts and proven hypothesis. It is often shown using a mathematical formula or statement of how two or more quantities are related to each other. An example is Newton's Law of Gravity, which is used to predict the behavior of a dropped object but does not explain the why an object drops. It is like knowing 4 is the answer to 2 + 2, but not understanding why.

Next, there is a hypothesis, which is an educated guess about what will happen before an experiment and what will be observed. It is a prediction of cause and effect. A hypothesis can be supported or

disproved through additional experimentation and observation. For example, a scientist may hypothesize that all cleaning products are the same, and one is no better than another. The experiment may prove their hypothesis to be true, however, another person tests the hypothesis and learns there is a better cleaning product and the hypothesis is now proven false.

A theory is the 'why' in science. It is an explanation for why certain laws and facts exist that can be tested to determine its accuracy. Theories have been supported with repeated testing and remain valid if there is no evidence to dispute them. Many times, a theory may be labeled as an accepted 'hypothesis'. For example, it is a theory that a large crater on the Earth may have been caused by a meteor strike. However, it is not a proven fact but is accepted to be true based on the collected evidence. On the other hand, it can also be disproven and found to be false.

Finally, a belief is a statement that is not scientifically provable in the same way as facts, laws, hypotheses, or theories. Beliefs that are proven to be false today can later be proven as true using scientific experimenting and observation. For example, many people have the belief that there are certain lucky numbers and the position of the planets affect how people behave. However, they cannot be proven true and are only unproven beliefs. Later, only scientific experimentation and observation can change the belief to a fact.

An example to show the differences can be as follows: As a person awakes, and light shines through the window, the observance of the day leads to the fact that it is bright outside. The hypothesis is: It's bright outside because the sun is probably out. Through testing and experimentation, a theory is created: When the sun is out, it tends to make it bright outside. A law may then

be formulated to identify the exact rising and setting of the sun. Finally, someone may have the belief that a sunny day will lead to people becoming much kinder.

Understanding the difference between laws, theories, facts, beliefs, and theories added to the correct application of the scientific method and the applicable use of the science process, will help young learners become effective scientists whether in the classroom or as part of a career.

Questions:

1. Which of the following is a logical relationship between two or more things, based on a variety of facts and proven hypothesis?

a. Law b. Fact c. Hypothesis d. Theory

2. Which of the following is an educated guess about what will happen before an experiment and what will be observed?

a. Law b. Fact c. Hypothesis d. Theory

3. Which of the following can be proven to be false today can later be proven as true using scientific experimenting and observation?

a. Law b. Fact c. Hypothesis d. Theory

4. Which of the following is the 'why' in science?

a. Law b. Fact c. Hypothesis d. Theory

5. The statement, Ammonia mixed with water will clean windows just as well as store- bought cleaners is an example of which of the following?

a. Law b. Fact c. Hypothesis d. Theory

6. Newton's information about gravity is an example of which of the following?

a. Law b. Fact c. Hypothesis d. Theory

****

(3)

Spiders

Spiders are not insects as many people believe. They belong to a class of animals called arachnids. Spiders have eight eyes, four pairs of segmented legs, and can grow a new leg if they lose one. They do not have antenna or wings. A spider's body can be divided into two sections. The sections are the abdomen and the cephalothorax. The legs, eyes, and mouthparts are in the cephalothorax section. Most spiders have poison glands and fangs in their jaws, which they use to inject poison into insects. This poison is called venom. Venom can paralyze an insect allowing the spider to eat the insect as food.

Spiders can live almost anywhere in the world. Some like very humid or hot temperatures and some like places that are very dry. Some spiders prefer to live under ground and others live in trees. We have all seen spiders that prefer to live in our houses.

These amazing animals usually have six fingerlike silk glands called spinnerets located beneath their abdomen. The silk comes from inside the spider's body as a liquid that is thicker than water. A spider uses this silk to make a web by squeezing the silk out of two small holes at the back of its body. These small holes are called spinnerets.

At the time the silk hits the air, the silk dries into a line that looks like a long string of hair. Spiders use this silk as draglines to hang onto as the wind blows it through the air. The spider can

crawl up or down on this dragline if the wind takes it somewhere it doesn't want to be. Young spiders and adult male spiders like ballooning and can release long silken threads that float or ride in the wind to new areas.

There are about 30,000 different types of spiders known to scientists. Most of them are very tiny animals that help us by eating insects. The next time you are out in the yard and see a spider, take a few minutes to watch this most interesting animal.

ANSWER THESE QUESTIONS ABOUT SPIDERS:

1. Where are the poison glands located on the spider's body?
   a. cephalothoraxes
   b. eyes
   c. jaws
   d. none of these
2. Spiders prefer to live in ..... .
   a. hot temperatures
   b. dry places
   c. trees
   d. all of these
3. Which of the following is true?
   a. Spinnerets are used by the spider to see things.
   b. Spiders belong to a class of animals called arachnids.
   c. The silk spiders make is thinner than water.
   d. Spiders have antenna and wings.

4. How is venom used by the spider?

a. to paralyze insects

b. for ballooning

c. as a dragline

d. none of these

5. Which of the following is NOT true?

a. The legs, eyes, and mouthparts of the spider are located in the abdomen section.

b. Spiders have eight eyes and four pairs of segmented legs.

c. Spiders can live almost anywhere in the world.

d. Most spiders have fangs and poison glands located in their jaws.

6. How do spiders help us?

a. by making webs and draglines

b. by growing new legs

c. by eating insects

d. none of these

****

(4)

Bacteria

Bacteria are extremely small living things. While we measure our own sizes in inches or centimeters, bacterial size is measured in microns. One micron is a thousandth of a millimeter a pinhead is about a millimeter across. Rod shaped bacteria are usually from two to tour microns long, while rounded ones are generally one micron in diameter Thus if you enlarged a founded bacterium a thousand times, it would be just about the size of a pinhead. An adult human magnified by the same amount would be over a mile (1.6 kilometers) tall.

Even with an ordinary microscope, you must look closely to see bacteria. Using a magnification of 100 times, one finds that bacteria are barely visible as tiny rods or dots. One cannot make out anything of their structure. Using special stains, one can see that some bacteria have attached to them wavy - looking "hairs" called flagella. Others have only one flagellum. The flagella rotate, pushing the bacteria though the water. Many bacteria lack flagella and cannot move about by their own power while others can glide along over surfaces by some little understood mechanism.

From the bacterial point of view, the world is a very different place from what it is to humans to bacterium water is as thick as molasses is to us. Bacteria are so small that they are influenced by the movements of the chemical molecules around

them. Bacteria under the microscope, even those with no flagella, often bounce about in the water. This is because they collide with the water molecules and are pushed this way and that. Molecules move so rapidly that within a tenth of a second the molecules around a bacterium have all been replaced by new ones even bacteria without flagella are thus constantly exposed to a changing environment.

Questions:

1. Which of the following is the main topic of the passage?
   a. The characteristics of bacteria
   b. How bacteria reproduce
   c. The various functions of bacteria
   d. How bacteria contribute to disease
2. Bacteria are measured in ..... .
   a. inches
   b. centimeter
   c. microns
   d. millimeters
3. Which of the following is the smallest?
   a. A pinhead
   b. A rounded bacterium
   c. A microscope
   d. A rod-shaped bacterium

4. According to the passage, someone who examines bacteria using only a microscope that magnifies 100 times would see ..... .
   a. tiny dots
   b. small "hairs"
   c. large rods
   d. detailed structures
5. The relationship between a bacterium and its flagella is most nearly analogous to which of the following?
   a. A rider jumping on a horse's back
   b. A ball being hit by a bat
   c. A boat powered by a motor
   d. A door closed by a gust of wind
6. In line 16, the author compares water to molasses, in order to introduce which of the following topics?
   a. The bacterial content of different liquids
   b. What happens when bacteria are added to molasses
   c. The molecular structures of different chemicals
   d. How difficult it is for bacteria to move through water

****

(5)

Electricity

The modern age is an age of electricity. People are so used to electric lights, radio, televisions, and telephones that it is hard to imagine what life would be like without them. When there is a power failure, people grope about in flickering candlelight. Cars hesitate in the streets because there are no traffic lights to guide them, and food spoils in silent refrigerators.

Yet, people began to understand how electricity works only a little more than two centuries ago. Nature has apparently been experimenting in this field for millions of years. Scientists are discovering more and more that the living world may hold many interesting secrets of electricity that could benefit humanity.

All living cells sent out tiny pulses of electricity. As the heart beats, it sends out pulses of recorded electricity; they form an electrocardiogram, which a doctor can study to determine how well the heart is working. The brain, too, sends out brain waves of electricity, which can be recorded in an electroencephalogram. The electric currents generated by most living cells are extremely small-of-ten so small that sensitive instruments are needed to record them. But in some animals, certain muscle cells have become as specialized as electrical generators that they do not work as muscle cells at all. When large numbers of these cells are linked together, the effects can be astonishing.

The electric eel is an amazing storage battery. It can send a jolt of as much as eight hundred volts of electricity through the water in which it lives. An electric house current is only one hundred twenty volts.) As many as four fifths of all the cells in the electric eel's body are specialized for generating electricity, and the strength of the shock it can deliver corresponds roughly to the length of its body.

Questions:

1. What is the main idea of the passage?
   a. Electric eels are potentially dangerous
   b. Biology and electricity appear to be closely related
   c. People would be at a loss without electricity
   d. Scientists still have much to discover about electricity

2. The author mentions all of the following as results of a blackout, except:
   a. refrigerated food items may go bad
   b. traffic lights do not work
   c. people must rely on candlelight
   d. elevators and escalators do not function

3. Why does the author mention electric eels?
   a. To warn the reader to stay away from them
   b. To compare their voltage to that used in houses
   c. To give an example of a living electrical generator
   d. To describe a new source of electrical power

4. How many volts of electricity can an electric eel emit?

a. 1,000

b. 800

c. 200

d. 120

5. It can be inferred from the passage that the longer an eel is the .... .

a. more beneficial it will be to science

b. more powerful will be its electrical charge

c. easier it will be to find

d. tougher it will be to eat

****

(6)

Insects

Insects' lives are very short and they have many enemies, but they must survive long enough to breed and perpetuate their kind. The less insect-like they look, the better their chance of survival. To look "inedible" by resembling or imitating plants is a deception widely practiced by insects. Mammals rarely use this type of camouflage, but many fish and invertebrates do.

The stick caterpillar is well named. It is hardly distinguishable from a brown or green twig. This caterpillar is quite common and can be found almost anywhere in North America. It is also called "measuring worm" or "inchworm." It walks by arching its body, then stretching out and grasping the branch with its front feet then looping its body again to bring the hind feet forward. When danger threatens, the stick caterpillar stretches its body away from the branch at an angle and remains rigid and still, like a twig, until the danger has passed.

Walking sticks, or stick insects, do not have to assume a rigid, twig-like pose to find protection; they look like inedible twigs in any position. There are many kinds of walking sticks, ranging in size from the few inches of the North American variety to some tropical species that may be over a foot long. When at rest their front legs are stretched out, heightening their camouflage. Some of the tropical species are adorned with spines or ridges. Imitating the thorny bushes or trees in which they live.

Leaves also seem to be a favorite object for insects to imitate. Many butterflies can suddenly disappear from view by folding their wings and sitting quietly among the foliage that they resemble.

Questions:

1. What is the main subject of the passage?
   a. Caterpillars that live in trees
   b. The feeding habits of insects
   c. How some insects camouflage themselves
   d. Insects that are threatened with extinction

2. The word "enemies" in line 1 refers to ..... .
   a. other creatures competing for space
   b. extreme weather conditions
   c. creatures that eat insects
   d. inedible insects

3. According to the passage, how does the stick caterpillar make itself look like a twig?
   a. By holding its body stiff and motionless
   b. By looping itself around a stick
   c. By changing the color of its skin
   d. By laying its body flat against a branch

4. Which of the following is true of stick insects?
   a. They resemble their surroundings all the time.
   b. They make themselves look like other insects.
   c. They are camouflaged only when walking.
   d. They change color to make themselves in visible.

5. Which of the following are NOT mentioned in the passage as objects that are imitated as a means of protection?
   a. Thorns
   b. Flowers
   c. Leaves
   d. Sticks
6. In which paragraph does the author describe the way in which stick caterpillars move?
   a. Paragraph one
   b. Paragraph two
   c. Paragraph three
   d. Paragraph four

****

(7)
Liquid and Gas

The difference between a liquid and a gas is obvious under the conditions of temperature and pressure commonly found at the surface of the Earth. A liquid can be kept in an open container and fills it to the level of a free surface. A gas forms no free surface but tends to diffuse throughout the space available; it must therefore be kept in a closed container or held by a gravitation field, as in the case of a planet's atmosphere. The distinction was a prominent feature of early theories describing the phases of matter.

In the nineteenth century, for example, one theory maintained that a liquid could be "dissolved" in a vapor without losing its identity. Another theory held that the two phases are made up of different kinds of molecules: liquidons and gasons. The theories now prevailing take a quite different approach by emphasizing what liquids and gases have in common. They are both forms of matter that have no permanent structure, and they both flow readily. They are fluids.

The fundamental similarity of liquids and gases becomes clearly apparent when the temperature and pressure are raised somewhat. Suppose a closed container partially filled with a liquid is heated. The liquid expands, or in other words becomes less dense; some of it evaporates. In contrast, the vapor above the liquid surface becomes denser as the evaporated molecules are added to it. The combination of temperature and pressure at which

the densities become equal is called the critical point. Above the critical point the liquid and the gas can no longer be distinguished; there is a single, undifferentiated fluid phase of uniform density.

Questions:

1. Which of the following would be the most appropriate title for the passage?
   a. The Properties of Gases and Liquids
   b. High Temperature Zones on the Earth
   c. The Beginnings of Modern Physics
   d. New Containers for Fluids

2. According to the passage, the difference between a liquid and a gas under normal conditions on Earth is that the liquid ..... .
   a. is affected by changes in pressure
   b. has a permanent structure
   c. forms a free surface
   d. is considerably more common

3. It can be inferred from the passage that the gases of the Earth's atmosphere are contained by ..... .
   a. a closed surface
   b. the gravity of the planet
   c. the field of space
   d. its critical point

4. According to the passage, in the nineteenth century some scientists viewed liquidons and gasons as ..... .
   a. fluids
   b. dissolving particles
   c. heavy molecules
   d. different types of molecules

5. According to the passage, what happens when the temperature is increased in a closed container holding a liquid?
   a. The liquid and gas phases become more similar.
   b. The liquid and the gas become less dense.
   c. The container expands.
   d. The liquid evaporates out of the container.

6. According to the passage, which of the following is the best definition of the critical point?
   a. When the temperature and the pressure are raised
   b. When the densities of the two phases are equal
   c. When the pressure and temperature are combined
   d. When the container explodes

****

(8)

Virus

The term "virus" is derived from the Latin word for poison or slime. It was originally applied to the noxious stench emanating from swamps that was thought to cause a variety of diseases in the centuries before microbes were discovered and specifically linked to illness. But it was not until almost the end of the nineteenth century that a true virus was proven to be the cause of a disease.

The nature of viruses made them impossible to detect for many years even after bacteria had been discovered and studied. Not only are viruses too small to be seen with a light microscope, they also cannot be detected through their biological activity, except as it occurs in conjunction with other organisms.

n fact, viruses show no traces of biological activity by themselves. Unlike bacteria, they are not living agents in the strictest sense, viruses are very simple pieces of organic material composed only of nucleic acid, either DNA or RNA, enclosed in a coat of protein made up of simple structural units (Some viruses also contain carbohydrates and lipids.) They are parasites, requiring human, animal, or plant cells to live. The virus replicates by attaching to a cell and injecting its nucleic acid.' once inside the cell, the DNA or RNA that contains the virus' genetic information takes over the cell's biological machinery, and the cell begins to manufacture viral proteins rather than its own.

Questions:

1. Which of the following is the best title for the passage:
   a. New Developments in Viral Research
   b. Exploring the Causes of Disease
   c. DNA: Nature's Building Block
   d. Understanding Viruses

2. Before microbes were discovered It was believed that some diseases were caused by
   a. germ-carrying insects
   b. certain strains of bacteria
   c. foul odors released from swamps
   d. slimy creatures living near swamps

3. The word "proven" in line 6 is closest meaning to which of the following.
   a. Shown
   b. Feared
   c. Imagined
   d. Considered

4. The word nature" in line 7 is closest in meaning to which of the following?
   a. Self-sufficiency
   b. Shapes
   c. Characteristics
   d. Speed

5. The author implies that bacteria were investigated earlier than viruses because
   a. bacteria are easier to detect
   b. bacteria are harder to eradicate
   c. viruses are extremely poisonous
   d. viruses are found only in hot climates

6. All of the following may be components of a virus, except:
   a. RNA
   b. plant cells
   c. carbohydrates
   d. a coat of protein

****

(9)

The Salinity Ocean Waters

If the salinity of ocean waters is analyzed, it is found to vary only slightly from place to place. Nevertheless, some of these small changes are important. There are three basic processes that cause a change in oceanic salinity. One of these is the subtraction of water from the ocean by means of evaporation-conversion of liquid water to water vapor. In this manner, the salinity is increased, since the salts stay behind. If this is carried to the extreme, of course, white crystals of salt would be left behind: this. by the way, is how much of the table salt we use is actually obtained.

The opposite of evaporation is precipitation, such as rain, by which water is added to the ocean. Here the ocean is being diluted so that the salinity is decreased. This may occur in areas of high rainfall or in coastal regions where rivers flow into the ocean. Thus salinity may be increased by the subtraction of water by evaporation, or decreased by the addition of fresh water by precipitation or runoff.

Normally in tropical regions where the Sun is very strong, the ocean salinity is somewhat higher than it is in other parts of the world where there is not as much evaporation. Similarly, in coastal regions where rivers dilute the sea salinity is somewhat lower than in other oceanic areas.

A third process by which salinity may be altered is associated with the formation and melting of sea ice. When seawater is frozen, the dissolved materials are left behind. In this manner, seawater directly beneath freshly formed sea ice has a higher salinity than it did before the ice appeared. Of course, when this ice melts, it will tend to decrease the salinity of the surrounding water.

In the Weddell Sea, off Antarctica, the densest water in the oceans is formed as a result of this freezing process, which increases the salinity of cold water. This heavy water sinks and is found in the deeper portions of the oceans of the world.

Questions:

1. What does the passage mainly discuss?
   a. The bodies of water of the world
   b. The elements of salt
   c. The many forms of ocean life
   d. The salinity of ocean water

2. According to the passage, the ocean generally has more salt in ....
   a. coastal areas
   b. tropical areas
   c. rainy areas
   d. turbulent areas

3. All of the following are processes that decrease salinity, except:
   a. evaporation
   b. precipitation
   c. runoff
   d. melting

4. Which of the following statements about the salinity of a body of water can best be inferred from the passage?
   a. The temperature of the water is the most important factor.
   b. How quickly the water moves are directly related to the amount of alt.
   c. Ocean salinity has little effect on sea life.
   d. Various factors combine to cause variations in the salt content of water.

5. The word "it" in line 19 refers to which of the following?
   a. Sea ice b. Salinity
   c. Seawater d. Manner

6. Why does the author mention the Weddell Sea?
   a. To show that this body of water has salinity variations
   b. To compare Antarctic waters with Arctic waters
   c. To give an example of cold-water salinity
   d. To point out the location of deep waters

7. Which of the following is NOT a result of the formation of ocean ice?
   a. The salt remains in the water b. The surrounding water sinks
   c. Water salinity decreases d. The water becomes denser

8. What can be inferred about the water near the bottom of oceans?
   a. It is relatively warm.
   b. Its salinity is relatively high.
   c. It does not move.
   d. It is formed by melting sea ice.

****

(10)

The Theory of Plate Tectonics

The theory of plate tectonics describes the motions of the lithosphere, the comparatively rigid outer layer of the Earth that includes all the crust and part of the underlying mantle. The lithosphere is divided into a few dozen plates of various sizes and shapes; in general, the plates are in motion with respect to one another. A mid - ocean ridge is a boundary between plates where new lithospheric material is injected from below. As the plates diverge from a mid - ocean ridge they slide on a more yielding layer at the base of the lithosphere.

Since the size of the Earth is essentially constant, new lithosphere can be created at the mid - ocean ridges only if an equal amount of lithospheric material is consumed elsewhere. The site of this destruction is another kind of plate boundary: a subduction zone. There one plate dives under the edge of another and is reincorporated into the mantle. Both kinds of plate boundary are associated with fault systems, earthquakes and volcanism, but the kinds of geologic activity observed at the two boundaries are quite different.

The idea of sea-floor spreading actually preceded the theory of plate tectonics. In its original version, in the early 1960s, it described the creation and destruction of the ocean floor, but it did not specify rigid lithospheric plates. The hypothesis was substantiated soon afterward by the discovery that periodic reversals of the Earth' $ magnetic field are recorded in the oceanic

crust. As magma rises under the mid - ocean ridge. ferromagnetic minerals in the magma become magnetized in the direction of the geomagnetic field. When the magma cooks and solidifies, the direction and the polarity of the field are preserved in the magnetized volcanic rock. Reversals of the field give rise to a series of magnetic stripes running parallel to the axis of the rift. The oceanic crust thus serves as a magnetic tape recording of the history of the geomagnetic field that can be dated independently the width of the stripes indicates the rate of the sea - floor spreading.

Questions:

1. What is the main topic of the passage?
   a. Magnetic field reversal
   b. The formation of magma
   c. The location of mid - ocean ridges
   d. Plate tectonic theory

2. According to the passage, there are approximately how many lithospheric plates?
   a. Six
   b. Twelve
   c. Twenty - four or more
   d. One thousand nine hundred

3. Which of the following is true about tectonic plates?
   a. They are moving in relationship to one other
   b. They have unchanging borders
   c. They are located far beneath the lithosphere
   d. They have the same shape

4. According to the passage, which of the following statements about the lithosphere is LEAST likely to be true?

   a. It is a relatively inflexible layer of the Earth
   b. It is made up entirely of volcanic ash
   c. It includes the crust and some of the mantle of the Earth
   d. It is divided into plates of various shapes and sizes

5. What does the author imply about the periodic reversal of the Earth's magnetic field?

   a. It is inexplicable
   b. It supports the hypothesis of sea-floor spreading
   c. It was discovery before the 1960's
   d. It indicates the amount of magma present

6. The author states that the width of the stripes preserved in magnetized volcanic rock give information about the

   a. date of a volcanic eruption
   b. speed of sea - floor spreading
   c. width of oceanic crust
   d. future behavior of the geomagnetic field

****

(11)

The Temperature of the Sun

The temperature of the Sun is over 5,000 degrees Fahrenheit at the surface, but it rises to perhaps more than 16 million degrees at the center. The Sun is so much hotter than the Earth that matter can exist only as a gas, except at the core. In the core of the Sun, the pressures are so great against the gases that, despite the high temperature. There may be a small solid core. However, no one really knows, since the center of the Sun can never be directly observed.

Solar astronomers do know that the Sun is divided into five layers or zones. Starting at the outside and going down into the Sun, the zones are the corona, chromospheres, photosphere, convection zone, and finally the core. The first three zones are the regarded as the Sun's atmosphere. But since the Sun has no solid surface, it is hard to tell where the atmosphere ends and the main body of the Sun begins.

The Sun's outermost layer begins about 10,000 miles above the visible surface and can be seen during an eclipse such as the one in February 1979. At any goes outward for millions of miles. This is the only part of the Sun that other time, the corona can be seen only when special instruments are used on cameras and telescopes to shut out the glare of the Sun's rays.

The corona is a brilliant, pearly white, filmy light about as bright as the full Moon. Its beautiful rays are a sensational sight during an eclipse. The corona's rays flash out in a brilliant fan that has wispy spike-like rays near the Sun’s north and south poles. The corona is thickest at the sun's equator.

The corona rays are made up of gases streaming outward at tremendous speeds and reaching a temperature of more than 2 million degrees Fahrenheit. The rays of gas thin out as they reach the space around the planets. By the time the Sun's corona rays reach the Earth, they are weak and invisible.

Questions:

1. Matter on the Sun can exist only in the form of gas because of the Sun' S

   a. size b. age

   c. location d. temperature

2. With what topic is the second paragraph mainly concerned?

   a. How the Sun evolved

   b. The structure of the Sun

   c. Why scientists study the Sun

   d. The distance of the Sun from the planets

3. All of the following are parts of the Sun's atmosphere, except the ...

   a. corona

   b. chromosphere

   c. photosphere

   d. core

4. According to the passage as the corona rays reach the planets, they become
   a. hotter
   b. clearer
   c. thinner
   d. stronger

5. The paragraphs following the passage most likely discuss which of the following?
   a. The remaining layers of the Sun
   b. The evolution of the Sun to its present form
   c. The eclipse of February 1979
   d. The scientists who study astronomy

****

(12)

Botany

Botany, the study of plants, occupies a peculiar position in the history of human knowledge. For many thousands of years, it was the one field of awareness about which humans had anything more than the vaguest of insights. It is impossible to know today just what our Stone Age ancestors knew about plants, but from what we can observe of pre-industrial societies that still exist, a detailed learning of plants and their properties must be extremely ancient. This is logical. Plants are the basis of the food pyramid for all living things, even for other plants. They have always been enormously important to the welfare of peoples, not only for food, but also for clothing, weapons, tools, dyes: medicines, shelter, and a great many other purposes. Tribes living today in the jungles of the Amazon recognize literally hundreds of plants and know many properties of each. To them botany, as such, has no name and is probably not even recognized as a special branch of "Knowledge at all.

Unfortunately, the more industrialized we become the farther away we move from direct contact with plants, and the less distinct our knowledge of botany grows. Yet everyone comes unconsciously on an amazing amount of botanical knowledge, and few people will fail to recognize a rose, an apple, or an orchid. When our Neolithic ancestors, living in the Middle East about

10,000 years ago, discovered that certain grasses could be harvested and their seeds planted for richer yields the next season, the first great step in a new association of plants and humans was taken. Grains were discovered and from them flowed the marvel of agriculture: cultivated crops. From then on, humans would increasingly take their living from the controlled production of a few plants, rather than getting a little here and a little there from many varieties that grew wild – and the accumulated knowledge' of tens of thousands of years of experience and intimacy with plants in the wild would begin to fade away.

Questions:

1. Which of the following assumptions about early humans is expressed in the passage?
   a. They probably had extensive knowledge of plants.
   b. They thought there was no need to cultivate crops.
   c. They did not enjoy the study of botany.
   d. They placed great importance on the ownership of property.

2. What does the comment "This is logical" mean?
   a. There is no clear way to determine the extent of our ancestor's knowledge of plants.
   b. It is not surprising that early humans had a detailed knowledge of plants.
   c. It is reasonable to assume that our ancestors behaved very much like people in preindustrial societies.
   d. Human knowledge of plants is well organized and very detailed.

3. According to the passage, why has general knowledge of botany begun to fade?

a. People no longer value plants as a useful resource.
b. Botany is not recognized as a special branch of science.
c. Research is unable to keep up with the increasing numbers of plants.
d. Direct contact with a variety of plants has decreased.

4. According to the passage, what was the first great step toward the practice of agriculture?

a. The invention of agricultural implements and machinery
b. The development of a system of names for plants
c. The discovery of grasses that could be harvested and replanted
d. The changing diets of early humans

5. The relationship between botany and agriculture is similar to the relationship between zoology (the study of animals) and

a. deer hunting
b. bird watching
c. sheep raising
d. horseback riding

****

(13)

Types of Fish

Fish live and breathe in water. They use their gills to breathe, have fins and a streamlined body suitable for swimming, and have scales for protection. Fish are vertebrates - animals with a backbone. However, they are not the only animals with a backbone. Mammals (such as monkeys, horses, cats), reptiles (such as lizards, snakes), amphibians (such as frogs and toads), and birds also have a backbone, and they are all vertebrates.

There is over 25,000 different types of fish in the world - a count more than the combined total of mammals, reptiles, amphibians, and birds! Fish can be found in almost every type of underwater environment. For example, the Antarctic ice fish can survive in water below the freezing point (32 degrees Fahrenheit) because their blood contains special anti-freeze chemicals to prevent their body from freezing. Sharks, salmons, electric eels, and seahorses are other examples of fish.

Questions:

1. Which of the following statement about fish is true?
   a. Cartilaginous fish have a swim bladder.
   b. Trout are bony fish.
   c. Hagfish are bony fish.
   d. Whale sharks are whales, not sharks.

2. All animals with a backbone are called:

.....

3. What do bony fish have that other groups of fish do not?

a. Gills

b. Swim bladder

c. Scales

d. Fins

4. Fish use gills to breathe.

a. True ( )

b. False ( )

5. What make hagfish and lampreys so different from other types of fish?

a. They do not use gills to breathe.

b. They do not have a jaw.

c. They are not fish.

b. They do not have fins.

6. Which of the following fish are cartilaginous fish?

a. Lampreys

b. Rainbow trout

c. Sharks

d. Whales

****

End of Part Two

Part Three

Grammar Exercises

UNIT ONE

- **Choose the appropriate answer from a, b, c, or d:**

1. John Butterfield ..... the Southern Overland Mail Company with two stagecoaches in 1858.
   a. he set up
   b. setting up
   c. set up
   d. the setup

2. The radiation piercing the atmosphere ..... of tanning or burning in humans.
   a. it is the cause
   b. causing it
   c. is the cause
   d. the cause

3. The ..... during an earthquake are caused by seismic waves.
   a. actually vibrate
   b. actual vibrations
   c. vibrations happen
   d. from the actual vibrations

4. During the Middle Ages, ..., large sets of bells with as many as 70 bells, first became popular.
   a. with carillons
   b. carillons are
   c. carillons have
   d. carillons

5. The tea plant, an evergreen shrub pruned to three to five feet high, ... mild, semitropical climate in which to grow.
   a- the need for b- it needs c- to need d- needs a

6. ....., an author probably most famous for his tales of terror, also dabbled in some science fiction.
   a. To Edgar Allen Poe
   b. Edgar Allen Poe
   c. Edgar Allen Poe was
   d. For Edgar Allen Poe to be

7. Humans living at high elevations ..... to the lower level of oxygen in the air by producing more red blood corpuscles.
   a. Adjust
   b. to adjust
   c. the adjustment
   d. adjusting

8. By 1870, over 30 nations ..... their own postage stamps.
   a. the issue
   b. were issuing
   c. issuing
   d. they issued

9. The Statue of Liberty, completed in Paris in 1884, ... in New York Harbor in 1886.
   a. the unveiling
   b. to unveil
   c. it unveiled
   d. was unveiled

10. Red Ribbon Week, a national campaign to keep young people from using drugs, ...
   a. annually in October
   b. annually in October each year
   c. takes place annually in October
   d. taking place annually in October

11. In a triathalon, the ....., bike, and run.
    a. athlete swims
    b. athletes swim
    c. swim athletically
    d. the swimming athlete

12. The Mayflower Compact, signed by the Pilgrims upon their arrival in Massachusetts in 1620, ... their political and religious beliefs.
    a. the statement of
    b. stating
    c. with a statement of
    d. stated

13. ..... alcoholism are the slow destruction of the liver and possible death.
    a. Dangerously,
    b. The eventual effect of
    c. The long-term effects of
    d. Chronic and eventual

14. The ....., the first daily newspaper in the United States, first appeared in 1783.
    a. two-page {Pennsylvania Evening Post}
    b. {Pennsylvania Evening Post} is two pages long
    c. {Pennsylvania Evening Post} was
    d. two-page {Pennsylvania Evening Post's{

15. On November 19, 1863, Abraham Lincoln, speaking from notes on an old ..... the famous Gettysburg Address in only two minutes time.
    a. gave the envelope
    b. envelope giving
    c. envelope, gave
    d. gift of an envelope

16. ..... runs parallel to the coast of California for more than 600 miles.

a. The San Andreas Fault is long
b. On the San Andreas Fault
c. The San Andreas Fault
d. Along the San Andreas Fault

17. ....., one of the most famous presidents, was assassinated by John Wilkes Booth.

a. For Abraham Lincoln
b. Abraham Lincoln was
c. Of all the presidents
d. Abraham Lincoln

18. ....., Jesse Owens won four gold medals at the 1936 Olympics in Berlin.

a. Excellent speed and running ability
b. The outstanding track athlete runs
c. An outstanding ~track athlete
d. He had excellent speed and running ability

19. Thomas Jefferson, ... a personally designed and constructed lap-top desk, wrote the Declaration of Independence in the summer of 1776.

a. he used
b. had used
c. the use of
d. using

20. The Great Plains in the Midwest of the United States ..... a rich, fertile farming area.

a. definitely making
b. from the beginning
c. the pioneers planted
d. makes up

21. Parent flamingos lose their intense pink coloring until .....

a. weaning young
b. their youths
c. they wean their young
d. young

22. Champagne can be purchased by the balthazar, ... cannot be purchased in this amount.

a. Brandy
b. But
c. because brandy
d. but brandy

23. ..... has a beautiful red coat, the red panda is called "hun-ho" or "fire fox" in China.

a. It
b. Because it
c. On it
d. As soon as

24. ..... long enough, every Down's syndrome individual gets Alzheimer's disease.

a. The person lives
b. If the person living
c. If the person lives
d. Because the life

25. Although Congress passed an income tax law in 1894, in 1895 ..... the law unconstitutional.

a. the ruling of the Supreme Court
b. was ruled by the Supreme Court
c. if the Supreme Court ruled
d. the Supreme Court ruled

26. When San Diego's summer heat has withered most flowers, ... bloom.

a. as soon as lilies
b. lilies
c. of lilies
d. by the time lilies start

27. ..... dugout canoes where the floodplains have dried into long stretches of dry sand.

a. Because oxen pull
b. Oxen pull
c. For oxen to pull
d. Oxen pulling

28. Like a mountain, the Empire State Building creates its own updrafts, ... have been observed to fall up.

a. and snow and rain
b. snow and rain
c. of snow
d. but snow

29. ..... perceives the color black ~provided there is a complete lack of stimulation of the retina.

a. When a person
b. A person will
c. If a person
d. A person

30. Elephant poaching ..... the international ban on ivory was established.

a. has diminished since
b. it has diminished
c. since diminishing
d. it has diminished since

31. A little fat is essential for humans ..... retain body heat, gives muscles energy, and keeps skin soft.

a. as it helps
b. although it
c. it helps
d. in helping

32. Gustave Eiffel is famous for building the Eiffel Tower, ... for designing the framework of the Statue of Liberty.

a. he is remembered
b. is remembered
c. yet he is seldom remembered
d. yet remembered

33. Further changes in the celestial constellations ..... the International Astronomical Union has been formed.

a. are unlikely now that
b. unlikely whenever
c. are unlikely
d. they are unlikely

34. ..... can consume 30,000 plant species, 90 percent of the human diet consists of only 20 of the available species.

a. Humans
b. In contrast humans
c. Providing for humans
d. While humans

35. The reservoir created by the Three Gorges Dam will flood almost 1,400 villages, ... to relocate the villages' nearly two million inhabitants.

a. the government plans
b. so the governments plans
c. so the government plans
d. the governments plans

36. ..... walking properly and has enough area to walk in, it should wear down the hoof as it regrows.

a. If the animal is
b. The animal is
c. Although the animal
d. Although

37. Change, both good and bad, can create stress, ..., if sufficiently severe, can lead to illness.

a. and stress
b. and stressed
c. stress
d. that stress

38. Caffeine is primarily consumed in coffee and tea, ... also found in cocoa, cola, and other soft drinks.

a. But
b. but it
c. but it is
d. it is

39. ..... farmers extra hours of light by which to harvest crops before frost and winter come.

a. The harvest moon
b. Whenever the harvest moon allows
c. During the harvest moon
d. The harvest moon gives

40. ..... built in 1931, the Empire State Building has actually shrunk six inches.

a. It was
b. Because it
c. Until it was
d. Since it was

41. For every disease-carrying toxin, there is an antitoxin which ..... out the effect of the toxin.

a. Cancels
b. the cancellation
c. to cancel
d. cancelling

42. Galileo's observations of the phases of Venus proved ..... formed the center of the planetary system.

a. that the Sun
b. the Sun is
c. it is the Sun
d. what is the Sun

43. Skin color is determined by a chemical called melanin, ... in greater or lesser amounts.

a. which human skin contains
b. human skin contains
c. in human skin contains
d. there is in human skin

44. Environmentalists are earnestly trying to determine ..... of the ozone layer over the poles.

a. is causing the deterioration
b. what the cause of the deterioration
c. what is causing ~the deterioration
d. the deterioration is causing

45. Historical records ..... were used in China for centuries before spreading to Europe.

a. suggesting that fireworks
b. fireworks
c. that fireworks
d. suggest that fireworks

46. The first mention of the cultivation of tea ..... in a Chinese dictionary which dates about the year 350.

a. Finding
b. to be found
c. it is found
d. can be found

47. The anteater has a long sticky tongue, ... capture ants and termites from their nests.

a. which the use
b. uses it to
c. it is used
d. which it uses to

48. ..... global climate is warming has been well documented.

a. There is the
b. It is the
c. The
d. That the

49. Bank employees collect worn-out dollar bills, ... to a central office to be destroyed in a furnace.

a. who send them
b. which are sent
c. who are sent
d. are sent

50. ..... such a challenging science is that all theory is based on observations that cannot be replicated in a controlled environment.

a. It is astronomy
b. Astronomy is
c. What makes astronomy
d. Why is astronomy

51. The blue-ringed octopus, ... found in tropical lagoons, is so venomous that it can paralyze or kill a person in a matter of minutes.

a. is
b. who is
c. that
d. which is

52. ..... floats or sinks is determined by its density rather than its weight.

a. Whether an object
b. An object if it
c. Because an object
d. An object

53. Edmund Halley, who had discovered Halley's comet in 1682, ... before he could again see the comet whose return he had accurately predicted.

a. died
b. dying
c. on his death
d. to die

54. Bees perform a complex dance ..... other bees about the location of a good source of nectar.

a. tells
b. tell
c. it tells
d. that tells

55. Some radioisotopes which ..... as radioactive waste are now being used in experimental cancer therapies.

a. once discarded by scientists
b. scientists discarded
c. to discard by scientists
d. were discarded scientists

56. Although seismologists know ....., they are unable to predict with accuracy when or where a tremor might occur.

a. what causes earthquakes
b. what earthquakes
c. causes earthquakes
d. that the quaking of the Earth

57. The abundant grain harvests of North America can be credited to Norman Borlag, a little-known scientist ..... modern strains of high-yield wheat.

a. which cultivated
b. cultivated
c. who cultivated
d. the cultivation of

58. ..... in the atmosphere is the temperature falling below freezing.

a. Frost is produced
b. Frost produces
c. What produces frost
d. What is frost

59. Subduction is the process ..... the ocean floor recycles itself.

a. That
b. which is
c. by which
d. how

60. ..... in so perfectly with their environment is what makes Frank Lloyd Wright's architecture so distinctive.

a. That the buildings blend
b. The buildings blend
c. Since the buildings blend
d. Build and blend

61. The surgeon operating without delay on an inflamed appendix ..... a far more serious complication, which is the rupture of a germ-laden appendix.

a. which prevents
b. preventing
c. prevents
d. prevention

62. Unless ..... as injury-free as possible, older athletes can have their activity and quality of life affected.

a. the remnants of
b. to remain
c. remaining
d. remain

63. ..... famous civil rights leader, Martin Luther King, Jr. was named winner of the Nobel Peace Prize in 1964.

a. A
b. Which was
c. He was a
d. Was a

64. The four-character drama {Who's Afraid of Virginia Woolf?} , ... by Edward Albee, opened on Broadway.

a. it was written
b. who was written
c. written
d. was written

65. After ..... seven years to journey to Saturn, the spacecraft {Cassini} will spend four years exploring Saturn, its rings, and its icy moons.

a. takes
b. taken
c. was taken
d. taking

66. Although applied for in October of 1793, Eli Whitney's patent for his cotton gin ..... until March of the following year.

a. Granting
b. it was not granted
c. to grant
d. was not granted

67. ....., honoring the African tradition of celebrating the harvest, is held December 16 through January 1 in the United States.

a. For Kwanzaa
b. Kwanzaa was celebrated
c. Kwanzaa celebrations
d. Kwanzaa

68. While repositioning, cruise ships ..... passengers for what is called a line voyage.

a. the embarkation of
b. embark
c. embarking
d. they embark

69. ..... New York and New Jersey, the George Washington Bridge opened to traffic in 1931.

a. Connecting
b. Which was connected
c. Connects
d. It connects

70. While ..... those who are not working members of the press, press pins provide access to a press box for media members.

a. kept out
b. keeping out
c. the keeper
d. was kept out

71. Although ..... their jobs, a majority of workers expect to move on to other jobs within five years of starting their current jobs.

a. to enjoy
b. enjoy
c. the enjoyment
d. enjoying

72. Most adults, including 78 percent of men and 61 percent of women, ... that gender roles in marriage today are more equal than traditional.

a. say
b. they say
c. saying
d. to say

73. If introduced into avocado groves, the seed and stem weevils, seed moth, and fruit fly ..... the avocado industry in California.

a. the ending
b. may end
c. to end
d. they will end

74. ..... Lake Erie and the Hudson River, the Erie Canal opened in upstate New York in 1825.

a. Linking
b. It was linked
c. Have been linking
d. They linked

75. While ....., Chu developed a way of trapping thousands of gas atoms using lasers.

a. to work at Bell Laboratories
b. working at Bell Laboratories
c. worked at Bell Laboratories
d. was working at Bell Laboratories

76. Though racing toward the Milky Way galaxy at 300,000 miles an hour, the Andromeda galaxy ..... with the Milky Way for about five billion years.

a. Colliding
b. will not collide
c. to collide
d. the collision

77. On October 28, 1886, the Statue of Liberty, a gift from the people of France, ... in New York Harbor by President Cleveland.

a. to dedicate
b. it dedicated
c. was dedicated
d. was dedicating

78. While making the embarrassing mistake of wearing a scarlet garment instead of somber black, ..., the atomic chemist and Quaker, discovered that he was color-blind.

a. in John Dalton's laboratory
b. John Dalton was
c. John Dalton
d. John Dalton and

79. The birth of swing music can be traced to Battle of the Bands competitions ..... at the Savoy Ballroom in Harlem.

a. Held
b. were held
c. the holdings
d. to hold

80. In the halcyon days of the civil rights movement, a small group of dedicated lawyers, mostly black, ... carefully craft the strategy that led to the destruction of legal segregation.

a. which is able to
b. was able to
c. able to
d. were able

81. Scientists now know that the lack of an embryonic thumb in birds is why ..... almost impossible for birds and dinosaurs to be related.

a. is
b. it is
c. is it
d. it

82. There ..... launched in 1958 that fell back to Earth and burned up in the atmosphere.

a. a lunar probe was
b. was a lunar probe
c. a lunar probe
d. with a lunar probe

83. Rarely ..... now used for battle purposes.

a. in the band
b. military bands are
c. banded
d. are military bands

84. In addition to quitting smoking and controlling blood pressure and diet, people need to think about how ..... stress to avert potentially fatal heart problems.

a. can they manage
b. the management
c. they manage
d. managing

85. Only recently ..... popular all over the country.

a. have indoor climbing gyms become
b. in becoming indoor climbing gyms
c. indoor climbing gyms have become
d. indoor climbing gyms

86. A motionless atom is colder than ..... .

a. in the movement
b. to be moved
c. the atom moving
d. is a moving atom

87. In the sand off the northern California coast ..... {San Agustin}, which is said to be loaded with gold.

a. the galleon is lying
b. lies the galleon
c. the galleon
d. the galleon which lies

88. According to a recent survey, were ..... of telecommuters to lose their jobs, they would look for other telecommuting positions.

a. to major
b. if a majority
c. a majority
d. in the major

89. When ..... chest pain, some doctors recommend that they take one full 325-milligram aspirin.

a. patients feel
b. feel impatient
c. do patients feel
d. as patients feel

90. There ..... called Epstein-Barr which leaves people feeling chronically fatigued and feeling as if they have a recurring case of the flu.

a. a viral
b. in a disease
c. a virus is
d. is a virus

91. Only in the Civil War ..... killed or wounded.

a. soldiers in America
b. were so many American soldiers
c. many in America
d. so many American soldiers were

92. Lifestyle is more important ..... in a person's lifespan.

a. as genetics are
b. with genes
c. genetically
d. than are genetics

93. A collision with another galaxy may be what ....., the Milky Way, may experience.

a. Earth's galaxy is
b. is Earth's galaxy
c. Earth's galaxy
d. for Earth's galaxy

94. Should ..... help keeping their weight, blood pressure, pulse, and cholesterol down, swimming is an excellent activity.

a. adults need
b. needy adults
c. to need
d. need adults

95. In the vessels of the vascular system of the giraffe ..... of valves that ensures a needed supply of blood to the head.

a. are series
b. is serious
c. is a series
d. a series is

96. There has been a string ~of recent technology advances aimed at building new engines which are more clean and efficient than ..... .

a. to engineer
b. are current engines
c. in engines currently
d. current

97. Daylight saving time seems to reduce people's exposure to crime, so were people to get home from work and school and complete more errands and chores in daylight, ... safer.

a. for being
b. to be
c. they
d. they would be

98. Scarcely ..... started building his theme park when he launched his first television program titled {Disneyland}.

a. Walt Disney
b. Walt Disney had
c. had Walt Disney
d. Walt Disney was

99. Orthopedic and sports medicine specialists now realize that ..... people to get prolonged bed rest for acute and chronic back problems, they would heal less quickly.

a. were
b. if
c. the
d. of

100. The hunting season for firearms is more restricted than ..... because hunting with firearms is more dangerous and less challenging.

a. to season
b. is the archery season
c. for archery
d. is seasoning

101. John Denver ..... in October 1997 during a flight in his new aircraft near Monterey, California.

a. unfortunately killing
b. he was killed
c. to kill
d. was killed

102. Iodine, needed for the thyroid gland to function properly, ... from iodized salt or seafood.

a. obtaining
b. can be obtained
c. to obtain
d. it is obtained

103. Some experts feel that children lose a great deal of what ..... during the school year over the long summer vacation.

a. they learn
b. do they learn
c. learner
d. learning

104. Many thousands and sometimes even millions of ..... in a single colony.

a. ants living
b. b. the lives of ants
c. ants live
d. living ants

105. The Pilgrims felt that cold ocean water was bad for their health, ... ate fish when food supplies were low.

a. they only
b. when only
c. so they only
d. because they

106. Our ability to see greatly influences ..... we perceive the world around us.

a. us
b. and
c. how
d. in which

107. Recovery time after surgery has decreased ..... have been developed.

a. procedures are less invasive
b. less invasive procedures
c. to proceed less invasively
d. now that ~less invasive procedures

108. The Cheetah, the fastest bicycle in the world, cruises at nearly 70 mph, ... reaches speeds up to only 30 mph.

a. the convention of a bicycle
b. the conventional bicycle
c. whereas the conventional bicycle
d. conventionally, a bicycle

109. The koala never drinks water because it gets all the liquid that ..... from the leaves of eucalyptus trees.

a. the need for it
b. needing it
c. it needs
d. it needs is

110. The stomach also secretes ammonia, a powerful alkali, ... as a neutralizing agent to the gastric acid.

a. which acts
b. it acts
c. acts
d. that act

111. In 1848, men from the Miwok and other Indian tribes ..... half of the 4,000 miners working in the Gold Country of California.

a. and made up
b. to make up
c. which they made up
d. made up

112. Once ..... as a state in 1850, California imposed a tax of $20 a month on foreign miners.

a. instituting
b. instituted
c. the institution
d. to institute

113. Were ....., they would miss up to 30 percent of their required calories.

a. not allow young children to snack
b. with snacks for young children
c. no snacks be allowed for young children
d. young children not allowed to snack

114. ..... away from the Sun is the pressure of the solar wind.

a. The tail of a comet always points
b. What keeps ~the tail of a comet always pointing
c. Why does it keep the tail of a comet pointing
d. The tail of a comet that always points

115. Motorists spend four times more on car repairs resulting from bad roads than ..... state highway departments on maintaining the roads.

a. doing
b. from
c. to do from
d. do

116. Even identical twins ..... fingerprints.

a. Distinct
b. with distinct
c. having distinct
d. have distinct

117. During an introduction, ... helpful to say something interesting and polite to make the conversation easier.

a. is
b. it is
c. to it
d. its

118. The substance holding every atom together ..... {gluon} because it acts like a kind of cosmic glue.

a. calling
b. and calling
c. is called
d. with the call of

119. One of the most committed ..... shouted, "Give me liberty or give me death!" in a stirring speech just prior to the start of the American Revolution.

a. Patrick Henry was a patriot
b. Patriotic Patrick Henry
c. patriot was Patrick Henry
d. patriots, Patrick Henry,

120. Though rain forests ..... about ten percent of the Earth's surface, today one half of the rain forests are gone.

a. once covered
b. one cover
c. coverage at once
d. covering once

121. ..... trees that are too large for them to haul to a nearby stream.

a. Beavers, which often fell
b. The fall of beavers and
c. Beavers often fell
d. How beavers fell

122. Nearly 100 years ago, doctors in the United States started recommending peanut butter as a good source of protein, yet nobody ..... who first invented it.

a. knowing
b. with the knowledge
c. knows
d. who knows

123. Mike Fink was a colorful American frontiersman whose adventures ..... of numerous folktales and legends.

a. served as a basis
b. as the basis serving
c. the basis to serve
d. to serve the basis

124. Apogee, a variety of wheat being developed for growth in space, grows only 18 inches high, ... up to 1,000 bushels per acre under constant high light.

a. it yields
b. yet yielding
c. yet it yielded
d. yet it yields

125. Nowhere in the United States but in New Jersey ..... so many people per square mile.

a. there
b. there are
c. there is
d. are there

126. The new electric cars run partially on free energy ..... installed at businesses have no means by which to measure or bill for the electricity used.

a. with rechargers
b. as rechargers
c. recharging
d. using rechargers

127. When ..... in the early 1940s, the sun's corona was found to be a baffling 2.7 million degrees Fahrenheit.

a. measuring
b. was measured
c. measured
d. in measuring

128. ..... used to lure children into behaving better can work at first, but the results are often temporary.

a. Rewards are
b. Rewards
c. To reward
d. Rewards which

129. We can determine the family that a bird falls into by ..... like.

a. what are the shape and behavior of a bird
b. what the bird's shape and behavior
c. the shape and behavior of a bird
d. what the shape and behavior of a bird are

130. At no time ..... Susan B. Anthony pay the fine she was charged for voting in a presidential election in 1872.

a. did suffragist
b. the suffragist
c. to the suffragist
d. was suffragist

131. Oxygen is necessary for the survival of most organisms, but ..... these organisms.

a. damaged
b. it can also damage
c. is damaging
d. the damage

132. ..... from the flax plant can be made into linen.

a. Fibers
b. They are fibers
c. With fibers
d. Fibers are

133. About 5,000 years ago, ... was developed simultaneously and independently by both the Chinese and the Egyptians.

a. the fan
b. fans
c. they were fans
d. it fanned

134. Jean-Claude Van Damme, usually ..... in hit movies as the hero, surprisingly is the villain in the movie {No Retreat, No Surrender}.

a. stars
b. to star
c. starring
d. is the star

135. Lotto winners ..... their winnings in one lump sum, are now being paid in equal annual payments.

a. originated the pay of
b. were originally paid
c. originally paid
d. the pay was originally

136. Although the strawberry ..... a fruit, it is actually the base of the strawberry flower.

a. a look like
b. like a look
c. liking to look
d. looks like

137. Hardly ever ..... out of the loop at work; on the contrary, they often get more work done and see more of their families.

a. telecommuters feel
b. do telecommuters feel
c. the telecommuters
d. the feeling of telecommuters

138. Data about butterflies accumulate each Fourth of July as ..... all over the United States participate in an annual butterfly count.

a. butterfly watching
b. and watching butterflies
c. so butterflies watch
d. butterfly watchers

139. ..... is lubricated can affect the longevity of the moving parts that rub together.

a. How often machines
b. A machine often
c. Often a machine
d. How often a machine

140. In the Civil War, about two-thirds of the property ..... by Southerners was lost, their economy was wrecked, and much of their land was devastated.
   a. was owned
   b. owned
   c. to own
   d. it will own

141. A fluorescent lamp contains ..... glows with white light when electricity passes through it.
   a. a glass tube
   b. a tube is made of glass
   c. a glass tube that
   d. a glass tube that it

142. Dogs have more scent receptors than ....., so dogs can be trained to smell many things that humans cannot smell.
   a. do humans
   b. with humans
   c. too humane
   d. humanly

143. When the Hubble Space Telescope focused for ten days on a dark patch of sky the size of a grain of sand, what initially appeared to be empty space ..... thousands of distant galaxies.
   a. turned out to be filled with
   b. it turned out to be filled
   c. turning out to be filled with
   d. and it turned out to fill

144. Though ..... on millions of people, "Black Thursday," the stock market collapse of October 24, 1929, did not cause the economic depression that followed.
   a. having depressing effects
   b. to affect depressingly
   c. have depressing effects
   d. have depressed effectively

145. Should ..... early injections against diseases, they might have a lower risk of infection in late preschool and early school age.

a. receive
b. children's reception
c. be receiving
d. children receive

146. With 36 black keys and 52 white keys, ... a total of 88 keys.

a. a piano having
b. a piano has
c. to have a piano
d. have a piano

147. John Chapman of Massachusetts, known as Johnny Appleseed, ... 100,000 square miles of the early United States planting apple trees as he traveled.

a. trekking more than
b. he trekked as much as
c. to trek
d. trekked over

148. When warm air rises, ... and cools.

a. it expands
b. so it expands
c. the expansion of it
d. its expansion

149. No one knows when ..... to make bread.

a. the first use of yeast
b. yeast was first used
c. the first yeast used
d. was yeast first used

150. The intestines are the lower portion of the alimentary canal ..... of an upper long winding part and a lower shorter wider part.

a. consist
b. they consist
c. consisting
d. it consists

****

End of Part Three

Part Four

Science Glossary

Some Biotechnology English Terms:

- ***Biotechnology*** is the use of an organism, or a component of an organism or other biological system, to make a product or process.
- ***DNA technology*** is the sequencing, analysis, and cutting-and-pasting of DNA.
- ***Biochemistry*** is the science that deals with the chemistry of life processes in plants and animals.
- ***Microorganism*** is an organism that is too small to be seen with the human eye.
- ***Mutagenesis*** is a process by which the genetic information of an organism is changed (in a stable manner).
- ***Hormone*** is a chemical released by cells that affects cells in other parts of the body.
- ***Enzyme*** is a protein that increases the rate of a chemical reaction.
- ***Pasteurization*** is a process that slows the growth of microbes in food
- ***Multicellular***: having more than one cell.
- ***Amplification***: duplication, production of additional copies.

****

English	Arabic
A	
Absorb	امتص تشرّب
Acceleration	سرعة، تسارع، تعجيل
acid rain	مطر حامضي
Action	فعل، عمل، تأثير، أثر
Adapt	تكيّف، تأقلم، أقلم، تحول
Adaptation	تكيّف، تكييف، مواءمة، تحويل
Adjust	عدّل، كيّف، ضبط، نظم
Adult	بالغ، راشد
Advantage	ميزة، فائدة
Affect	أثر في، فعل
air mass	كتلة هوائية
air pressure	ضغط هوائي
air resistance	مقاومة الهواء
Alto	في وسط الغيوم (متوسط)
Amount	كمية، مقدار
Amphibian	كائن برمائي
Amplitude	الذبذبة، الموجة، مدي
Anatomy	علم التشريح
Ancestor	سلف، أصل السلالة، نموذج أولي
Ancient	قديم
Anemometer	مقياس شدة أو سرعة الريح
Angle	زاوية
Animalia	حيوانات
Antibiotic	مضاد حيوي
Antibody	جسم مضاد

Appliance	أداة، جهاز تطبيقي، تطبيق، استخدام
Appropriate	مناسب، خاص، لائق
Approximately	تقريباً
Arrange	رتّب، كيّف، نسّق
Artery	شريان
Arthropod	مفصلي
Asexual	غير جنسي
Assemble	جمّع، جمع، ركب، كوّن
Asteroid	شكل نجمي، كويكب
Astronomer	عالم فلكي
Atmosphere	جو، الغلاف الجوي، وحدة الضغط
Atom	ذرة
atomic number	عدد ذري
Attract	جذب، تجاذب
Automatic	تلقائي، أوتوماتيكي
Available	متوفر
Axis	محور
B	
Bacteria	بكتيريا، جراثيم
Balance	وازن، اتّزن، توازن، موازنة
balanced forces	قوى متوازنة
bar graph	مخطّط أعمدة
Bare	مكشوف، عار
Barometer	بارومتر، مقياس الضغط الجوي
Battery	مجموعة موحّدة، بطارية
Behavior	سلوك، تصرف
Beneficial	مُفيد

Benefit	فائدة
Best	أفضل
big bang	نظرية الانفجار العظيم لبدء الكون
binary fission	انشطار ثنائي
Biomass	كتلة حيوية
Bird	طائر
Blink	أومض، رفّ، رمشة، طرفة، ومضة
Blizzard	عاصفة ثلجية
Block	كتلة، قالب، مجموعة، عائق، مانع
blood tissue	نسيج دموي
blood vessel	عرق أو وعاء دموي
Blossom	أزهر، زهرة، إزهار
boiling point	درجة أو نقطة الغليان
bone tissue	نسيج عظمي
Bounce	ارتدّ، ارتداد، وثبة
Brain	دماغ، مُخ
Bronchi	قصيبات أو شعيبات هوائية
Bundle	رزمة، حزمة
buoyant force	قوة دافعة تعويمية

C

Calcium	كالسيوم
Calculator	آلة حاسبة
Calorie	سعر حراري
Camera	كاميرا، آلة تصوير
Camouflage	تمويه، تستُّر
Cancer	سرطان
Capillary	شعري، وعاء شعري

Capture	أسر، التقاف
Carbohydrate	كربوهيدرات
carbon (C)	كربون
carbon dioxide (CO2)	ثاني أكسيد الكربون
cardiovascular system	الجهاز القلبي الوعائي
Category	فئة، صنف، فصيلة
Cell	خلية، حجيرة، بطارية، وحدة اختزان
cell cycle	دورة خلوية
cell division	انقسام خلوي
cell membrane	غشاء الخلية
cell wall	جدار الخلية
cellular respiration	تنفّس خلوي
Celsius (Co)	مقياس مئوي لدرجات (مقياس سلسيوس)
Cement	ألصق، إسمنت، إسمنت طبيعي، مِلاط
centimeter (cm)	(سنتيمتر) جزء من مئة من المتر
central nervous system	الجهاز العصبي المركزي
Change	حوّل، تحوّل، غيّر، تغيير، تبدّل، بديل
change of direction	تغيير أو تغيّر الاتجاه
change of motion	تغيير أو تغيّر الحركة
change of speed	تغيير أو تغيّر السرعة
Characteristic	ميزة، خاصية، مميّز، خاص
Chemical	كيميائي
chemical bond	رابطة كيميائية
chemical change	تغير كيميائي
chemical energy	طاقة كيميائية
chemical equation	معادلة كيميائية

chemical property	خاصية كيميائية
chemical reaction	تفاعل كيميائي
chemical system	نسق كيميائي
Chloroplast	حبيبة اليخضور
Choose	اختار، انتخب
Chromosome	كروموسوم، صبغي
cinder cone volcano	بركان مخروطي
Circuit	مدار، دائرة، دورة
circulatory system	جهاز دوران الدم، الجهاز الدوري
cirrus cloud	سحاب رقيق مرتفع
Classification	ترتيب، تصنيف
Classify	رتّب، صنّف، فرز
Climate	مناخ
Cloning	استنساخ
Cloud	سحابة، غيمة
Coal	فحم حجري
Code	شفرة، رمز
cold front	جبهة باردة
Collect	تجمّع، جمّع
Collide	تصادم، صدم
Color	لون، صبغ
Column	عمود
Comet	مذنب
Comfortable	مريح
Community	مجموعة، جماعة، تماثل
Compare	قارن

Compass	بوصلة
Competition	تنافس
complex carbohydrate	كربوهيدرات مركبة
Compose	تكوّن، تركب، كوّن
composite volcano	بركان مرآّب
Composition	تكوّن، تركيب، إنشاء، مواد مركبة
compost pile	كومة من خليط السماد
Compound	مرآّب، مادة مركبة، ركب جمّع
compound microscope	ميكروسكوب أو مجهر مرآّب
Compress	ضغطَ، انضغط
Compression	ضغط، انضغاط
Computer	حاسوب، كمبيوتر
Conclude	أنجز، استنتج، أنهى
Conclusion	ختام، نتيجة، نهاية
Condensation	تكاثف، تكثُّف
Condense	آثّف، تكاثف
Condition	وضع، شرط، حالة
Conduct	سلوك، تصرف، أدار، أوصل، وصّل
Conduction	توصيل، نقل
Conductors	مُوصّل، ناقل
Consequences	نتائج، عواقب، تأثيرات
Conservation	حفاظ، حفظ، حماية
conservation of energy	حفظ الطاقة
conservation of mass	حفظ الكتلة
Conserve	حافظ، حمى
consist of	تألف، تضمّن

Consistent	منسجم، متماسك، غير متناقض
Constant	مستمر، ثابت
Consumer	مستهلك
Contain	تضمّن، احتوى
Container	وعاء، مُستوعب
Content	مضمون، محتوى
Continent	قارة
Contrast	ضد، تباين
Control	مراقبة، تحكّم، تجربة ضابطة للمراقبة
controlled experiment	تجربة موجّهة أو متحكّم فيها
Convection	حمل حراري
Coordinate	إحداثي، نظير، نسّق
Core	نواة، قلب، لبّ
covalent bond	ترابط إسهامي
Create	خلق، أنشأ، أحدث
Crest	ذروة، قمّة، عُرف
Crop	محصول، حوصلة
Crust	قشرة
Crystal	بلّور، زجاج بلّوري
Crystallization	تبلور
Cubic	مكعّب، تكعيبي
cubic centimeter	سنتيمتر مكعّب
Cycle	دورة

D

Dam	سدّ، حاجز
Data	بيانات، معلومات، معطيات
data table	جدول بيانات

daughter cell	خلية وليدة
Decay	تلف، انحلال، تعفّن
Decomposer	مفكّك عضوي
Decrease	نقصان، انخفاض
Defend	دافع
Deficient	ناقص
Define	حدّد، عرّف، أوضح
Definite	دقيق، مُحدّد، واضح
Density	كثافة
dependent variable	متغيّر تابع
Deposition	ترسيب، ترسّب
Derived	مشتق
Descend	نزل، انحدر
Describe	وصف
Desert	صحراء
Design	تصميم، رسم، غرض
Diagram	رسم بياني
dichotomous key	مفتاح ثنائي التفرّع
Difference	اختلاف، فرق
Digest	هضم
digestive system	الجهاز الهضمي
Directly	مباشرة
disappearing trait	خاصية مُختفية
Disperse	انتشر، شتّت، بثّ
Dissolve	ذاب، ذوّب
Distance	مسافة

Distinctive	مُميّز
Distribute	وزّع، فرّق
Disturb	شوّش، أزعج
Diversity	تنوّع
DNA	الحامض النووي منقوص الأوكسجين
dominant gene	جينة أو مورّثة سائدة
Draw	سحب، رسَم، جذَب، جرّ
Dump	مستودع، مطرح، تفريغ
E	
Earthquake	هزة أرضية، زلزال
Earthworm	دودة الأرض
Echo	صدى، رجوع الصوت
Eclipse	كسوف
ecological succession	تعاقب بيئي
Ecology	علم البيئة
Ecosystem	نظام بيئي
Effect	أثر، نتيجة، مفعول
Efficient	فعّال
electric current	تيار كهربائي
electrical energy	طاقة كهربائية
Electricity	كهرباء
Electromagnet	مغناطيس كهربائي
electromagnetic spectrum	طيف كهرومغناطيسي
electromagnetic wave	موجة كهرومغناطيسية
Electromagnetism	كهرومغناطيسية
Electron	جسيم سالب الشحنة (إلكترون)
Elements	عناصر

Elevation	ارتفاع، رفع
Emit	بعث، أصدر
endangered species	أنواع معرضة لخطر الانقراض
Endothermic	ماص للحرارة
Energy	طاقة
energy resources	موارد الطاقة
Ensure	ضمِن
Environment	وسط، بيئة، محيط
environmental changes	تغيرات بيئية
Epithelial	خاص بالغشاء المخاطي
Equal	مساوٍ، متكافئ، نظير
Equation	مُعادلة
Equator	خط الاستواء
Equilibrium	توازن
Erosion	انجراف، تعرية، حث
Error	خطأ
Esophagus	مريء
Establish	أسّس، رسّخ
Estimate	تقدير، تخمين
Estimation	تقدير، تخمين، تقييم
Eukaryotic	متميّز النواة
Evaporate	تبخّر، تصعّد
Evaporation	تبخّر، تبخير
Evidence	دليل، برهان
Evolution	تطوّر، نشوء، توليد
Example	مثال، نموذج، عيّنة

Exoskeleton	هيكل خارجي
Exothermic	طارد للحرارة، مُصدر للحرارة
Expand	تمدّد، مدّد
Experiment	تجربة
Explanation	شرح، توضيح
External	خارجي
Extinct	منقرض
F	
Fact	حقيقة، واقع
Factor	عامل، سبب
Fat	دهن
Fault	خلل، تصدّع
Feature	ميزة، سمة مميّزة
Features	ميزات، سمات
Fertilization	إخصاب
Fertilizer	مُخصِّب، سماد
Fiber	نسيج، ليفة
fixed pulley	بكرة أو قطب ثابث
Flood	فيضان
Fluid	سائل
Food	غذاء، طعام
food chain	سلسلة غذائية
food web	شبكة غذائية
Force	قوة
Forecast	تنبؤ، تنبّأ، نشرة جوية
Form	شكل، صيغة، نموذج، شكّل، كوّن
Former	سابق، مُشكِّل

Formula	معادلة، صيغة
Fossil	حفرية
fossil fuel	وقود حفري
freezing point	نقطة التجمّد
Frequency	تردد، تكرّر الحدوث (الذبذبات)
Friction	احتكاك
Front	جبهة هوائية، واجهة، متقدّم
Fuel	وقود، محروقات
Filter	مُرشِح، مُنقي، مِصفاة / ينقي
Fulcrum	نقطة ارتكاز
Function	وظيفة، دالة
Fungi	فطريات

G

Galaxy	كوكبة، مجرّة
Garbage	نفاية، رواسب
Gas	غاز
gas giants	الكواكب الغازية
Gem	حجر كريم، جوهرة
Gene	مورّثة، جينة
Generation	جيل، تكوين، تولّد
Generator	مُولّد
genetic engineering	الهندسة الوراثية
genetic material	مادة أو مواد وراثية
genetic variation	اختلاف وراثي، انحراف وراثي
Geologist	جيولوجي، عالم طبقات الأرض
geothermal energy	طاقة حرارية جوفية
Germ	جرثومة، مكروب، بذرة

Germination	إنبات، تفريخ
Glacier	نهر جليدي
Gland	غدة
Global	عالمي، شامل
global climate	مناخ عالمي
global warming	الاحتباس الحراري العالمي
graduated cylinder	أسطوانة قياس مدرّجة
gram (g)	وحدة وزن (جرام)
Graph	رسم بياني
Gravitational	تجاذبي
Gravity	جاذبية
Greatest	الأكبر، الأعظم
greenhouse gas	غاز ناجم عن الاحتباس الحراري
Groundwater	مياه جوفية، مياه باطنية
Group	مجموعة

H

Habit	عادة، عرف
Habitat	مسكن، موطن
hand lens	عدسة مكبرة تمسك باليد
Hardness	صلابة
Harmful	مُضر، مؤذٍ
healthy habit	عادة صحية، عادة سليمة
Heart	قلب، صميم
heart muscle	عضلة القلب
Heat	حرارة، سخّن
heat energy	طاقة حرارية
Herbivore	يقتات على الأعشاب

Hereditary	وراثي
Hibernation	سبات شتوي
Hormone	هرمون
Host	مُضيف، حاضن
Humid	رطب
Humidity	رطوبة
Hurricane	إعصار شديد
hydroelectric power	قوة كهرومائية
Hygrometer	مقياس درجة الرطوبة
Hypothesis	فرضية
I	
Identify	ميّز، حدّد
Identical	مماثل
Igneous	ناري، بركاني
igneous rock	صخر ناري أو بركاني
Illuminate	أضاء، أنار
Illustrate	بيّن، أوضح
immune system	جهاز المناعة
inclined plane	سطح مائل
Increase	زيادة، زاد، تكاثر
independent variable	متغير مستقل
Indicate	أشار، بيّن
Individual	فرد، فردي، منفرد
Infection	عدوى
Inference	نتيجة، استنتاج، استدلال
Information	معلومات، معطيات، أخبار
Ingredient	مُكوّن

Inherit	توارث، ورِث
inherited adaptation	تحول أو تكيّف موروث
inherited trait	سمة أو ميزة موروثة
Insulator	عازل
Interact	تفاعل
Internal	داخلي
Interpret	فسّر، أوّل
Inversion	عكس، انعكاس، تحويل
Invertebrate	كائن عديم العمود الفقري (لا فقاري)
Ion	ذرة ذات شحنة كهربائية (أيون)
ionic bond	رابط أيوني
iron (Fe)	حديد) معدن رمزه
Irregular	شاذ، غير منتظم
Isolate	عزَل
J	
Jellyfish	قنديل البحر
Joint	مفصل، توصيلة، موحّد، مشترك
K	
kilogram (kg)	(كيلوغرام) وحدة لقياس الوزن
kiloliter (kl)	(كيلولتر) وحدة لقياس السعة
kilometer (km)	(كيلومتر) وحدة لقياس المسافة
kinetic energy	طاقة حركية
Kingdom	مملكة، عالم
Knowledge	معرفة، إدراك
L	
Label	بطاقة، علامة مميّزة
Landslide	انزلاق أرضي

large intestine الة	الأمعاء الغليظة
Larva	يرقة
Latitude	خط العرض، نطاق، اتساع
Lava	حمم بركانية
Layer	طبقة
Leaf	ورقة نبات، صحيفة
Learned	مُتعلَّم
learned adaptation تتعلَّم	تكيّف متعلَّم
Least	أصغر، أقل
Levee	سد أو حاجز، شاطئ
Lever	رافعة
life cycle	دورة الحياة
life span	مدة الحياة
Lift	مصعد، مدى الارتفاع، رفع، أصعد
Light	ضوء، نور
light-year	سنة ضوئية
line graph	بيان خطي
lines of force	خطوط القوة
Link	رابط، حلقة
Liquid	سائل
List	قائمة، لائحة
liter (L)	وحدة لقياس السعة (لتر)
Liver	كبد
Location	موقع، تحديد الموقع
longitudinal wave	موجة طولية
Loudness	ارتفاع الصوت، صخب

lunar eclipse	خسوف قمري
Lungs	رئة
Luster	لمعان، بريق
M	
Machine	آلة، ماكينة
Magma	صخر بركاني منصهر
Magnet	مغناطيس
magnetic field	حقل أو مجال مغناطيسي
magnetic force	قوة مغناطيسية
Magnetism	مغناطيسية
Magnifier	مكبّر
Maintain	حافظ على
Major	أآبر، أعظم
Mammal	حيوان من الثدييات (ثديي)
Manage	أدار، دبّر
Mantle	غلاف اللب الأرضي، رداء
Mass	كتلة، كتّل، جماعي
Material	مادة
materials scientist	عالم المواد
Matter	مادة، أمر، مسألة
Measure	قياس، معيار، إجراء
Measurement	قياس
mechanical energy	طاقة ميكانيكية
mechanical weathering	تعرية (تجوية ميكانيكية)
Medium	متوسط، واسطة
Meiosis	انقسام مُنصّف
melting point	نقطة الانصهار

Metal	معدن
metallic bond	رابط معدنية
Metalloid	شبه معدني
Metamorphic	متحوّل، تحوّلي
metamorphic rock	صخر متحوّل
Metamorphosis	تحوّل
meter (m)	وحدة لقياس المسافة
meter stick	معيار متري
Method	طريقة، نهج، أسلوب
metric ruler	مسطرة مترية
Microscope	ميكروسكوب، مجهر
Migration	هجرة
Milky Way	درب التبانة
milligram (mg)	وحدة لقياس الأوزان الدقيقة (ميليغرام)
milliliter (mL)	وحدة لقياس السعات الدقيقة
millimeter (mm)	وحدة لقياس المسافات الدقيقة
Mineral	معدني
Mitosis	انقسام فتيلي
Mixture	خليط
Model	نموذج، طراز
Moisture	رطوبة
Molecule	جزيء أو جزيئة
Mollusk	رخوي
Monoculture	زراعة المحصول الواحد
Moon	قمر
Motion	حركة

Motor	مُحرك
Mountain	جبل
Mouth	فم، مدخل، مصبّ
movable pulley	بكرة أو قطب متحرك
Mucus	مخاط
Muscle	عضلة
muscle tissue	نسيج عضلي
muscular system	الجهاز العضلي
Mutation	طفرة وراثية، تحوّل
Multicellular	متعدّد الخلايا

N

natural gas	الغاز طبيعي
natural resource	مورد طبيعي
natural selection	الانتخاب أو الانتقاء الطبيعي
Negative	سالب، سلبي
nervous system	الجهاز العصبي
net force	قوة صافية
Neuron	خلية عصبية
Neutral	ذرة متعادلة، مُحايد، غير مشحون
Neutron	جسيم نووي (نيوترون)
Newton	وحدة قياس القوة (نيوتن)
Niche	بيئة ملائمة
Nimbus	سحابة داكنة مُمطرة
Nitrogen	نتروجين، أزوت
noble gas	غاز خامل
Nonmetal	عنصر غير معدني
Nonrenewable	غير متجدّد

nonrenewable energy resource	مورد للطاقة غير المتجدّدة
nonrenewable resource	مورد غير متجدّد
Nose	أنف، مقدّمة
nuclear energy	طاقة نووية
nuclear fusion	التحام نووي
Nucleus	نواة
Nutrient	مُغذٍ، مادة مغذية
O	
objective lens	عدسة شيئية
Observation	ملاحظة، رصد
Observe	لاحظ، رصَد
Obtained	مُحصّل عليه
Occur	وقع، وُجد، حدث
Ocean	محيط
Odor	رائحة
Offspring	نسل، نتاج
Omnivore	آكل للنباتات والحيوانات
Ooze	رواسب طينية
Opinion	رأي
Orbit	مدار، فلك، محجر العين
Order	نسق، نظام، مرتبة، أمر
Organ	عضو
organ system	جهاز الأعضاء
Organelle	جزيئة عضوية
Organism	كائن حي
Organize	نظّم، جعل ذا بنية عضوية
Original	أصلي

Ovary	مبيض
Overabundance	وفرة مُفرطة
Overcome	تغلّب على
Overpopulation	فيض سكاني
Oxygen	أوكسجين
Ozone	طبقة الغلاف الجوي (أوزون)

P

parallel circuit	دائرة متوازية
Parasite	طفيلي
parent cell	الخلية الأم أو الأصلية
Particle	جزيئة
Pattern	نمط، نموذج، شكل
pedigree chart	رسم شجرة النسب
Perceive	أدرك
percent, percentage	في المئة، نسبة مئوية
Period	فترة
periodic table	جدول دوري
permanent magnet	مغناطيس دائم
Pesticide	مبيد الحشرات أو الطفيليات
Petroleum	بترول، نفط
Phases	مراحل، دورات
Phenomena	ظواهر طبيعية
Phosphorus	فوسفور
Photosynthesis	تركيب ضوئي
Physical	فيزيائي، طبيعي، بدني
physical change	تغير فيزيائي أو طبيعي
physical property	خاصية طبيعية

physical weathering	تعرية (تجوية طبيعية)
pie chart	رسم بياني دائري
pie graph	مُخطّط دائري
Pistil	العضو المؤنث داخل الزهرة
Pitch	طبقة الصوت
Planet	كوكب
Plantae	مملكة النبات
Plasma	الجزء السائل من الدم (بلازما)
Plate	لوح
plate tectonics	ألواح تكتونية
Poison	سُم
Polar	قُطبي
Pollen	غبار الطلع، لقاح
Pollinate	لقّح
Pollutant	ملوّث
Pollution	تلوّث، تلويث
Population	سكان، ساكنة
Position	موقع، حالة
Positive	إيجابي
potential energy	طاقة كامنة
Predator	حيوان مفترس
Predict	توقَّع، تنبّأ
Prediction	توقّع، تنبّؤ
Presence	وجود
Preserve	حَفِظ، صان
Pressure	ضغط

prevailing winds	رياح سائدة
Previous	سابق
Prey	فريسة
Primary	أولي، أساسي، أصلي
Probable	مُحتمل
Procedure	إجراء، أسلوب، نهج
Process	عملية
Producer	مُنتِج
Product	ناتج
Prokaryotic	خلية بدائية النواة أو عديمة النواة
Property	خاصية
Protect	حمى، صان
Protein	بروتين
Protista	كائنات أولية
Proton	بروتون
Provide	زوّد، جهّز
Pulley	بكرة أو قطب
Punnett square	مخطط بونيت
Pupa	شرنقة
R	
Radiation	إشعاع
Radioactive	إشعاعي
Radioisotope	نظير مشع
Rarefaction	تخلخل
Rate	نسبة، معدّل
Ray	شعاع
React	تفاعل، استجاب لفعل أو تأثير

Reactant	مُتفاعل
Rearrange	رتّب مرة ثانية، أعد ترتيب
Reason	سبب، مبرّر، إدراك
Receive	استلم
recessive gene	مورّثة أو جينة متنحية
Recognize	تعرّف على، ميّز
Record	سجل، سجّل
Rectum	المعي المستقيم
Recycle	(أعاد التدوير) استعمل مرة ثانية
Reduce	خفّض
Refer	رجع إلى، أحال على
Reflect	عكس، فكّر
Reflection	انعكاس، تفكير
Reflex	رد الفعل
Refract	انكسر الضوء
Refraction	انكسار الضوء
Regulation	نظام، تنظيم
Relationship	علاقة
relative humidity	رطوبة نسبية
Release	أطلق، أصدر
Relevant	مناسب، ذو علاقة
remain the same	ظل على حاله
Remains	بقايا، مخلّفات
Renewable	متجدّد
renewable energy resource	مورد لطاقة متجددة
renewable resource	مورد متجدد

Represent	مثّل
Reproduce	تكاثرَ، توالدَ، استنسخ، أعاد إنتاج
Reproduction	تكاثر، توالد، استنساخ، إعادة إنتاج
Reptile	من فصيلة الزواحف (حيوان زاحف)
Required	مطلوب
Resist	قاوم
resistant to	مقاوم، منيع
Resource	مورد
Respiration	تنفس
respiratory system	الجهاز التنفسي
Respond	استجاب، رد
Response	رد، استجابة
Responsible	مسؤول
Restore	أعاد، استرجع
Result	نتيجة، نتَج
Reuse	أعاد استعمال
Reverse	عكس، انعكس، معكوس
Revolution	ثورة، دورة
Revolve	دارَ
Rock	صخر
rock cycle	دورة الصخور
Role	دور، وظيفة
Root	جذر، أصل، مصدر
Rotate	دارَ، تعاقب
Rotation	دوران، تعاقب
Rust	صدأ

S

Saliva	لعاب، ريق
Salivate	سال لعابه
Scale	مقياس، ميزان، قشرة رقيقة، حرشفة
Scarce	نادر
scientific inquiry	استفسار علمي
scientific investigation	تحقيق علمي
scientific law	قانون علمي
scientific name	إسم أو مسمّى علمي
scientific thinking	تفكير علمي
Scrape	حتّ، كشط، حكّ
Screw	لولب، مسمار ملولب
sea floor spreading	اتساع الأرضية البحرية
sea level	مستوى سطح البحر
Season	فصل
Secondary	ثانوي
Sediment	راسب
sedimentary rock	صخرة رسوبية
Sedimentation	ترسّب
Seed	بذرة
Seedling	شتلة، نبتة صغيرة
Seep	تسرّب
Select	انتقى، اختار، مُختار
selective breeding	تناسل انتقائي
Sense	حس، حاسة، إدراك
sense organ	عضو الحسّ
series circuit	دائرة متوالية

Settle	استقر، سكن، ترسّب
Sewage	قاذورات ومياه المجاري
sex cell	خلية جنسية
sex cells	خلايا جنسية
Sexual	جنسي
Shape	شكل، قالب
Shell	قوقعة، صدفة، قشرة
shield volcano	بركان دفّاق
Shiver	رعشة، ارتجف، ارتعش
Significant	هام، دال، ذو معنى
Similarity	تشابه
simple machine	آلة أو ماكينة بسيطة
Siren	صفارة الإنذار، سارينة
Situation	وضع، حالة، موقف
skeletal muscle	عضلة هيكلية
skeletal system	الجهاز العظمي
small intestine	الأمعاء الدقيقة
Smog	ضباب دخاني
smooth muscle	عضلة ملساء
Soil	تربة
soil texture	تركيبة التربة
solar cell	خلية شمسية
solar eclipse	كسوف شمسي
solar energy	طاقة شمسية
solar system	النظام الشمسي، المجموعة الشمسية
Solid	مادة صلبة

Solidification	تصلّب، تجمّد
Solubility	قابلية الذوبان أو الانحلال
Solute	مُذاب، عنصر مُذاب
Solution	محلول، ذوبان، حلّ
sound recorder	مسجّل الصوت
Source	مصدر، منبع
Space	فضاء، فراغ، فاصل
Specialize	تخصّص
Species	أنواع الكائنات الحية
Specific	معيّن، نوعي
Speed	سرعة، معدّل الحركة
Sperm	حيوانات منوية
Spill	انسكب، فاض، انسكاب، فائض
spinal cord	الحبل الشوكي، النخاع الشوكي
Spiral	لولب، لولبي
Sponge	إسفنج
Spring	ربيع، نبع، نابض، زنبرك
Sprout	برعم متفتّح
Squint	حوَل، نزعة، ميل
Stages	مراحل
Stamen	العضو الذكري للزهرة (سداة)
Star	نجم
Starch	نشا
State	حالة، وضع، أعلن، حدّد
static charge	شحنة كهربائية ساكنة
static electricity	كهرباء ساكنة، الكهرباء الإستاتيكية

Stem	ساق
Stigma	سمة، وحدة قياس ذرية، فويهة تنفسية
Stimulus	مُنبّه، حافز
Stomach	معدة
Stopwatch	ساعة ميقاتيه
Strain	جهد، إجهاد، سلالة، عرق
Strategy	استراتيجية
stratus cloud	سحابة طبقية
Streak	عرق معدني، أخدود، علامة خطية
structural adaptation	تكيّف بنيوي
Structure	بنية، تركيبة
Subsoil	تربة تحتية
Substance	مادة، جوهر
Sugar	سكر
sulfuric acid	حمض الكبريتيك
Summarize	لخّص، أوجز
Supernova	نجم متفجّر فائق التوهج
Support	دعّم، أيّد، دعامة، ركيزة
Surface	سطح
Survey	استبيان
Survival	بقاء على قيد الحياة، استمرار، نجاة
survive, survival	بقي حياً، استمر، نجا
Swamp	مستنقع
Sweat	عرَق
Switch	نقَّل، تحوّل، مُبدّل، مفتاح كهربائي
System	نظام، نسق، منظومة

T

table salt	ملح الطعام
Tadpole	شرغوف
tape measure	شريط قياس
Technology	تقانة، تقنية، تكنولوجيا
Telescope	تلسكوب، منظار
Temperate	مُعتدل
Temperature	درجة الحرارة
temporary magnet	مغناطيس مؤقّت
terrestrial planets	كواكب أرضية البنية
Test	اختبار، تجربة، فحص
Theory	نظرية
thermal energy	طاقة حرارية
Thermometer	ترمومتر، ميزان الحرارة
Thunderstorm	عاصفة رعدية
Tide	مدّ
Tilt	ميل، منحدر، أمال، مال
Time	وقت، أجل، مدّة
Tissue	نسيج
Tool	أداة
Topsoil	تربة فوقية
Tornado	إعصار
Trachea	قصبة هوائية
Trait	سمة، ميزة
Transfer	نقل، انتقال، تحويل، حوّل، انتقل
Transform	غيّر، بدّل، تحوّل
Transport	نقل

transport system	نظام نقل
transverse wave	موجة مُستعرضة
Trench	خندق، أخدود بحري ضخم
Trial	تجربة، اختبار، محاولة
Tropical	استوائي
Troposphere	الغلاف الجوي السفلي
Trough	حوض، تقعّر، بطن الموجة
Tumor	ورم
U	
unbalanced forces	قوى غير متوازنة
Unequal	غير متساوٍ
Unicellular	أحادي الخلية
Unique	فريد، لا نظير له
Universe	الكون
Unstable	غير ثابت
V	
Vacuole	فراغ
Vapor	بخار
Variable	مُتغيّر
Variation	تغيّر، اختلاف، انحراف
vascular system	جهاز وعائي، منظومة وعائية
vascular tissue	نسيج وعائي
Vegetable	خضار، نباتي
Vein	عرق، وريد
Velocity	سرعة
Vertebrate	فقري
Vibrate	تذبذب، اهتزاز

Virus	فيروس
visible light	ضوء أو نور مرئي
Volcano	بركان
Voltmeter	جهاز قياس شدة التيار (الفولتميتر)
Volume	حجم

****

End of the Course

Important Links for Some Linguistic Drills

Improving English Language:

1. Part One: https://www.youtube.com/watch?v=FUZLQg-LZOc&t=559s
2. Part Two: https://www.youtube.com/watch?v=y2DY_CYt_FU&t=430s

Some Reading Comprehension Passages:

1. Spiders: https://www.youtube.com/watch?v=ljYWi_eKOd8&t=139s
2. Jada and Jessie: https://www.youtube.com/watch?v=gQeVC0A8-NI&t=10s

****

Bibliography

Gear, J., & Gear, R. (2002). Cambridge preparation for the TOEFL test. Cambridge, UK: Cambridge University Press.

Liz Soars. (2006). New Headway Plus: Elementary. Oxford: Oxford University Press.

Phillips, D. (2001). Longman complete course for the TOEFL test: Preparation for the computer and paper tests. White Plains, N.Y: Longman.

****

Good Luck