2021학년도 재외국민과 외국인 특별전형 필기고사 문제

- 자연계열 -

모집단위	
수험번호	
성명	

※ 감독자의 지시가 있을 때까지 다음 장으로 넘기지 마시오.

영어(1~20번) [100점 만점]

[1~6] 다음 빈칸에 들어갈 가장 적절한 것은?

1. We often fear what we seek, which is the pleasure of experience. A good writer gives us a(n) _____ picture of life, which the reader appreciates without fear but with full commitment.

① faithful   ② extra
③ constant   ④ artistic
⑤ pointless

2. Reading also improves your brain function because it enhances connectivity among the cells in the brain. Reading may slow the _____ in both memory and perception that come with old age. Some researchers even suggest that reading can help in preventing Alzheimer's disease.

① disclosure   ② decline
③ devotion   ④ discipline
⑤ distinction

3. To _____ feelings of characters is an important part of reading because you can understand the underlying motives of the characters.

① discriminate   ② comprehend
③ ridicule   ④ complete
⑤ avoid

4. Aging is an economic challenge because unless retirement ages are _____ increased so that older members of society can continue to contribute to the workforce (an economic imperative that has many economic benefits), the working-age population falls at the same time as the percentage of dependent elders increases.

① superficially   ② scarcely
③ insignificantly   ④ drastically
⑤ irrelevantly

5. Farming allowed people to settle down instead of moving around all the time. This new _____ lifestyle allowed humans to develop settlements with higher populations, division of labor, trade, political structures, writing, and much more.

① sedentary   ② vigorous
③ autonomous   ④ nomadic
⑤ rigorous

6. Because of the rich environmental conditions, both marine and land creatures frequent mudflats to lay their eggs. When they hatch, the young animals are provided with a(n) _____ supply of food.

① sanitary   ② intangible
③ inadequate   ④ valuable
⑤ abundant

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

7.

As you may expect, forced perspective ① comes from imagination and creativity, ② which are, no doubt, very important abilities for success in life. There is nothing as ③ bored as always thinking the same thing as others and having an ordinary interpretation of the world. Throughout human history, continuous development and progress ④ have come from new ideas and novel interpretations. It is necessary to reject ordinary thoughts and try to see the world differently. You don't have to fear failure because there are new things ⑤ that you can learn from this approach.

8.

By observing her mother, Mary learned the practice of traditional Jamaican medicine. Mary also traveled widely ① to take care of sick people. When she ② has visited Panama in 1851, Mary managed to save her first cholera patient, and in so doing she gained extensive knowledge of this disease. In fact, she herself ③ contracted and recovered from it while in Panama. ④ Having overcome many difficulties, she gained a reputation for her work in ⑤ treating cholera and other diseases.

9.

The hare ① was disappointed at losing the race, so he thought about what had happened. He realized that he ② had lost the race because he had been overconfident and careless. Had he not taken things for granted, the tortoise could not ③ beat him. So he ④ challenged the tortoise to another race. The tortoise agreed. This time, the hare went all out and ran without stopping from start to finish. He ⑤ won by several miles.

10.

It takes a lot of practice to rap well because exciting rhythms should be creatively and effectively ① combined with strong language. Rappers tell a story in their lyrics using language rhythmically. That is, they rely on intricately ② constructed rhymes and say powerful words with exciting rhythms. This way of delivery sets rap apart from talking. In rap, you are not just talking. You are ③ expressing yourself poetically with ④ animating rhythms in the background. An effective rap artist often plays with and changes the way words and phrases are normally said in order to make them fit the flow of the music. For instance, the word "California" could be ⑤ pronouncing "Cali-forn-eye-ay." This is an unexpected change and, if it suits the situation, a delightful one.

11. 다음 글의 제목으로 가장 적절한 것은?

Although Guier and Weiffenbach found this fascinating, tracking satellites was not exactly part of their duties. Their director, Frank McClure, called them into his office, suspecting that they had been wasting their time. He asked them to explain the thing they had been working on. As Guier and Weiffenbach explained themselves, an idea flashed through McClure's mind. "If we can figure out where the satellite is," McClure said, "then can't we do the opposite and use the satellite to figure out where we are?" This turned out to be a revolutionary insight. Not only could radio signals be measured to track a satellite from the ground, but by measuring the distance from the satellite to the receiver, the receiver's precise location could be determined as well. This is the fundamental concept behind modern GPS.

① How the Concept of GPS Was Originated
② GPS as a Gift from Modern Science
③ Tips on How to Gain Revolutionary Insights
④ Theory on How Satellites Orbit Earth
⑤ How to Calculate the Location of Satellites

12. 다음 글의 목적으로 가장 적절한 것은?

When people state opinions in articles, speeches, debates, or advertisements, they often give some statistics to support or reinforce their point. If these statistics are found through proper research methods, then they are objective facts. However, many statistics that you see and hear could just be numbers that are meant to convince you of a certain view. Therefore, the next time you come across some statistics, don't blindly accept any data that is presented. Look at the statistics in detail with a critical eye, and then judge whether or not they are convincing.

① to advertise statistics as a research method
② to emphasize the importance of statistics
③ to inform readers of various research methods
④ to advise readers to look at statistics carefully
⑤ to criticize statisticians with prejudiced opinions

13. 다음 글의 내용과 일치하는 것은?

Kate Seredy was born in 1899, in Budapest, Hungary. Her father, a teacher, helped her develop an appreciation for books. After high school she earned an art teacher's diploma from the Academy of Arts in Budapest and also spent time studying in Italy, France, and Germany. She served as a nurse for two years during World War I, and the pacifist stance she subsequently developed later influenced her writing. Seredy illustrated two children's books in Hungary before moving to the United States in 1922. She supported herself in her new homeland by illustrating lamp shades and greeting cards. As her knowledge of English increased, she found work illustrating textbooks and children's trade books. Seredy wrote her first book, *The Good Master*, after an editor suggested she try writing about her childhood in Hungary. Seredy won the Newbery Medal in 1938 for *The White Stag*, a book based on legends about the founding of Hungary that her father told her as a child.

* pacifist 평화주의적인

① Seredy supported herself in Hungary by illustrating lamp shades and greeting cards.
② Seredy won the Nobel Prize in 1938 for *The White Stag*.
③ Seredy earned an art teacher's diploma in France after high school.
④ Seredy served as a reporter for two years during World War I.
⑤ Seredy wrote a book, *The Good Master*, based on her childhood in Hungary.

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

In 1985, Joe Simpson (25 years old) and Simon Yates (21 years old) were about to be the first people to get to the top of the impressive west face of Siula Grande in the Peruvian Andes. _____(A)_____ it took a lot longer than they expected due to unpredictable weather and rough ice cliffs, they successfully made it to the top on the fourth day of their journey.

_____(B)_____, as soon as Joe and Simon had reached the summit, Simon saw another snow storm coming from the east. _____(C)_____, storm clouds were quickly approaching the north ridge as the two men started heading down the mountain. The climbers, who were not used to dealing with snow storm, decided to descend in zero visibility. Whenever they faced life-threatening situations on their climb, they were able to save each other from deadly accidents despite the bad weather.

	(A)		(B)		(C)
①	Although	--	However	--	Thus
②	Because	--	However	--	Moreover
③	Although	--	Moreover	--	Thus
④	Because	--	Moreover	--	Therefore
⑤	Although	--	However	--	Moreover

15. 다음 문장이 들어갈 가장 적절한 곳은?

Then they investigated the pianists' brain activity.

When people listen to music, they might think that only the perceptual areas of the brain, like auditory areas, are activated. (A) However, their perceptual system can also activate their action system even when they are simply listening to music. (B) In an experiment, researchers played two kinds of music for pianists: a new piece of music and a familiar piece that the pianists could play. (C) When they listened to the piece they could play, not only were the auditory perception areas in their brains activated, but also the action preparation parts as well. (D) In other words, the pianists perceived the piece they could play using the action planning part of the brain, most likely through mirror neurons. (E) This is why when you listen to a piece of music you can play, you move your hands and nod as if you were actually playing the song yourself.

① (A)
② (B)
③ (C)
④ (D)
⑤ (E)

16. 주어진 글 다음에 이어질 글의 순서로 가장 적절한 것은?

We use metaphor almost every time we write or speak, often without realizing it.

(A) Becoming aware of how metaphor is used in language is very important in language learning. It can help you improve your understanding of how English works.
(B) If you develop the habit of thinking about language in this way, you will learn vocabulary more effectively and deepen your understanding of language.
(C) Next time you come across a metaphor, think about how its metaphorical meaning might be connected to its literal meaning.
(D) Now that you know how useful metaphor is, you can dive into the sea of metaphor without fear!

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

17. 주어진 대화 다음에 이어질 대화 순서로 가장 적절한 것은?

A: Look, there's an interesting article about Korea's tourism industry in today's newspaper.

B: Let me see. This graph in the article indicates that the number of international tourists is on the increase.

(1) Yeah, I think the Korean Wave is attracting more and more international visitors to Korea.
(2) Then, maybe my writing skills will come in handy in the future.
(3) That's right. I'm sure you will be a wonderful writer.
(4) You know, nothing compares to the power of good stories these days.
(5) How?

① (3) - (5) - (1) - (4) - (2)
② (1) - (2) - (4) - (3) - (5)
③ (2) - (3) - (1) - (4) - (5)
④ (1) - (2) - (5) - (4) - (3)
⑤ (3) - (1) - (5) - (2) - (4)

18. 다음 글에서 전체 흐름과 가장 관계 없는 문장은?

By the time Holman arrived in Naples in 1821, he had become an expert traveler. ① He even became the first blind man to ascend Mount Vesuvius. ② At the time of his ascent, the mountain was in the middle of intense volcanic activity. ③ The volcanic activity was a threat to the people living near the mountain. ④ As Holman and his two companions approached the unstable edge of the volcano, the ground became almost too hot to walk on. ⑤ His companions wanted to turn back, but Holman was unafraid. He courageously proceeded until he reached the summit.

19. 다음 중 Merian's book에 대한 작가의 태도로 가장 적절한 것은?

After almost 20 years of hard work, Merian published a book about insects in 1679. There had already been books about insects, but Merian's was special. While no other books had ever depicted the full life cycle of insects, Merian's showed each stage of metamorphosis in detail. In addition, Merian revealed the relationships between living things by illustrating insects within their natural surroundings. This was different from other drawings of the time, which displayed only single specimens on a plain background. In an era when most scientists perceived plants and animals individually, Merian paid attention to how they fit together.

① sympathetic
② indifferent
③ critical
④ obedient
⑤ respectful

20. 다음 글의 주제로 가장 적절한 것은?

Sadly enough, some of us have distorted lessons of happiness that developed in our childhood. Our experiences developed as we grew up in different systems, such as our original family, our religious community, and our neighborhood. Many of us believe that only a few of us experience true happiness. Most believe attaining true happiness is like winning the lottery, and only some of us are lucky enough to win it. Or maybe some of us believe in "works of righteousness" — a theology that says if you work hard enough at anything, you will receive what you work for. Any one of these theories of happiness is born of the philosophy that happiness is scarce. Looking around our world right now I would have to agree that true happiness is in short supply. But this is because we have bought into a belief system that teaches us that happiness is as scarce as hen's teeth.

① Attaining true happiness is like winning the lottery.
② It is important to find happiness in daily routines.
③ Children need to learn how to find true happiness.
④ Many people tend to believe that true happiness is scarce.
⑤ Theory and practice regarding happiness are reliable.

21. 다항식 $P(x) = x^3 + 2x^2 - x + a$가 $(x-1)(x+b)$로 나누어떨어지고 $x+1$로도 나누어떨어지게 하는 b의 최댓값은? (단, a, b는 상수) (5점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

22. 이차방정식 $x^2 - (a+1)x + a = 0$의 두 근 α, β가 $|\alpha - \beta| = 1$을 만족시킬 때, 상수 a의 값은?
(단, $\alpha\beta \neq 0$) (5점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

23. 원 $(x+1)^2 + (y-2)^2 = 2$를 x축의 방향으로 -3만큼 y축의 방향으로 a만큼 평행이동한 원이 직선 $y = -x - a$와 접할 때, 상수 a의 값은? (단, $a \neq 0$) (5점)
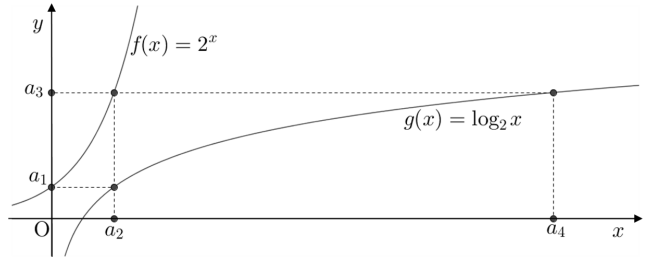
① 1 ② 2 ③ 3 ④ 4 ⑤ 5

24. 실수 x, y에 대하여 다음 명제 중에서 역이 참인 것은? (5점)
① $x = -y$이면 $x^2 = y^2$이다.
② $x > 0$이면 $|x| = x$이다.
③ $x > y$이면 $x^2 > y^2$이다.
④ $x > 0$이고 $xy > 0$이면 $x + y > 0$이다.
⑤ $xy = 0$이면 $x^2 + y^2 = 0$이다.

25. 두 일차함수 $f(x) = ax + b$, $g(x) = -2x + 6 + a$에 대하여 $(f \circ (g \circ f)^{-1})(a)$의 값은? (단, a, b는 상수) (5점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

26. 다음 그림은 두 함수 $f(x) = 2^x$, $g(x) = \log_2 x$의 그래프이다. $a_1 + a_4$의 값은? (5점)
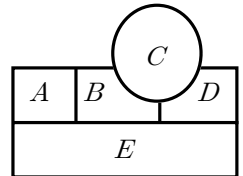

① 14 ② 15 ③ 16 ④ 17 ⑤ 18

27. $x = 1$에서 미분가능한 함수 $f(x)$에 대하여 곡선 $y = f(x)$ 위의 점 $(1, 2)$에서의 접선의 기울기가 2일 때, 곡선 $y = f(x)(f(x) - x)$ 위의 점 $(1, 2)$에서의 접선의 기울기는? (5점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

28. 오른쪽 그림과 같이 구분된 5개의 영역 A, B, C, D, E를 서로 다른 4가지 색 중 전부 또는 일부를 사용하여 칠하려고 한다. 같은 색을 여러 번 사용해도 좋으나 인접한 영역은 서로 다른 색으로 칠하는 경우의 수는? (7점)

① 72 ② 64 ③ 96 ④ 120 ⑤ 144

29. $\dfrac{1}{1 + \tan\theta} = \sqrt{2} - 1$일 때, $\sin^2\theta\cos\theta$의 값은?
(단, $0 < \theta < \dfrac{\pi}{2}$) (7점)

① $\dfrac{2\sqrt{3}}{9}$ ② $\dfrac{\sqrt{3}}{3}$ ③ $\dfrac{4\sqrt{3}}{9}$ ④ $\dfrac{5\sqrt{3}}{9}$ ⑤ $\dfrac{2\sqrt{3}}{3}$

30. 함수 $f(x) = \sin x - \sin^2 x$의 최댓값을 M, 최솟값을 m이라고 할 때, $M - m$의 값은? (7점)

① $\dfrac{3}{4}$ ② $\dfrac{5}{4}$ ③ $\dfrac{7}{4}$ ④ $\dfrac{9}{4}$ ⑤ $\dfrac{11}{4}$

31. 흰 공 $n+4$개, 검은 공 4개가 들어 있는 주머니에서 임의로 2개의 공을 동시에 꺼낼 때, 흰 공이 1개 이상 나올 확률이 $\dfrac{5}{6}$이다. 자연수 n의 값은? (7점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

32. 제약 회사 K에서 개발한 감염병 치료제 A를 환자에게 투여하였을 때, 환자가 치유될 확률이 0.9라고 한다. 치료제를 환자 100명에게 투여하였을 때, 96명 이상이 치유되면 임상실험 1단계를 통과한다.
치료제 A가 임상실험 1단계를 통과할 확률을 오른쪽 표준정규분포표를 이용하여 구한 것은? (7점)

z	P$(0 \le Z \le z)$
0.5	0.20
1.0	0.35
1.5	0.43
2.0	0.48

① 0.02 ② 0.07 ③ 0.15 ④ 0.3 ⑤ 0.43

33. 모든 항이 양수인 등비수열 $\{a_n\}$에 대하여
$$b_n = 3a_{2n+1} - a_{2n} \quad (n = 1, 2, 3, \cdots)$$
이다. 수열 $\{b_n\}$이 첫째항이 10이고 공비가 4인 등비수열이라할 때, a_4의 값은? (10점)

① 6 ② 7 ③ 8 ④ 9 ⑤ 10

34. 함수 $f(x)$가 모든 실수 x에 대하여
$$-x^2 + x \le f(x) \le x^2 + x$$
를 만족시킬 때, $\displaystyle\lim_{x \to 0+} \dfrac{x\{4x + f(x)\}}{\{f(x)\}^2}$의 값은? (10점)

① 1 ② 2 ③ 3 ④ 4 ⑤ 5

35. 함수 $f(x)$가 모든 실수 x에 대하여
$$f(x) = x^2 + x\int_0^1 f(t)\,dt + \int_0^1 tf(t)\,dt$$
를 만족시킬 때, $\displaystyle\int_0^1 f(x)\,dx$의 값은? (10점)

① -1 ② -2 ③ -3 ④ -4 ⑤ -5

2021학년도 재외국민과 외국인 특별전형 필기고사 답안지
- 자연계열 -

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