2023年10月高等教育自学考试

英语科技文选试题

课程代码：00836

1. 请考生按规定用笔将所有试题的答案涂、写在答题纸上。

2. 答题前，考生务必将自己的考试课程名称、姓名、准考证号用黑色字迹的签字笔或钢笔填写在答题纸规定的位置上。

选择题部分

注意事项：

每小题选出答案后，用2B铅笔把答题纸上对应题目的答案标号涂黑。如需改动，用橡皮擦干净后，再选涂其他答案标号。不能答在试题卷上。

I. **Directions: Read through the following passages. Choose the best answer and blacken the corresponding letter A, B, C or D on the ANSWER SHEET. (20%)**

(A)

The water in the world is divided into two types: surface water and groundwater. Surface water is found in lakes, rivers, and streams and is tapped for use by the public. Groundwater must be pumped out of natural underground storage areas called aquifers after drilling.

Surface water is called 'soft' water because it does not contain many minerals. It can be contaminated in many ways. Pesticides, animal wastes, industrial waste, and insecticides can all contribute to making the water less than pure, even in streams flowing down from the mountains which are usually considered to carry 'pure' water.

Groundwater is contained below the surface of the ground by soil or rock. Rivers that flow beneath the ground, rain and melting snow replenish the aquifers. Groundwater may contain all the same contaminants as surface water in addition to the minerals it adds from below the ground. Rock does act as a filter, though, so groundwater does usually contain less pollution. The contaminants in groundwater are much more difficult to clean up than those in surface water, however.

As rain falls onto the ground, plants use some of the nutrients. The rain goes into

the soil, filtering down through clay, rock, and soil. Finally, this water reaches an aquifer or could be trapped between levels of rock and create a water table. This type of water is found in wells. Groundwater is called 'hard' water because of the minerals it takes in while filtering down through the soil.

Groundwater is used for drinking and other household needs. Surface water may have the same uses but may be used also in agriculture and the generation of electricity. The surface water can replenish the groundwater as the rain filters down. Surface water can evaporate while groundwater does not, as it is not exposed to the sun. Groundwater retains the same temperature all the time. Surface water takes the temperature of its surroundings. It will be warmer in summer than in winter.

Surface water contains less salt than groundwater. The deeper the water is, the higher the content of salt. Groundwater contains more minerals. It does not have any disease-causing organisms, like salmonella and malaria. Both groundwater and surface water contain many contaminants.

Groundwater is extracted from the ground for use by drilling wells. It is usually cheaper and easier to use groundwater for a public water supply. In the United States, groundwater provides the greatest amount of usable water for public use. California yearly withdraws the largest amount of groundwater of all the states. Many public water supplies use groundwater totally. The reservoirs of groundwater contain more water than all the surface water in the United States combined.

Groundwater makes up about twenty percent of the world's fresh water supply. It is a very important part of maintaining a supply of water during a time of drought. Groundwater is held in long-term reservoirs. The Great Artesian Basin in eastern and central Australia is one of the largest confined aquifers in the world.

Overuse of groundwater can result in a lowering of the water table below where an existing well can tap into it. Therefore, deeper wells are needed. When too much water is pumped out from underground aquifers, subsidence results. The land looks like it has little craters. A drop in the ground surface occurs. The city of New Orleans is below sea level partly because of the removal of water from the aquifer systems below it. It has experienced subsidence.

1. Which of the following is a natural underground basin for storing groundwater?

A. Aquifer   B. Sedimentary basin

C. Artesian basin   D. Well

2. Which of the following statements is TRUE?

   A. Groundwater is water in a lake.

   B. The contaminants in groundwater are very easy to clean up.

   C. Drilling wells is how groundwater is extracted.

   D. New Orleans is only two hundred feet above sea level.

3. What may occur when too much groundwater is pumped out of underground aquifers?

   A. Drought   B. Flooding

   C. Subsidence   D. Erosion

4. How much of the world's fresh water supply is made up of groundwater?

   A. About 60%   B. About 50%

   C. About 30%   D. About 20%

5. The example of New Orleans shows that _____.

   A. surface water contains more minerals than groundwater

   B. it is important to conserve underground water

   C. groundwater contains more salt than surface water

   D. the temperature of surface water remains constant

(B)

In a world flooded with data, figuring out where and how to store it efficiently and inexpensively becomes a larger problem every day. One of the most exotic solutions might turn out to be one of the best: archiving information in DNA molecules.

The prevailing long-term cold-storage method, which dates from the 1950s, writes data to pizza-sized reels of magnetic tape. By comparison, DNA storage is potentially less expensive, more energy-efficient and longer lasting. Studies show that DNA properly encapsulated with a salt remains stable for decades at room temperature and should last much longer in the controlled environs of a data center. DNA doesn't require maintenance, and files stored in DNA are easily copied for negligible cost.

Even better, DNA can archive a staggering amount of information in an almost inconceivably small volume. Consider this: humanity will generate an estimated 33 zettabytes of data by 2025—that's 3.3 followed by 22 zeroes. DNA storage can squeeze all that information into a ping-pong ball, with room to spare. The 74 million million bytes of information in the Library of Congress could be crammed into a DNA archive the size of a poppy seed—6,000 times over. Split the seed in half, and you could store all of Facebook's data.

Science fiction? Hardly. DNA storage technology exists today, but to make it viable, researchers have to clear a few daunting technological hurdles around integrating different technologies. As part of a major collaboration to do that work, our team at Los Alamos National Laboratory has developed a key enabling technology for molecular storage. Our software, the Adaptive DNA Storage Codex (ADS Codex), translates data files from the binary language of zeroes and ones that computers understand into the four-letter code biology understands.

ADS Codex is a key part of the Intelligence Advanced Research Projects Activity (IARPA) Molecular Information Storage (MIST) program. MIST seeks to bring cheaper, bigger, longer-lasting storage to big-data operations in government and the private sector, with a short-term goal of writing one terabyte—a trillion bytes—and reading 10 terabytes within 24 hours at a cost of $1,000.

When most people think of DNA, they think of life, not computers. But DNA is itself a four-letter code for passing along information about an organism. DNA molecules are made from four types of bases, or nucleotides, each identified by a letter: adenine (A), thymine (T), guanine (G) and cytosine (C). They are the basis of all DNA code, providing the instruction manual for building every living thing on the earth.

A fairly well-understood technology, DNA synthesis has been widely used in medicine, pharmaceuticals and biofuel development, to name just a few applications. The technique organizes the bases into various arrangements indicated by specific sequences of A, C, G and T. These bases wrap in a twisted chain around each other—the familiar double helix—to form the molecule. The arrangement of these letters into sequences creates a code that tells an organism how to form.

The complete set of DNA molecules makes up the genome—the blueprint of your body. By synthesizing DNA molecules—making them from scratch—researchers have found they can specify, or write, long strings of the letters A, C, G and T and then read those sequences back. The process is analogous to how a computer stores binary information. From there, it was a short conceptual step to encoding a binary computer file into a molecule.

The method has been proven to work, but reading and writing the DNA-encoded files currently takes a long time. Appending a single base to DNA takes about one second. Writing an archive file at this rate could take decades, but research is developing faster methods, including massively parallel operations that write to many molecules at once.

6. The word "data" in line 1, para.1, is closest in meaning to all the following **EXCEPT**
_____.

   A．figures
   B．statistics
   C．information
   D．code

7. Comparatively speaking, DNA storage of data has all the following potentials **EXCEPT**
it is _____.

   A．cheaper
   B．more efficient
   C．reading and writing the documents
   D．more stable

8. According to the passage, the sentence "……, and files stored in DNA are easily copied
for negligible cost.", line 9, para.2, means that _____.

   A．DNA is more expensive compared with magnetic tape
   B．DNA is less expensive compared with magnetic tape
   C．DNA is not possible to store files due to its huge cost
   D．DNA is very possible even though it costs huge sum of money

9. Which of the following statements is **NOT** true?

   A．There is DNA storage technology in the world.
   B．There has already been magnetic tape storage.
   C．DNA synthesis refers to the natural process found in all organisms known as
      replication.
   D．DNA synthesis refers to the blueprint of our bodies.

10. Based on the passage, the attitude of the author is quite _____.

   A．optimistic
   B．pessimistic
   C．sad
   D．uncertain

非选择题部分

注意事项：

用黑色字迹的签字笔或钢笔将答案写在答题纸上,不能答在试题卷上。

**II. Directions: Add the affix to each word according to the given Chinese, making
changes when necessary. Write your answer on the ANSWER SHEET. (8%)**

11．precise	精确性	12．reflect	反思的
13．special	专长	14．adapt	适应的
15．biology	微生物学	16．botany	植物学者
17．immense	巨大（名词）	18．topography	地形的

III. Directions: Fill in the blanks, each using one of the given words or phrases below in its proper form and write your answer on the ANSWER SHEET. (12%)

specialize in	adept at	deficient in	all at once
so to speak	opt for	in time	proportional to
appeal to	a shower of	take into account	end up

19．If you keep on, you will succeed _____.

20．After gaining two fortunes, he _____ poor when he died.

21．You are, _____, a fish out of water.

22．When buying an apartment, people usually _____ its price, position, surroundings and so on.

23．Don't talk _____. Speak one by one.

24．The party tries to _____ all classes of society.

25．She is a university professor who _____ the history of ancient China.

26．Might discouraged investors pull money from these funds and _____ traditional long funds?

27．He is _____ getting himself out of difficult situations.

28．She received _____ letters on her birthday.

29．The increase in the price is _____ the improvement in the car.

30．Blood tests can indicate if you are _____ a number of key nutrients.

IV. Directions: Fill in each blank with a suitable word given below and write your answer on the ANSWER SHEET. (10%)

meanwhile	however	of	protecting	what
secure	once	measures	provide	like

When we speak about network security we immediately associate it with concept of firewall. Firewall is 31 "supervisor" enforcing access control policy between two connected networks. 32 user is authenticated (证明是真的), firewall enforces access policies to establish 33 services are allowed to be used by users. Tools such as firewalls and intrusion detection systems 34 protection for all areas of the network and enable 35 connections. Network Firewalls are 36 two types—software-based and hardware-based. Typically, individual PC stations use Firewall Software. 37, networks use dedicated Firewall Devices. Firewall devices are designated for 38 many computers connected through a network. Thus choosing and deploying optimal (最佳的) firewall solution for

your networking is so significant. <u>39</u>, no firewall can detect or stop all attacks, so it's not sufficient to install a firewall and then ignore all other security <u>40</u>.

V. Directions: Translate the following sentences into English, each using one of the given words or phrases below. Write your answer on the ANSWER SHEET. (10%)

project oneself into	take advantage of	contribute to
reminiscent of	in comparison	

41．与其他器官相比，人的心脏是不是很脆弱？

42．我确信这次会晤将为全世界和平与安全做出贡献。

43．教授要求学生们设想自己是那些历史人物。

44．他笑的样子让人很容易想起他的父亲。

45．我打算充分利用这次旅行来购买我们所需的物品。

VI. Directions: Translate the following paragraph into Chinese. Write your answer on the ANSWER SHEET. (15%)

46.　　The world is now entering an era of knowledge economy, with science and technology as the core of economic growth. In the process of bringing its function into play, technological innovation has taken on a new sense—it requires the construction of an urban technology innovation system in terms of the systematic concept of urban zone economy from various innovation aspects. The establishment and operation of such a system is considered as a cornerstone for the sustainable development of urban zone economies. It is the key to push forward the adjustment of industrial structure and speed up the transformation of the mode of economic growth. It is also the inevitable choice to meet the knowledge economy and its challenge.

VII. Directions: Read the following passage, and then fill in the table with the information based on the passage. Write your answer on the ANSWER SHEET. (10%)

　　Self-driving cars are all the rage today. Companies ranging from car manufacturers like General Motors and Toyota to private-hire companies like Uber, and even Internet search giant Google, are all scrambling to be the first to bring them to market. The efforts are so intense that the University of Michigan has even established a 23-acre town to help the cause. Dubbed Mcity, it allows manufacturers to safely test their autonomous cars using human props.

　　However, while the mock city can be used to simulate many real-life road conditions,

it cannot help test gestures drivers use to communicate their intent to fellow drivers, pedestrians or bicyclists. These include cues like waving a car into a lane, or nodding at a person walking or on a bike, to indicate they can cross the road safely.

To try to come up with a solution for these everyday scenarios that self-driving vehicles would face, US car manufacturer Ford, teamed up with researchers from Virginia Tech. The team initially considered using text as a way to communicate the car's intention, but decided it would probably not work universally given that people would have to be able to read and understand the same language. The option of using symbols was also discarded, because research shows that a majority of people do not have a good understanding of what they mean.

Public Reaction to Autonomous Cars

As is reported in the passage, driverless cars are becoming more and more 47 in the world market.	It is known from the passage that companies, be it big or small, international or local, are all scrambling or 48 against each other to be the first manufacturer.	The word "cues" in para.2 is closest in meaning to the word 49 in the same para.	The word 50 in para.3 might be used to suggest different kinds of possible real-life road conditions in para.2.	Based on the passage, we can conclude that to work out a solution for driverless vehicles across the globe, verbal communication, like different languages and texts, and nonverbal communication, for example, gestures and 51, etc. should be taken into consideration.

VIII. Directions: Write a passage (150-200 words) in English on the following title. Develop the ideas according to the Chinese outline given below. Write your passage on the ANSWER SHEET. (15%)

52．The advantages and disadvantages of city life.

（1）城市生活的优点；

（2）城市生活的缺点；

（3）你的看法。