2020학년도 재외국민과 외국인 특별전형 필기고사 문제

- 자연계열 -

DKU
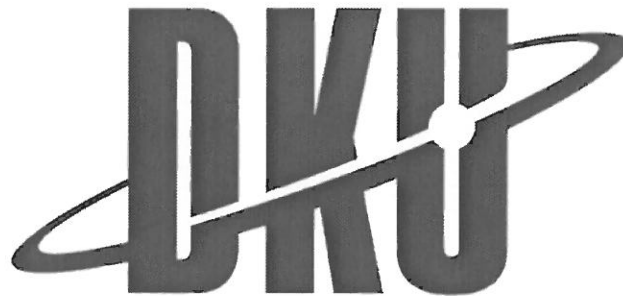
모집단위	
수험번호	
성명	

※ 감독자의 지시가 있을 때까지 다음 장으로 넘기지 마시오.

[1~6] 다음 빈칸에 들어갈 가장 적절한 것은? (각 5점)

1. Black pepper is one of the most widely used spices in the world. At first, it was cultivated in India as a simple _____ for cooking. However, it became a lot more important to some Europeans who also used it for keeping meat from going bad.

① phase ② obstacle
③ formula ④ aspect
⑤ ingredient

2. You can use your natural talents or life experiences to help others and improve your community. There are a number of ways to _____ your talent. Working with children, for example, is a great way to give back to society in a very meaningful way.

① donate ② retain
③ persist ④ deposit
⑤ withdraw

3. I came to appreciate how street food fusion has developed. It is interesting to see how these foods from entirely different places _____ in delicious ways.

① endure ② remain
③ concede ④ decay
⑤ harmonize

4. Amelie is an _____ young woman who has led a lonely life. But then she discovers the joy of helping people, often through extremely unique plans. Her greatest challenge, though, is to overcome her own shyness when she pursues love.

① enthusiastic ② intellectual
③ introverted ④ entertaining
⑤ industrious

5. The "Barrier-Free" movement grew out of the need to modify buildings for the _____. The term is used such as "accessibility" and "handicapped accessible" in regular everyday use.

① gifted ② disabled
③ prevented ④ attacked
⑤ alienated

6. Some doctors worry that spending too much time online can lead to mental _____ in children, including ADHD, difficulties with normal conversation, and social awkwardness.

① disorders ② complexities
③ powers ④ expectations
⑤ impacts

[7~8] 다음 글의 밑줄 친 부분 중, 어법상 틀린 것은? (각 5점)

7.

One smart employee discovered a much better solution with little cost, and it stopped all the complaints. The real problem was not the elevator ① being slow. Rather, it was ② that the people got bored during their wait. Then he came up with an idea to help people ③ spent their waiting time pleasantly. His idea was to install mirrors in the elevator boarding areas so that ④ those who were waiting could look at ⑤ themselves or each other without appearing to do so.

8.

Over-the-counter (OTC) medication is medicine ① that does not require a doctor's prescription for purchase. Prescription drugs, on the other hand, require a doctor's permission ② to be purchased at a pharmacy. Many people believe there are few physical risks ③ involved with OTC drug use. Since childhood, they ④ have given medicine by their parents ⑤ to relieve pain, reduce symptoms of colds, and soothe an upset stomach.

9. 다음 빈칸에 어법상 가장 적절한 것은? (5점)

They had been forging excuse notes since they learned to write, and if I were to deal with all of them, I _____ busy 24 hours a day.

① would be ② would have been
③ was ④ was being
⑤ had been

10. 다음 글의 제목으로 가장 적절한 것은? (5점)

Nothing improves public speaking like doing it, as Bertie found out. When you cannot practice, study other people's presentations and learn from their experience. Bertie and his family, including his daughter, were watching the news, when part of a speech by a famous speaker was on air. If you watch and listen to others, you'll notice what they do well and what they don't do well. Adapt any styles that you would feel comfortable with using, and be sure not to repeat any mistakes that others have made.

① Admitting you need help
② Having faith in your voice
③ Becoming an expert through experience
④ Sharing interest with family members
⑤ Having a relationship with a famous speaker

11. 다음 글의 내용과 일치하지 않는 것은? (5점)

Hitchhiking saves a traveler some money, increases the joy of traveling, and sometimes opens the door to new friendships. Despite these benefits, hitchhiking is illegal in many parts of the world. Hitchhiking used to be safer, but it is potentially dangerous because it can be used as a way to rob drivers. It is also dangerous for a hitchhiker to stand on the shoulder of a road where cars speed by. One more tip! The thumbs-up sign means "You're great," "Well done," or "I'm OK," in many parts of the world. However, in Bangladesh, Ghana, Nigeria, Iran, and Russia, showing just the thumb is rude.

① Hitchhiking has some benefits for a traveler.
② Drivers don't like hitchhikers at all times.
③ Sometimes hitchhiking is useful for making friends.
④ Hitchhiking can be dangerous for both a driver and a hitchhiker.
⑤ The thumbs-up sign has diverse meanings.

12. 다음 글의 빈칸 (A), (B), (C)에 가장 적절한 것은? (5점)

Many of us have likely had the experience of chatting on the telephone with a busy friend who during the conversation is scanning to-do lists, opening e-mail, and the like. _____(A)_____ his or her best efforts to seem engaged in the interaction, we can nonetheless often detect that person's multitasking behavior and use that perception as a cue to let our rushed and distracted friend go. _____(B)_____, even in the absence of visual cues and detailed contextual information, sensitive listeners can frequently make accurate and important inferences about the emotional and cognitive states of others from the way they are speaking with us, _____(C)_____ from just the content of what they are saying.

	(A)	(B)	(C)
①	Despite	-- Thus	-- rather than
②	Despite	-- However	-- as well as
③	With	-- However	-- as well as
④	With	-- Otherwise	-- rather than
⑤	According to	-- Thus	-- as well as

13. 주어진 글 다음에 이어질 글의 순서로 가장 적절한 것은? (5점)

This is the season my Korean friends most look forward to: the time of clear weather, beautiful trees, and abundant food.

(A) Traditionally, the Englishman killed off his cattle in mid-November and resigned himself to salted meat until the next spring brought him fresh vegetables, fresh meat on his table again, and the return of the sunshine and dry weather.

(B) Korea is entirely different. Quite apart from the fact that the winter gives the farmer a chance to rest from his heavy summertime labors in the field and enjoy some months of so-called leisure, we are now enjoying the best weather, a break from summertime illnesses, and a new abundance of food.

(C) Autumn is dearer to the heart of the Koreans, while Westerners look to spring with the most joy. The contrast in the two cultures is clear.

① (A) - (C) - (B)　　② (B) - (A) - (C)
③ (B) - (C) - (A)　　④ (C) - (A) - (B)
⑤ (C) - (B) - (A)

14. 주어진 글 다음에 이어질 글의 순서로 가장 적절한 것은? (5점)

Although my experience was rewarding overall, I found it frustrating that I could only offer limited and temporary help to the patients.

(A) It is said that the quality of medical care in Ethiopia is quite high. However, the cost of hospital care is too high for most Ethiopians.

(B) It was frustrating that all I could do was diagnose their conditions, explain available treatment to them, and advise them to visit the hospital.

(C) As a result, many Ethiopians die not even knowing what they are suffering from. Illnesses that could be cured with a simple prescription of antibiotics become a serious problem.

(D) Most were suffering from diseases that needed continuous treatment, but I could stay only for a short period of time.

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

15. 주어진 대화 다음에 이어질 대화 순서로 가장 적절한 것은? (5점)

A: What do you like to do on weekends?
B: I usually go biking.
A: Where do you go?
B: I usually go to the riverside trail.

(1) No, but I'm planning to travel around Jeju Island by bicycle with my dad this summer.
(2) That's a prefect place to do it. Have you ever gone cross-country biking?
(3) Yeah, but my dad is helping me to get ready.
(4) Wow. That sounds pretty fun, but it could be tough.
(5) That's great. Let me know how it turns out.

① (1) – (3) – (5) – (4) – (2)
② (2) – (1) – (4) – (3) – (5)
③ (2) – (3) – (1) – (4) – (5)
④ (3) – (2) – (1) – (4) – (5)
⑤ (5) – (1) – (3) – (2) – (4)

16. 다음 글의 밑줄 친 부분 중, 문맥상 낱말의 쓰임이 적절하지 않은 것은? (5점)

In the mid-20th century, something new appeared in many people's lives. The world began eating fast food. Because it is served so quickly, many people really love fast food. It is convenient and fits our busy modern lives. Most people ① lead busy lives and don't have much time to cook. For such people, fast food can be one way to save time. Ordering a meal from a fast food restaurant is much ② quicker than cooking. We also don't need to go to a market or wash dishes. ③ Moreover, it can also be cheaper. A set of a burger and fries is often cheaper than buying uncooked food from a market. All of this is ④ attractive to millions of people. At the same time, however, fast food can be harmful to our health. Many fast food items contain too much salt and fat. People who eat fast food on a daily basis have a ⑤ declined risk of developing heart diseases and serious weight problems.

17. 다음 글에서 전체 내용과 무관한 문장은? (5점)

In order to provide high humidity for your Venus flytrap, plant it in a glass container with a small opening. ① You need to watch your glass container carefully. In the summer, the temperature inside the glass may get too hot. ② If your plant dries up, then it needs to come out of the sun quickly. ③ If you grow your plant inside, you will need to feed it insects. Just the opposite is true in the winter. ④ When it gets very cold, you need to move your plant away from the cool area or cover it at night in order to keep it warm and wet. ⑤ However, your Venus flytrap will experience a dormant period in the winter, so it needs cooler temperatures and fewer hours of daylight.

18. 다음 글의 주제로 가장 적절한 것은? (5점)

I think teen dating can be harmful to teens because it can distract them from more important things. Teens often have trouble managing their time and emotions, so having a romantic interest can take up too much of their time. When I was a teen, I liked a girl. I spent a lot of time thinking about her and wondering whether she liked me or not. If I could offer some advice to teens, I would tell them to focus on school and spend time with their friends and family instead. I hope teens understand the importance of this time in their lives and appreciate it.

① Teen dating is helpful to teens.
② Teen dating is not good for teens.
③ For teens, managing time is easy to do.
④ Teen dating is managed at school.
⑤ Friends and family are the most important people.

19. 다음 글의 밑줄 친 (A), (B), (C)에서 어법상 가장 적절한 것은? (5점)

Elizabeth Arnold, a conservation geographer, joined a team to examine the environmental changes (A) (causing / caused) by a very large tsunami. Her team first explored the southern beaches of Sri Lanka, where many wild animals (B) (live / lived). There was obvious damage to the coral. After two days of exploration, however, it became clear that most of the damage (C) (occurred / had occurred) before the tsunami. Much of the coral was already dead from human activity — people and boats broke the coral before the tsunami hit.

	(A)		(B)		(C)
①	causing	--	lived	--	occurred
②	causing	--	live	--	had occurred
③	causing	--	lived	--	had occurred
④	caused	--	live	--	occurred
⑤	caused	--	live	--	had occurred

20. 다음 글의 목적으로 가장 적절한 것은? (5점)

I sympathize with your situation. Most high school students like you are very busy. But you must try to get more sleep. There are lifestyle changes you can make that promote good sleeping habits. You probably already know that caffeine can keep you awake. But many teens don't realize that using computers or smartphones or watching TV can have the same effect. Before you go to bed, you must say good night to your electronic devices! Brightly lit screens can mislead your brain into thinking it's time to wake up. In addition, it's important to follow a sleep routine. Going to bed at the same time every night sets the body's internal clock to expect sleep at a certain time night after night. Try to stick as closely as possible to your routine even on weekends.

① to criticize
② to analyze
③ to accuse
④ to suggest
⑤ to advertise

※ 1 ~ 20번 : 각 5점

21. 다항식 $ax^3 + bx^2 + cx + d$를 $x-2$로 나누면 몫은 $x^2 - 4x - 6$이고 나머지는 3일 때, $a - b + c - d$의 값은? (단, a, b, c, d는 실수) (5점)

① -6 ② -3 ③ 0 ④ 3 ⑤ 6

22. 이차방정식 $x^2 - 3x + 1 = 0$의 두 근을 각각 α, β라 할 때, 다음 중 $\alpha^2 + \dfrac{1}{\beta}$, $\beta^2 + \dfrac{1}{\alpha}$ 을 두 근으로 하는 이차방정식은? (5점)

① $x^2 - 10x + 3 = 0$ ② $x^2 - 10x + 5 = 0$
③ $x^2 - 5x + 3 = 0$ ④ $x^2 - 3x + 5 = 0$
⑤ $x^2 + 3x - 5 = 0$

23. 집합 $A = \{1, 2, 3, 4, 5, 6\}$의 부분집합 중에서 3의 배수를 원소로 갖고 있는 집합의 개수는? (5점)

① 40 ② 44 ③ 48 ④ 52 ⑤ 56

24. 양의 정수 a, b에 대하여
$$\log_5(a-2) + \log_5(4-b) = 1$$
일 때, ab의 값은? (5점)

① 15 ② 18 ③ 21 ④ 24 ⑤ 27

25. $\displaystyle\lim_{x \to \infty} (\sqrt{x^2 + ax} - \sqrt{x^2 - ax}) = 4$일 때, 실수 a의 값은? (5점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

26. 다항함수 $f(x)$가
$$\lim_{h \to 0} \frac{f(2+3h) - f'(2)}{2h} = 3$$
을 만족시킬 때, $f(2)f'(2)$의 값은? (5점)

① 4 ② 5 ③ 6 ④ 7 ⑤ 8

27. 두 곡선 $y = x^2 - 4$와 $y = -x^2 + 4x + 2$로 둘러싸인 영역의 넓이는? (5점)

① $\dfrac{56}{3}$ ② $\dfrac{58}{3}$ ③ 20 ④ $\dfrac{62}{3}$ ⑤ $\dfrac{64}{3}$

28. 양의 실수 x에 대하여 $-x^2 + 2ax + a - 6 < 0$이 항상 성립하기 위한 실수 a의 범위는? (7점)

① $a < 2$ ② $a > 2$
③ $-3 < a < 2$ ④ $-3 < a$
⑤ $-2 < a < 3$

29. 두 원 $x^2 + y^2 = 1$과 $x^2 + (y+3)^2 = 4$의 공통접선으로 이루어진 영역의 넓이는? (7점)

① $\sqrt{2}$ ② 2 ③ $2\sqrt{2}$ ④ 4 ⑤ $4\sqrt{2}$

30. 첫째항이 35이고 공차가 -3인 등차수열 $\{a_n\}$에 대하여, $\displaystyle\sum_{k=3}^{24} |a_k|$의 값은? (7점)

① 362 ② 365 ③ 368 ④ 371 ⑤ 374

31. 삼차방정식 $x^3+1=0$의 한 허근을 ω라 할 때, $(1-\omega^{2020})(1-\overline{\omega}^{2020})$의 값은? (단, $\overline{z}$는 복소수 z의 켤레복소수) (7점)

① -3　② -1　③ 1　④ 3　⑤ 5

32. 곡선 $y=|(x-2)^2-1|$과 직선 $y=a$가 서로 다른 네 점에서 만나고, 만나는 점들의 x좌표는 등차수열을 이룬다. 이때, 실수 a의 값은? (7점)

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

33. 좌표평면 위의 점 $(4,5)$를 지나는 직선 l이 포물선 $y=\dfrac{1}{4}x^2$과 두 점 $\mathrm{P, Q}$에서 만난다. $\overline{\mathrm{PQ}}$의 길이가 최소가 되도록 하는 l의 기울기를 a, 이때의 $\overline{\mathrm{PQ}}$의 길이를 b라 할 때, $10a+b$의 값은? (10점)

① 16　② 17　③ 18　④ 19　⑤ 20

34. 두 사람이 각각 색깔이 서로 다른 주사위 두 개를 동시에 던지는 시행에서 나온 눈의 수의 합이 소수인 사람이 이긴다고 하자. 어느 한 사람이 이길 때까지 이 시행을 반복할 때, 시행횟수가 2 이상일 확률은? (단, 두 사람 모두 나온 눈의 수의 합이 소수이면 무승부) (10점)

① $\dfrac{31}{72}$　② $\dfrac{11}{24}$　③ $\dfrac{35}{72}$　④ $\dfrac{37}{72}$　⑤ $\dfrac{13}{24}$

35. 확률변수 X가 평균이 m이고 분산이 σ^2인 정규분포를 따른다고 하자.
$$P(X \le 2) = P(2 \le X \le 20) = 0.3$$
일 때, $\sigma - m$의 값은?
(단, 확률변수 Z가 표준정규분포를 따를 때, $P(Z \le 0.25)=0.6$, $P(Z \le 0.5)=0.7$로 계산) (10점)

① 8　② 10　③ 12　④ 14　⑤ 16

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

2020학년도 재외국민과 외국인 특별전형 필기고사 답안지
- 자연계열 -

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