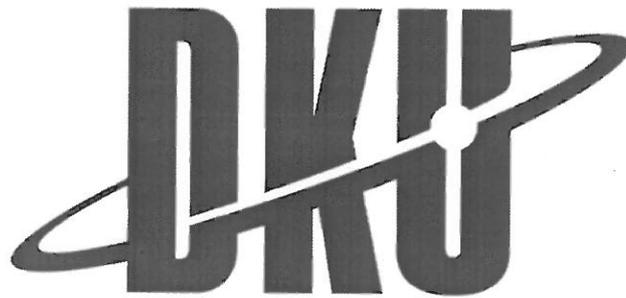


2019학년도 재외국민과 외국인 특별전형
필기고사 문제

- 자연계열 -



모집단위	
수험번호	
성명	

※ 감독자의 지시가 있을 때까지 다음 장으로 넘기지 마시오.

영어(1~20번) [100점 만점]

[1~9] 다음 글의 밑줄 친 부분에 들어갈 가장 적절한 것은?
(각 5점)

1. Ecotourism is a new form of travel to natural areas. Unlike _____ travel, ecotourism helps travelers learn about the environment in wild and untouched nature.

- ① extinct ② traditional
- ③ innovative ④ up-to-date

2. Comics provide the readers with chances to experience other people's lives and to obtain knowledge more efficiently. They _____ our experience and education, and that's why comics are literature.

- ① enrich ② diminish
- ③ abandon ④ limit

3. Myths with similar events and characters appear again and again in different cultures. Societies can be on opposite ends of the globe from one another, yet some of their stories and legends inevitably make use of the _____ symbols, themes and motifs.

- ① conflicting ② unique
- ③ same ④ diverse

4. They were imitations of what the _____ royal guards would have looked like in those days. The soldiers' hair was pulled back in a tight knot and their real weapons were still extremely sharp.

- ① slim ② passive
- ③ timid ④ vigorous

5. This huge amount of gas _____ limited the amount of sunlight that reached the ground and made temperatures fall across the northern hemisphere, which led to global cooling.

- ① severely ② sportively
- ③ scarcely ④ sparely

6. Problems of all kinds have _____ the human race since the beginning of time. Fortunately, many of them have been solved over time, and thus our well-being has been improved little by little.

- ① supported ② cured
- ③ plagued ④ comforted

7. A main function of greetings is to make someone aware of another person's existence. This comes from the fact that human beings are social by nature, and thus have an almost _____ need to communicate with each other.

- ① inherent ② foreign
- ③ domestic ④ distorted

8. The two artists differed not just in the way they painted. They also had sharply _____ views on important issues. All this turned harmony into frequent conflicts.

- ① contrasting ② similar
- ③ identical ④ agreeable

9. When you look at a scene in front of you, you don't initially see it _____ in every detail. You notice the overall visual image and the sounds reaching your ears before you begin to recognize any particular part of the scene.

- ① extrinsically ② eventually
- ③ explicitly ④ enormously

[10-14] 다음 글의 밑줄 친 부분 중, 어법상 틀린 것은?
(각 5점)

10.

Categories are ① denoted by nouns. Relationships, on the other hand, usually ② involve a verb. Therefore, verbs are more important in Asian languages than in English. The manner ③ in which people ask someone whether they would like more tea to drink ④ exemplify this distinction.

11.

① Now that winter break is ending, it is time to think about the coming spring semester. I'm looking forward to ② meet new friends and teachers in a new environment. This time around I also ③ want to be a better student and friend. Before ④ that can happen, I'll need to change a few things.

12.

With no real advertising, a series of Hello Kitty products, ① including the plastic coin purse, somehow ② managed to fly off store shelves. The success of Hello Kitty ③ skyrocketed Sanrio into a billion-dollar business, with half of its revenue ④ came from Hello Kitty.

13.

① By using the facial cameras saved time as the visual effects team didn't have to wait to adapt the movements to facial expressions. Instead, they could ② see them together in a live preview, ③ which included the animated alien characters and the computer ④ generated scenery.

14.

During the Tang and Song dynasties, there were many wars ① fought among different rulers in central China. These wars created a demand for quality horses, and this demand perfectly ② fulfilled by the top-notch horse breeds from the mountains. The demand for tea and horses between people ③ living in these two areas naturally created a brisk trade. As commerce between the regions ④ grew over time, leather, herbs, salt and cloth as well as tea and horses became major trading goods.

15. 다음 글의 제목으로 가장 적절한 것은? (5점)

There are convincing reasons to believe that education can increase wages for some, but there are even more convincing reasons to believe that education by itself will not end poverty. Education can do a lot of things, but it cannot resolve the persistent economic problem of extreme poverty felt by tens of millions of Americans. The long-standing, persistent myth that education alone can cure poverty is dangerous because it has caused schools to become overly focused on economic outcomes that will not be achieved without fundamental social and economic reforms. And the focus on the economic outcomes of education has pushed the democratic, social-emotional, and intellectual aims of education to the side. Sadly, if schools continue to be viewed as the principal path to end poverty, then genuinely beneficial educational, social, and economic reforms are unlikely to materialize and poverty in America will continue.

- ① School Steers Society to Reform
- ② School Is not a Key to Ending Poverty
- ③ More Education Can Guarantee More Wages
- ④ Democracy: Let's Achieve It Through Education

16. 다음 글의 내용을 한 문장으로 요약하고자 한다.
빈칸 (A), (B)에 들어갈 말로 가장 적절한 것은? (5점)

The Pygmalion effect is named after the man and means one's high expectations of or belief in someone creates a positive influence on the person and brings satisfying results. This occurs because people feel proud of themselves when they are respected and try to meet the expectations. In 1968, Professor Robert Rosenthal from Harvard University and Lenore Jacobson, who had been an elementary school teacher, carried out an experiment. They first gave an IQ test to students and then chose some of them. They gave the list of the students to teachers, saying that those students were most likely to show the biggest improvement. Eight months later, they tested all the students again and found out that those who were in the list had improved a lot on the test. The teachers' expectations of those students had played a major role in this change.

Encouraging people has (A)_____ effects on their ability and leads them to success since it helps them believe in themselves when they try to (B)_____ something.

- | | | |
|---|------------|---------|
| | (A) | (B) |
| ① | negative | assess |
| ② | aggressive | arrange |
| ③ | productive | avoid |
| ④ | beneficial | achieve |

17. 다음 글의 밑줄 친 (A), (B), (C)에 가장 적절한 것은? (5점)

Space junk is a major problem. Some of it is very large, such as burnt rocket stages, dead spacecraft and a few tools lost during spacewalks. Crashes with large pieces of junk can disable or even destroy a spacecraft. _____ (A) _____, most of it is much smaller. _____ (B) _____, these would not be a threat, but in space, debris travels at high speed. Even dust pieces act like tiny bullets. _____ (C) _____, they can also cause major damage or threaten a spacewalking astronaut.

- | | | | |
|---|-------------|-------------|-----------|
| | (A) | (B) | (C) |
| ① | However | For example | Otherwise |
| ② | Furthermore | Normally | Otherwise |
| ③ | However | Normally | So |
| ④ | Furthermore | For example | So |

18. 다음 글의 내용과 일치하는 것은? (5점)

Many teachers shy away from using contemporary art in their teaching because they do not feel comfortable with their own level of knowledge and are reluctant to introduce their students to anything they may not have mastered themselves. This response is not unique to educators. As art critic and historian Lucy Lippard has pointed out, the field of contemporary art "has become mystified to the point where many people doubt and are even embarrassed by their own responses." To make matters worse, teaching resources are scarce. The absence of curriculum materials about contemporary art reflects the attitude that the only valuable art is that which has "withstood the test of time." This attitude, in turn, reflects the belief that it is possible to establish universal cultural standards that remain fixed and permanent.

- ① Teachers voluntarily introduce contemporary art in their class.
- ② Teachers can find teaching materials from many sources.
- ③ Contemporary art is considered accessible to many people.
- ④ It is believed that art honored through a long period of time is valuable.

19. 다음 글의 흐름으로 보아, 주어진 문장이 들어가기에 가장 적절한 곳은? (5점)

However, when you face problems, these patterns keep you from finding effective alternative solutions.

Breaking the boundaries of your imagination and thinking outside the box can help you solve problems effectively. ① Of course, there are times when you need to think inside the box, too. The patterns you are used to are useful for your daily routines. ② They make you believe there is only one correct answer or solution. Seeing things from a different point of view can give you insight into the problems you have. ③ This insight will lead you to more than one solution. To see things from a creative perspective, stop following what everyone else is doing and try something different. Don't be afraid of taking chances or being wrong. ④ This doesn't mean that being wrong is the same as being creative. It means that if you are not prepared to be wrong, you will never come up with anything creative.

20. 다음 글에서 전체 흐름과 관계 없는 문장은? (5점)

Fair trade sounds brilliant, and it is now a very big business. In the UK alone, annual sales of fair-trade products topped half a billion pounds (one billion dollars) in 2008. But fair trade is not without its drawbacks. ① One obvious problem is that fairly traded goods can cost significantly more. ② Though the difference between a fair-trade candy bar and an ordinary one is often marginal, fair-trade clothes or household items can be significantly more expensive than goods traded in the usual way. ③ To maximize the profits, importers generally prefer the usual way. ④ Many people, especially those struggling to get by on low incomes, cannot afford to pay the difference. If fair trade really is claiming to help poorer people and make the world fairer, should it not be aiming to help poorer consumers as well as poorer producers?

※ 1 ~ 20번 : 각 5점

(다음 페이지에 계속)

수학(21~35번) [100점 만점]

21. 이차방정식 $x^2 - 3x + 3 = 0$ 의 두 근을 α, β 라 할 때, $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$ 의 값은? (5점)

- ① $\frac{1}{4}$ ② $\frac{1}{3}$ ③ $\frac{1}{2}$ ④ 1

22. 함수 $y = \frac{2x-1}{3x-1}$ 의 역함수를 $g(x)$ 라고 하자. 역함수 $y = g(x)$ 의 점근선의 방정식이 $x = m, y = n$ 일 때, 두 상수 m, n 의 곱 mn 의 값은? (5점)

- ① $-\frac{2}{9}$ ② $-\frac{1}{9}$ ③ $\frac{1}{9}$ ④ $\frac{2}{9}$

23. 수열 $\{a_n\}$ 에 대하여 $\sum_{k=1}^n a_k = n(n+1)(n+2)$ 일 때, $\sum_{k=1}^{10} \frac{99}{a_k}$ 의 값은? (5점)

- ① 24 ② 26 ③ 28 ④ 30

24. 원 $x^2 + y^2 = 20$ 에 접하고 직선 $y = -2x + 2$ 에 수직인 직선들이 있다. 이 때, 이 직선들과 x 축 그리고 y 축으로 둘러싸인 도형의 넓이는? (5점)

- ① 25 ② 50 ③ 75 ④ 100

25. 두 다항함수 $f(x)$ 와 $g(x)$ 가

$$\lim_{x \rightarrow 1} \frac{f(x)-3}{x-1} = 2, \quad \lim_{x \rightarrow 1} \frac{g(x)+2}{x-1} = 1$$

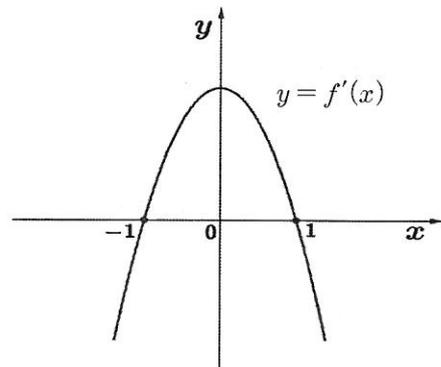
을 만족시킬 때, 함수 $h(x) = f(x)g(x)$ 에 대하여 $h'(1)$ 의 값은? (5점)

- ① -1 ② 0 ③ 1 ④ 2

26. 확률변수 X 가 정규분포 $N(10, 1)$ 을 따를 때, 확률 $P(|X-10| \leq 2) = 0.9772$ 이다. 확률변수 Y 를 $Y = 3X + 2$ 라 할 때, 확률 $P(Y \geq 38)$ 의 값은? (5점)

- ① 0.0068 ② 0.0114 ③ 0.0228 ④ 0.0342

27. 삼차함수 $y = f(x)$ 의 도함수 $y = f'(x)$ 의 그래프가 다음 그림과 같다. $f'(-1) = f'(1) = 0$ 이고 함수 $f(x)$ 의 극솟값이 -4, 극댓값이 0일 때, $f(2)$ 의 값은? (5점)



- ① -4 ② 0 ③ 4 ④ 8

28. 두 집합 A 와 B 에 대하여, 다음 보기 중 옳은 것의 개수는? (7점)

보기

ㄱ. $A \cup (A - B^c) \subset A$
ㄴ. $(A \cap B) - A^c \subset B$
ㄷ. $(A - B) \cap (B - A^c) = \phi$
ㄹ. $A - (B - A) = \phi$

- ① 1 ② 2 ③ 3 ④ 4

29. 다항식 $f(x)$ 에 대하여 $\lim_{x \rightarrow -1} \frac{f(x)+a}{x+1} = 2$ 이고,

$f(x)$ 를 $(x+1)^2$ 으로 나눈 나머지가 $bx+3$ 일 때, 두 상수 a, b 의 곱 ab 의 값은? (7점)

- ① -6 ② -2 ③ 2 ④ 6

30. 세 양수 a, b, c 가 $a^x = b^{2y} = c^{5z} = 2^{10}$ 과 $10yz + 5xz + 2xy = 7xyz$ 를 만족시킬 때, abc 의 값은? (7점)

- ① 16 ② 32 ③ 64 ④ 128

31. 방정식 $2(xy + yz + zx) = 3xyz$ 를 만족시키는 자연수 x, y, z 의 모든 순서쌍 (x, y, z) 의 개수는? (단, x 는 2이하의 자연수이다.) (7점)

- ① 4 ② 5 ③ 6 ④ 7

32. 함수 $f(x) = x^4 - 3x^3 + 3x^2 - x - 1$ 에 대하여 $\lim_{n \rightarrow \infty} \frac{2n^3}{n^2 + n + 1} \int_0^{\frac{3}{n}} f(t) dt$ 의 값은? (7점)

- ① -6 ② -3 ③ 0 ④ 3

33. 5개의 당첨 제비를 포함한 10개의 제비가 들어 있는 상자에서 A, B 두 사람이 이 순서대로 임의로 한 개씩 제비를 뽑았다. B 가 뽑은 제비가 당첨 되었을 때, A 가 뽑은 제비도 당첨 제비일 확률은? (단, 꺼낸 제비는 상자 안에 다시 넣지 않는다.) (10점)

- ① $\frac{2}{9}$ ② $\frac{1}{3}$ ③ $\frac{4}{9}$ ④ $\frac{5}{9}$

34. 다음 보기 중 옳은 것의 개수는? (단, \bar{z} 는 z 의 켤레복소수이다.) (10점)

보기

ㄱ. 임의의 두 복소수 z_1, z_2 에 대하여 $\overline{z_1 z_2} + \overline{z_1} z_2$ 는 실수이다.

ㄴ. 임의의 복소수 z 에 대하여 $\overline{z^2} = (\bar{z})^2$ 이다.

ㄷ. 임의의 두 복소수 z_1, z_2 에 대하여 $z_1 = \overline{z_2}$ 이면 $z_1 z_2$ 는 실수이다.

ㄹ. 영이 아닌 복소수 z 에 대하여 $z = \frac{1}{\bar{z}}$ 을 만족시키는 복소수의 개수는 4개다.

- ① 1 ② 2 ③ 3 ④ 4

35. 정규분포를 따르는 모집단의 확률변수 X 가 갖는 값은 1, 2, 3이고, 이 모집단에서 크기가 2인 표본을 임의추출하여 구한 표본평균 \bar{X} 에 대하여 평균 $E(\bar{X}) = \frac{5}{3}$, 분산 $V(\bar{X}) = \frac{5}{18}$ 라 하자. 이 때, 확률 $P(X=1)$ 의 값은? (10점)

- ① $\frac{1}{5}$ ② $\frac{1}{4}$ ③ $\frac{1}{3}$ ④ $\frac{1}{2}$

※ 21 ~ 27번 : 각 5점
 28 ~ 32번 : 각 7점
 33 ~ 35번 : 각 10점

2019학년도 재외국민과 외국인 특별전형 필기고사 답안지
- 자연계열 -

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