

全国 2020 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)

Immunotherapy has proven to be effective against many serious diseases. But to treat diseases in the brain, the antibodies must first get past the obstacle of the blood-brain barrier. In a new study, a research group at Uppsala University describes their development of a new antibody design that increases brain uptake of antibodies almost 100-fold.

Immunotherapy entails treatment with antibodies; it is the fastest growing field in pharmaceutical development. In recent years, immunotherapy has successfully been used to treat cancer and rheumatoid arthritis, and the results of clinical studies look very promising for several other diseases. Antibodies are unique in that they can be modified to strongly bind to almost any disease-causing protein. In other words, major potential exists for new antibody-based medicines.

The problem with immunotherapy for diseases affecting the brain is that the brain is protected by a very tight layer of cells, called the blood-brain barrier. The blood-brain barrier effectively prevents large molecules, such as antibodies, from passing from the bloodstream into the brain. It has therefore been difficult to use immunotherapy to treat

Alzheimer's and Parkinson's disease, which affect the brain, as well as cancerous tumors in the brain.

It has been known for a long time that some large proteins are actively transported across the blood-brain barrier. These include a protein called transferrin, whose primary task is to bind to iron in the blood and then transport it to the brain. The research group behind this new study has taken advantage of this process and modified the antibodies they want to transport into the brain using components that bind to the transferrin receptor. Then, like a Trojan horse, the receptor transports antibodies into the brain. The number of modifications to and placement of the antibodies have proven to be important factors for making this process as effective as possible.

"We've placed them so that each antibody only binds with one modification at a time, despite being modified in two places. Our design thus doubles the chances of the antibody binding to the transferrin receptor compared with only one modification. We've successfully increased the amount of antibodies in the brain almost 100-fold, which is the largest uptake improvement that has ever been shown." says Greta Hultqvist, researcher at the Department of Public Health and Caring Sciences at Uppsala University.

To try out the new format, researchers have used it on an antibody that binds to a protein involved in the course of Alzheimer's disease. Without the modification, they could only detect very small quantities of antibody in the brain in a mouse model of Alzheimer's disease, while they could detect high levels of the modified antibody in the same mice.

"From a long-term perspective, it's likely that the new format can be used to effectively treat not only Alzheimer's disease, but also other diseases affecting the brain," says Dag Sehlin, researcher at the Department of Public Health and Caring Sciences at Uppsala University.

1. What is the main topic of the passage?
 - A. The new design at Uppsala University.
 - B. New antibody design may pave way for treating diseases affecting the brain.
 - C. Immunotherapy treatment with antibodies.
 - D. Alzheimer's and Parkinson's diseases affect the brain.
2. Researchers apply antibodies to the study of brain disease because _____.
 - A. they are effective against any serious disease
 - B. they can easily get past the obstacle of the blood-brain barrier
 - C. they can be modified for most disease-causing protein
 - D. they can protect our brain

3. The word “entails” in line 1, para.2, is closest in meaning to ____.
- A. involves B. carries C. takes D. begins
4. What are vital to make the transportation of large proteins across the blood-brain barrier more effectively?
- A. Transferrin
B. Modification of antibodies
C. The receptor
D. The amount of modifications and position of antibodies
5. According to the passage, the difficulty of the immunotherapy research is ____.
- A. how to treat diseases in the brain
B. how to make the antibodies transport across the obstacle of the blood-brain barrier
C. how to design the amount of antibodies
D. how to increase the possibilities of the number of antibodies in our brain

(B)

All rocks are not the same, even though many of them look alike. There are three main types or classes of rock: sedimentary, metamorphic, and igneous. The differences between each of the rocks have to do with how they are formed. This is what determines the type of rock it is.

The first type of rock is sedimentary. A sedimentary rock is formed from particles of sand, shells, pebbles, and other pieces of material. All of these particles together make up sediment. Sediment is the result of material broken down by weathering or erosion.

Slowly, the sediment accumulates in layers and over a long period of time it will harden into rock. Sedimentary rock, usually, is fairly soft and may break apart very easily or crumble into pieces. If sedimentary rock is broken apart inside is sand, pebbles, or stones in the rock. Sedimentary rock is usually the only type of rock that also contains fossils. Fossils are the remains of once living animals or plants usually from long ago. Examples of sedimentary rock types include limestone, shale, and sandstone.

The second type of rock is metamorphic. A metamorphic rock is formed under the surface of the earth from the change that takes place because of intense heat or pressure. In nature, it takes millions of years for a metamorphic rock to be formed. The rocks that result from this very long process often have ribbon-like layers and many shiny crystals. The

crystals are formed by minerals which grow slowly over time on the surface of the rock. Examples of metamorphic rock types include gneiss, marble, slate, and quartzite.

The third type of rock is igneous. Igneous rocks form when magma cools and hardens. Magma is the molten rock deep within the earth. The same material is inside a volcano. Sometimes this magma, though, cools inside the earth. At other times it will erupt onto the surface from a volcano. When magma leaves the volcano it is called lava.

When this lava cools very quickly, no crystals form and the rock will look shiny and glasslike. Sometimes there are gas bubbles trapped inside the rock during the cooling process of the magma. If this occurred there will be tiny holes and spaces left in the rock. Examples of igneous rock types include basalt, obsidian, pumice, and granite.

In summary, even though many rocks may look alike, there are three types of rocks with different characteristics. The three types of rocks are sedimentary, metamorphic, and igneous. Sedimentary rocks are formed from sediments that may include particles of sand, pebbles, or other stones. Fossils may also be found in sedimentary rock. Metamorphic rock takes millions of years to form and is formed by intense heat and pressure. They often are ribbon-like and contain shiny crystals. The last type is igneous rock, which forms when magma cools and hardens deep inside the earth. Magma is the same material inside of a volcano. All three rock types can be found in many places. Some examples of each include limestone, marble, and granite. Rocks are definitely not all the same.

6. Igneous rocks include the following **EXCEPT** ____.
A. marble B. obsidian C. pumice D. granite
7. What type of rock does limestone belong to?
A. Igneous B. Metamorphic C. Sedimentary D. Magma
8. Which of the following is formed by intense heat and pressure over millions of years?
A. Igneous B. Metamorphic C. Sedimentary D. Magma
9. What is magma called once it leaves a volcano?
A. Igneous B. Metamorphic C. Fossil D. Lava
10. Which of the following may be found in a sedimentary rock?
A. Lava B. Fossil C. Crystal D. All of the above

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. variant 不变量 12. chronology 按年月顺序排列的 13. complex 复杂性
14. division 细分 15. persist 坚持不懈的 16. eternal 永恒
17. requisite 先决条件 18. allergy 过敏的

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%)

account for what's more take advantage of short of bring into play
border on content with shake up stand for with respect to
response to an array of

19. His manner was unfriendly, ___ insolence (无礼).
20. The initials BBC ___ British Broadcasting Corporation.
21. The car's performance was far ___ what I had been led to expect.
22. I got five ___ my ad about the bicycle for sale.
23. We invited a new speaker and, ___, he was happy to come.
24. The notice about a cut in pay ___ everybody in the office.
25. His argument was made more convincing with the presentation of ___ statistics.
26. We should ___ all positive factors ___ and carry out necessary social reforms.
27. Young people ___ the majority of the rural population.
28. I am very ___ my life at present.
29. We had better ___ the warmer weather by going for a walk this afternoon.
30. ___ your requests, we regret that we are unable to assist you in this matter.

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

as well as nor from emphasized to awareness conflict claim
outweigh signs

“Ecology” implies a harmonious and interactive relationship between nature and human beings, but the word is often misused. Those who 31 to know ecology do not necessarily understand the essence of ecology, 32 do they follow its principles. “Ecotourism” provides a useful example. It has been frequently 33 by the tourism administration and is familiar to

the public. However, when a 34 arises between economic benefit and ecological protection in tourism programs for nature reserves, scenic spots, national parks, and world heritage sites (hereinafter referred to as “protected areas”) 35 in tourism development and management, how often do the immediate economic benefits 36 the long-term protection of the ecology? How many tourists prefer a walking eco-tour 37 the comfort and convenience of a tour by modern transport? In fact, the ecotourism currently discussed differs little 38 the traditional tourism model. Garbage cans, public lavatories, and publicity 39 may have been supplemented by the tourism administration, increasing tourists’ 40 not to litter or pick flowers. While these steps can be defined as clean tourism, they are far from being ecotourism.

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%)

submit to bear out rest on be applicable to proportional to

41. 你的论证是基于一个错误的假设。
42. 体重减轻的幅度与病情加重的程度成比例。
43. 为减轻右膝疼痛，他只好做手术。
44. 这不适用于所有情况。
45. 最新研究证明某些香水可以造成严重的心理变化。

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

46. The psychological effects of color have been of interest to people for a long time. The ancient Egyptians, Chinese, and Indians all used color as part of healing therapies. The psychology of color is still of interest in modern times. Interior decorators and web designers all incorporate an understanding of the relationship between color and mood into their work.

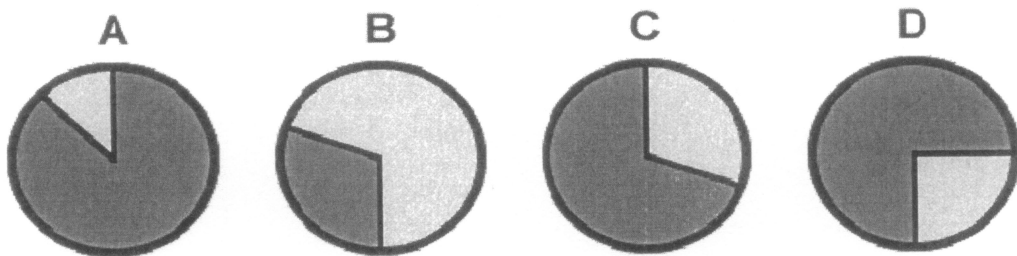
In selecting color for an interior space, the designer considers what type of mood is compatible with the activities that will be carried out in that space. At least one study has found that office workers are able to concentrate better in rooms that are painted with cool blues or dark greens. Yellow might be considered suitable for a sales office because it contributes to a positive mood. Restaurants are often painted orange or bright red as it is believed that these colors stimulate the appetite.

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%)

The way the Earth interacts with the sun's energy can be displayed in a diagram called the Earth's energy budget. It displays the sun's energy that reaches us and how much of that energy is absorbed and reflected by the earth and its atmosphere. Solar energy reaches earth as electromagnetic radiation. Once the energy reaches earth, some of it is absorbed by the atmosphere, including clouds. Some of it makes it to the earth's surface, and is absorbed by land and oceans. The amount of energy absorbed affects temperature. The energy that is not absorbed by the earth or its atmosphere is reflected back out to space in the same wavelengths in which it came to earth.

On average, the amount of energy coming in is equal to the amount of energy going out. So, we say the earth's energy budget is balanced. If more energy was coming in than was going out, the earth's temperature would increase. On the other hand, if too much energy is reflected, and not absorbed, we'd see a decrease in the earth's temperatures.

Of all of the sun's energy that hits the Earth, about 70% is absorbed by the land, ocean, atmosphere and clouds and about 30% is reflected back into space. Which of the four pie charts correctly shows this relationship?



■ = Absorbed Energy

□ = Reflected Energy

The Earth's Energy Budget

The earth's energy budget actually shows a lot including the <u>47</u> between the sun's energy and the earth.	We may know from the passage that not all of the <u>48</u> radiation can be absorbed or reflected by the earth or its atmosphere.	According to the passage, our temperature is affected by the land and oceans' <u>49</u> of the amount of solar energy.	In theory, the earth's energy budget is balanced if the amount of its energy coming in is the <u>50</u> as that going out.	Pie chart <u>51</u> shows that 30% of the sun's energy is reflected by the Earth and 70% is absorbed by the Earth.
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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 Significance of Waste Sorting

- (1) 垃圾对居住环境的威胁。
- (2) 垃圾分类的重要性。
- (3) 如何做好垃圾分类?