2022학년도 재외국민과 외국인 특별전형 필기고사 문제

- 자연계열 -

모집단위	
수험번호	
성명	

※ 감독자의 지시가 있을 때까지 다음 장으로 넘기지 마시오.

영어(1~20번) [100점 만점]

※ 1 ~ 20번 : 각 5점

[1~6] 다음 빈칸에 들어갈 가장 적절한 것은?

1. To begin with, _____ of privacy is always a danger on social media. This is because our personal data can easily be hacked and shared on the Internet.

① protection   ② invasion
③ inheritance   ④ acquisition
⑤ advocate

2. Self-monitoring is a process of being aware of yourself and how you are coming across to others. It involves being _____ to other people's expressions and reactions and using this information in deciding how to act and what roles to play.

① sensitive   ② resistant
③ beneficial   ④ indifferent
⑤ opposite

3. Though some species shed tears as a result of pain or irritation, humans are currently known as the only creatures whose tears can be _____ by their feelings.

① prospered   ② disregarded
③ undertaken   ④ surrendered
⑤ triggered

4. Throughout human history, continuous development and progress have come from new ideas and novel interpretations. It is necessary to reject ordinary thoughts and try to see the world _____.

① generally   ② differently
③ optimistically   ④ seriously
⑤ objectively

5. The fault-finding type of conversation causes unnecessary tension and competition and eventually _____ the team's effectiveness.

① facilitates   ② hinders
③ escalates   ④ reveals
⑤ emphasizes

6. Violent and discriminatory conduct must be swiftly punished, and speech conveying discriminatory, hateful ideas should be strongly contradicted. But punishing ideas we consider hateful or discriminatory not only _____ the fundamental free speech principles; it also may well increase intergroup distrust and discrimination rather than reducing them.

① violates   ② promotes
③ implements   ④ adopts
⑤ strengthens

[7~10] 다음 글의 밑줄 친 부분 중, 어법상 **틀린** 것은?

7.

Researchers have found that the areas in our brains that feel pleasure become ① <u>activated</u> when we give—meaning that besides doing good, donating our money or time actually ② <u>makes</u> us feel good. This feeling is similar to a "runner's high," a term ③ <u>creates</u> for that feel-good sensation that rushes through your body after a run. They use the term "helper's high" to describe what ④ <u>happens</u> to your body and your brain when you are kind to another person or give to them in some way. Helping others may just be the secret to ⑤ <u>living</u> a life that is not only happier but also healthier, wealthier, more productive, and meaningful.

8.

Have you ever been offered to buy something that you ① <u>had not planned</u> on buying? A sales clerk may make suggestions to you about what else to buy in addition to your originally planned purchase. This is called up-selling and it's designed to be not only helpful for you, but also ② <u>for</u> the store's bottom line. Have you also noticed that shoes, hats, and socks are displayed together next to ③ <u>one another</u>? They are mostly inexpensive items strategically placed there. Since you've already decided to buy a pair of jeans, why not buy a pair of sneakers too? No one can tell you that you shouldn't buy something that really ④ <u>suits</u> you, but remember that the arrangement of items in a store is not random. Product placement ⑤ <u>seemed</u> to have been designed to give subtle suggestions to consumers while they shop.

9.

There are four main forces ① involved in flight: lift, weight, thrust, and drag. Lift is created by the difference in air pressure between the air flowing over an airplane's wings ② and the air flowing under them. Lift is opposed by weight, which is the force of gravity that is constantly pulling the airplane down. If the amount of lift is greater than the amount of weight, the airplane will ③ raise. At the same time, thrust is created by the airplane's engines and propellers pushing the airplane forward. ④ Opposed to that force is drag, which is the air pushing the airplane back. If thrust is greater than drag, the airplane will move forward. The interaction between these four forces makes airplanes ⑤ fly.

10.

On Earth, gravity has been thought to be necessary ① of roots to grow in the right direction —down and away from the leaves. In a weightless environment, there is no up or down, so roots grow in all directions. Research ② done in 2010 on the ISS, however, showed that gravity is not an important factor for plant growth. This research proved that plants do not need gravity in order to grow normal root patterns and ③ send their leaves upward toward the light. Plants grow ④ more slowly, but as long as they have a light source above them, they are able to grow in the right direction. The light source, however, needs to be sufficiently strong and ⑤ directed.

11. 다음 글의 목적으로 가장 적절한 것은?

I spend a lot of time at school in my uniform, so I don't pay too much attention to what I wear. But there is one thing I often wear outside of school: a black striped shirt. It's very casual with a simple design. I like to wear it under a denim shirt, a leather jacket, or a cardigan. Putting on clothes in layers like this keeps my style interesting even though I don't have a lot of clothes. Mixing and matching clothes is a lot of fun! My point is: If you have a favorite fashion item, and it goes well with your other clothes, you can create a new outfit every single day.

① to advertise a black striped shirt
② to suggest mixing and matching clothes
③ to demonstrate a new style for a meeting
④ to criticize a new design of school uniform
⑤ to emphasize the importance of school uniform

12. 다음 글의 제목으로 가장 적절한 것은?

In a world where more people are connecting to the Internet every day, universal language will be even more important. More than half of all Internet content is in English. However, according to a survey of more than 2,430 global consumers in eight countries in Europe, Asia, and South America, approximately 75% of the respondents rarely or never buy from English-only websites. In addition, nearly 70% of the low-or-no English group agreed or strongly agreed that they only make purchases at websites presented in their own language versus just 32.1% for the proficient group. Therefore, anyone offering a product or service online should keep an eye on languages becoming popular on the Internet. By communicating with customers in their native languages, online retailers can give their customers the confidence they need to finalize their purchasing decisions.

① Necessity of Effective Customer Service
② Trend of Building English-only Websites
③ Significance of Purchasing Product and Service online
④ Advantage of English Proficiency on Online Survey
⑤ Importance of Native Language in Online Business

13. 다음 글의 내용과 일치하는 것은?

How do tardigrades survive such harsh environments? Many things are still unknown about their survival tactics, but one trick they employ to fight dry seasons is relatively well documented. They rely on "cryptobiosis," which is when they don't die but go into a state where their metabolism decreases to 0.01% of normal activity. They do this by curling up and drying out their body. They can remain in this dehydrated state for decades. They avoid going completely dry with the help of some protectants in their body mass, which prevent the main components of their cells from being destroyed. When exposed to water, they rehydrate and reawaken.

① Quite a many things of tardigrades' survival are revealed.
② Cryptobiosis means tardigrades die after the dry season.
③ Tardigrades stretch out their body to make the state of low metabolism.
④ Protectants in tardigrades' body keep their cells from being destroyed.
⑤ When tardigrades are exposed to water, they hydrate and die.

14. 다음 글의 빈칸 (A), (B), (C)에 가장 적절한 것은?

It would be very sad if there were no more wild tigers. Would it really matter, though? After all, we could still see them in zoos or watch programs about them on TV. Shouldn't we be more worried about protecting human beings? The fact is,   (A)   , that we need to protect tigers in order to protect ourselves. This is because all of Earth's species are interconnected. Think about what would happen if tigers became extinct. Existing at the top of the food chain, they maintain the populations of animals they prey on, such as deer and boar. Without tigers, these species would rapidly increase in number.   (B)   , their food source, vegetation, would begin to disappear. This would cause birds and insects to lose their homes, and bigger animals that prey on them would soon run out of food.   (C)   , the entire ecosystem would be affected. Humans are no exception, as we rely on nature for everything we need to survive, including air, food, and water. This is how the disappearance of a single species can threaten the whole planet.

	(A)	(B)	(C)
①	so	-- As a result	-- Eventually
②	so	-- For example	-- Eventually
③	however	-- As a result	-- Eventually
④	however	-- As a result	-- Otherwise
⑤	however	-- For example	-- Otherwise

15. 주어진 대화 다음에 이어질 대화 순서로 가장 적절한 것은?

A: Hey, what are you looking at?
B: It's an Internet site that provides information about movies.

(A) Oh, you're right. We can't evaluate a movie based on such a small sample.
(B) Yes. I think I'll watch *Civil Heroes*. I like the main actor.
(C) Well, I don't think that rating is helpful. Only three viewers have rated it.
(D) Hmm... I think you'd better not watch it. Its average user rating is only two points out of five.
(E) Oh. Have you found anything that you want to watch?

① (A) – (B) – (C) – (E) – (D)
② (A) – (C) – (B) – (E) – (D)
③ (B) – (E) – (A) – (D) – (C)
④ (E) – (B) – (D) – (C) – (A)
⑤ (E) – (C) – (A) – (D) – (B)

16. 주어진 글 다음에 이어질 글의 순서로 가장 적절한 것은?

Sold in stores everywhere, bacon may be a triumph of modern living, but there is a dark side to the bacon industry.

(A) This affects the ecosystems of such bodies of water, and the fertilizer runoff ends up in fish and other marine life for kilometers around.
(B) To grow the corn, a huge amount of fertilizer is used, which eventually gets washed into rivers and streams.
(C) This is the process necessary to get bacon onto our breakfast tables.
(D) Pigs are raised in confined pens and fed corn that has been grown in vast fields that stretch as far as the eye can see.

① (A) – (C) – (B) – (D)
② (B) – (C) – (A) – (D)
③ (B) – (D) – (C) – (A)
④ (C) – (A) – (D) – (B)
⑤ (D) – (B) – (A) – (C)

17. 다음 문장이 들어갈 가장 적절한 곳은?

They do this in public not because they want to show off, but because they hope it will create an atmosphere in which more people are drawn to charitable activities.

The members of the Giving Pledge serve as another good example of people who are committed to giving what they have to others. (A) This charitable foundation started in 2010 and consists of people with great wealth who have promised to donate more than half of their fortune to making the world a better place. (B) The Giving Pledge started with only forty families and individuals, but the number of donors has been constantly increasing. (C) New members of this "donation club" sign a pledge to donate the majority of their property. (D) In their pledge, former American trader John Arnold and his wife Laura wrote, "We view our wealth in this light—not as an end in itself, but as an instrument to bring about positive and transformative change." (E) With more people joining the cause, members feel a strong responsibility to give back what they have received from society to give rise to positive changes in the world for future generations.

① (A)   ② (B)
③ (C)   ④ (D)
⑤ (E)

18. 다음 글에서 전체 흐름과 가장 관계 없는 문장은?

Elephants are a keystone species in Africa. Because of their eating habits, they play an important role in the ecosystem where they live. ① They benefit not only plant-eaters but also meat-eaters in the wild.
② Elephants eat small trees, which helps grass and smaller plants grow freely. ③ This, in turn, attracts animals which live on grass, such as antelopes and zebras. ④ It is well-known that elephants outlive these grass eaters. ⑤ These grass eaters then become food for meat-eating predators such as lions and hyenas.

19. 다음 글에 드러난 Mike의 심경으로 가장 적절한 것은?

On the day of the storm, Mike was watching the news on the television when he heard a loud noise outside. He went to the door to see what the noise was all about. As soon as he opened the door, he was not able to move. The water in the street outside his house was high and had risen quickly. In a moment, the water rose to the level of the door, starting to fill his house. And then the water carried him back to his kitchen. The entire house would soon be under water. He realized the had to escape. As he emerged from his house, the current caught him and carried him out to sea. He tried to swim back to an unflooded house, but the current was too strong and the waves took him out to sea again and again.

① desperate
② sorrowful
③ jealous
④ relieved
⑤ doubtful

20. 다음 글의 밑줄 친 부분 중, 문맥상 낱말의 쓰임이 적절하지 않은 것은?

Historically in the United States, prevention hasn't been prioritized, and, furthermore, virtually no attention has been paid to fostering a systematic, quality prevention approach. For decades, the national prevention model relied primarily on ① educating people about health and safety risks, hoping they would magically change their behavior. As well intended as educational efforts are, they can never be very ② effective without simultaneously changing home and community environments, social norms, policies, and institutions. Establishing a broader view — "beyond brochures," we might say— is ③ meaningless. Research has shown it is unrealistic to expect that simply warning people about a danger will be ④ sufficient to help them change their long-standing habits or avoid unhealthy exposures on their own. A quality prevention approach is one in which education is part of a well-designed, sustained, comprehensive effort to broadly ⑤ improve community environments, social norms, institutional practices, and policies.

21. x에 관한 이차방정식
$$x^2 + 2(k-2)x + k^2 - 18 = 0$$
이 실근을 갖도록 하는 자연수 k의 개수는? (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

22. 점 $A(\sqrt{5}, 0)$을 지나는 직선이 원 $x^2 + y^2 = 1$과 점 B에서 접한다. 이때 선분 AB의 길이는? (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

23. 다항식 $x^4 - ax^2 + b$가 $(x+1)^2$으로 나누어떨어진다. 이때의 몫을 $Q(x)$라 할 때, $Q(2)$의 값은? (단, a, b는 상수이다.) (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

24. 두 함수 $f(x) = -x + 1$, $g(x) = 2x - 1$에 대하여
$$(f \circ g)^{-1}(x) = ax + b$$
일 때 $|10ab|$의 값은? (단, a, b는 실수이다.) (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

25. 함수 $y = \dfrac{ax+b}{x-1}$ (a, b는 실수)의 그래프를 평행이동하면 함수 $y = \dfrac{2}{x}$의 그래프와 일치한다. $a + b$의 값은? (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

26. 닫힌구간 $[0, 2\pi]$에서 방정식
$$\sin x + \cos^2 x = 1$$
의 해의 개수는? (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

27. 공차가 4인 등차수열 $\{a_n\}$에 대하여 세 항 a_2, a_4, a_8이 순서대로 등비수열을 이룰 때, a_1의 값은? (5점)

① 1   ② 2   ③ 3   ④ 4   ⑤ 5

28. 아래 조건을 만족시키는 실수 a의 최댓값은? (7점)

> $x > 4$일 때
> $$\log(x+1) + \log\left(\frac{1}{x+a}\right) > \log\left(\frac{1}{x-2}\right)$$

① 6   ② 7   ③ 8   ④ 9   ⑤ 10

29. 실수 a에 대하여 두 집합
$$A = \{a, a+1, a+2\}, \ B = \{a+2, 2a-1, a^2+1\}$$
이 $n(A \cap B) = 3$을 만족시킬 때 집합 $\{|a|, 2a, 3a^2\}$의 모든 원소의 합은? (7점)

① 2   ② 6   ③ 10   ④ 14   ⑤ 18

30. 밑면이 정사각형이고 네 옆면이 모두 정삼각형인 각뿔의 모든 면을 각각 서로 다른 5가지 색을 한 번씩 사용하여 칠하는 방법의 수는? (단, 회전하여 일치하는 경우는 모두 같은 것으로 본다.) (7점)

① 6　　② 24　　③ 30　　④ 60　　⑤ 120

31. 아래 조건을 만족시키는 자연수 n과 실수 k에 대하여 $2n+3k$의 값은? (단, $[x]$는 x보다 크지 않은 최대의 정수이다.) (7점)

$$\lim_{x \to n} \frac{[x]+1}{[x]^2+x^2} = k$$

① 1　　② 2　　③ 3　　④ 4　　⑤ 5

32. A 학생을 포함한 10명의 학생 중에서 4명을 임의로 뽑았을 때 A 학생이 포함될 확률은? (7점)

① $\dfrac{1}{10}$　② $\dfrac{1}{5}$　③ $\dfrac{3}{10}$　④ $\dfrac{2}{5}$　⑤ $\dfrac{1}{2}$

33. $\displaystyle\int_0^a |3x(x-2)|\,dx = 3a^2+8$ 을 만족하는 실수 a의 값은? (10점)

① 2　　② 4　　③ 6　　④ 8　　⑤ 10

34. 정수 n에 대하여 아래 조건을 만족하는 순서쌍 $(a, f(a))$의 개수를 $g(n)$이라 하자.

(가) 다항함수 $f(x)$는 $x=a$에서 극값을 갖는다
(나) $f'(x) = x^3 - 6x^2 + 9x - n$, $f(0) = 0$

$\displaystyle\sum_{n=1}^{5} g(n)$의 값은? (10점)

① 7　　② 9　　③ 11　　④ 13　　⑤ 15

35. 다섯 개의 숫자 0,1,2,3,4를 한 번씩 사용하여 다섯 자리 자연수를 만들 때, 홀수와 홀수가 아닌 숫자가 교대로 나열되는 경우의 수는? (10점)

① 8　　② 12　　③ 24　　④ 96　　⑤ 120

2022학년도 재외국민과 외국인 특별전형 필기고사 답안지
- 자연계열 -

과목	영어		과목	수학	
문제번호	정답	배점	문제번호	정답	배점
1	②		21	⑤	
2	①		22	②	
3	⑤		23	①	
4	②		24	⑤	5점
5	②		25	②	
6	①		26	④	
7	③		27	④	
8	⑤		28	①	
9	③		29	②	
10	①		30	③	7점
11	②	각 5점	31	⑤	
12	⑤		32	④	
13	④		33	③	
14	③		34	③	10점
15	④		35	①	
16	⑤				
17	④				
18	④				
19	①				
20	③				

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