

# 2020학년도 재외국민과 외국인 특별전형 수강능력시험

## 자연계열



성명	
전형	
수험번호	

Questions 1~25 are English reading comprehension questions. Choose the best answer for each question and mark the number 1, 2, 3, 4, or 5 on your answer sheet.

[Questions 1-2]

Castells are human towers formed during annual festivals in Catalan towns and cities in Spain. The human towers are formed by teams of men who stand on the shoulders of one another in a series of stages. Each group can be identified by the color of the shirts. Human towers are recognized by the Catalan people as an essential part of their cultural identity and ① from generation to generation. Also, Castells provide community members with ②.

1. Which best fits into the blank ①? [1.5점]

- (1) transmit    (2) transmits    (3) transmitting    (4) transmitted    (5) to transmit

2. Which best fits into the blank ②? [2.1점]

- (1) a sense of unity  
(2) a feeling of love  
(3) a perspective of social change  
(4) a need of courage for the better change  
(5) a vision for success

[Questions 3-5]

Have you heard of augmented reality? Before you answer, try to put yourself in some different situations. Imagine yourself ③ down the street with a friend, and you suddenly see a jacket you like on someone else. You are able to look it up instantly. Feeling hungry, you drop into your favorite local hamburger shop. A display pops up to ④ you that you are in danger of consuming too much fat for the day. You are uncertain about your choice of a cheeseburger, but then decide to have it anyway. After the meal, you find a man ⑤ you find attractive. Naturally, you want to know more about him. Within seconds, you get his name, the number of friends he tweets with and even every word of his last post. These are possible with an augmented reality (AR) system.

3. Which best fits into the blank ③? [1.5점]

- (1) walk    (2) walking    (3) to work    (4) works    (5) walked

4. Which least fits into the blank ④? [1.5점]

- (1) inform    (2) tell    (3) show    (4) warn    (5) argue

5. Which best fits into the blank ⑤? [1.5점]

- (1) whom    (2) for whom    (3) to whom    (4) with whom    (5) at whom

## [Questions 6-8]

I have seen many leaders use the power of a story of a personal flaw to great effect. The psychologists call it self-disclosure. One theory about why this works is that if I ⑥ you enough to show you my flaws, you can ⑦ me enough to show me yours. The experience of vulnerability without exploitation helps us conclude that we can ⑧ each other in other ways as well. ⑨, a new manager meeting his staff for the first time might choose to tell about his first management job when he spent all of his time telling people what to do and ended up getting reprimanded for driving them crazy with his controlling ways. It is a bit of a shock to hear your new boss talk about having been reprimanded. At a deep level we know that true strength is found not in perfection, but in understanding our own limitations.

\*reprimand 질책하다

6. Which best fits into the blank ⑥, ⑦, and ⑧ commonly? [1.5점]

- (1) analyze      (2) fight      (3) think of      (4) trust      (5) criticize

7. Which best fits into the blank ⑨? [1.5점]

- (1) Thus      (2) However      (3) For example      (4) Accordingly      (5) Moreover

8. Which is the most suitable sentence that can be placed at the end of the passage? [2.8점]

- (1) A leader who demonstrates this self-knowledge demonstrates strength.  
 (2) Thus, try to understand your new bosses when they show their imperfection.  
 (3) A personal flaw is a negative component of this true strength.  
 (4) However, our own limitations appear to contribute to our success.  
 (5) You need to share the information with your bosses as well as your colleagues.

## [Questions 9-11]

For a long period in human evolution, our ancestors lived as hunter-gatherers. Moving across plains and mountains to hunt game and gather nuts and berries was necessary to our survival. [A] Physical activity seems to be programmed into our genes. But the amount of activity that young kids, adults, and senior citizens get today is usually well below what we are genetically predisposed to do. [B] The consequences of a sedentary existence are evidenced by ill health in body and mind. Children who are more physically fit perform better on academic tests. [C] Elderly people who are active have a lower risk and incidence of memory loss and loss of other important cognitive functions. [D] Providing kids with opportunities to be active and to exercise helps sharpen their mental as well as their physical muscles. And a regular ⑩ regimen for adults helps prevent mental decline. [E]

\*sedentary 주로 앉아서 하는      \*\*regimen 요법, 처방

9. Where does the sentence below best fit in the above passage? [2.8점]

This means that our minds and bodies evolved in the setting of an active lifestyle.

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

10. Which of the following words is closest in meaning to the underlined word, “predisposed”? [1.5점]

- (1) cleared              (2) practiced              (3) inclined              (4) initiated              (5) tortured

11. Which best fits into the blank ㉑? [1.5점]

- (1) work                  (2) memory                  (3) cure                  (4) exercise                  (5) meditation

[Questions 12-14]

Traditional cultures tend to produce aesthetic objects that we associate with “craft” rather than “art,” in part because they are typically functional objects — clothing, baskets, water vessels, hunting weapons, and so on. These artifacts have often been collected in the West, but not always by art museums — more typically they’re found in “natural history” museums. We don’t value these objects because they seem to be mostly imitative, and our conception of creativity is almost exclusively focused on originality. But imitation is a long-established, deep-rooted form of cultural transmission, even in European fine arts. For many centuries, and in many different societies, the ability to imitate and reproduce the acknowledged masters were highly valued; and developing this skill through practice was how one learned one’s craft. Yet as Nicholas Delbanco, a distinguished American writer, noted, “We’ve grown so committed as a culture to the ideal of originality that the artist who admits to ㉑ in the manner of another artist will likely stand accused of being second-rate.”

12. Choose a grammatically incorrect part of the underlined sentence. [2.1점]

- (1) For many centuries                      (2) in many different societies  
(3) to imitate and reproduce              (4) the acknowledged masters  
(5) were highly valued

13. Which best fits into the blank ㉑? [1.5점]

- (1) work                  (2) works                  (3) worked                  (4) working                  (5) a work

14. Which of the following can be inferred from the passage? [2.8점]

- (1) Imitation is the mother of artistic creativity.  
(2) Nicholas Delbanco is not interested in functional objects as historical relics.  
(3) Originality is far more important than imitation.  
(4) Every society has its own concept of creativity.  
(5) Modern artists avoid imitative work.

## [Questions 15-18]

Focus groups are commonly used in marketing but in some countries there are very real problems with them. Since it is difficult to recruit random people to be in focus groups, research agencies have developed large pools of consumers willing to take part in focus groups at short notice. However, the problem is that many of these consumers are too ⑫. Research has revealed that many consumers enjoy the pay, free food, and experience of being an expert and focus on pleasing the moderator in order to get invited back regularly. Unfortunately, the way to please the very human moderator seems to be to work out what they want to hear, rather than providing them with genuine insights about the brand. This makes much of the data gained from focus-group panels worthless. Agencies are aware of this problem and ensure a churn rate within groups to keep them fresh, but ⑬consumers get around this by using multiple names.

\*churn rate 참가중단율

15. What would be the best title for this passage? [2.1점]

- (1) Usefulness of Focus Group Interview
- (2) Potential Flaws in Focus Group Interview
- (3) Reliability of Consumer Reaction
- (4) How to Get Consumers' Opinions About a Brand
- (5) How to Improve Research Methods of Qualitative Studies

16. Which best fits into the blank ⑫? [1.5점]

- (1) smart            (2) arrogant            (3) shameless            (4) willing            (5) challenging

17. Why do consumers act like what is described in ⑬? [2.1점]

- (1) For self-actualization
- (2) In order to remain in the pool
- (3) To lower a churn rate
- (4) In order to maintain their self-esteem
- (5) Because they want to learn about the target brand

18. Which of the following can be inferred from the passage? [2.8점]

- (1) The more consumers are paid for an interview, the more satisfied they will be.
- (2) Focus group interview is the most effective way of marketing research.
- (3) Research agencies are well equipped with statistical analysis systems.
- (4) Consumers are sensitive to opinions from focus group interview.
- (5) Focus group members are so wise that they offer objective opinions.

## [Questions 19-21]

As we all know, even the best- ⑭ plans can go astray. It is therefore important that you keep in mind the possibility of plans going wrong, and maintain flexibility in your plans. If a given strategy or allocation of resources does not succeed, then you must be ready to change to another plan or set other priorities for resource allocation. For example, one of the most ⑮ strategies in taking a test is that of spending too long on a given problem. Occasionally, you may find that a problem you had thought you could solve in a reasonable amount of time is taking much longer than you had anticipated. Just as you have to know when and how to start a problem, you also have to know when and how to stop. Sometimes the best decision is just to give up and to move on.

19. Which best fits into the blank ⑭-⑮? [2.1점]

- (1) laid - damaging                      (2) lying - damaging                      (3) laid - damaged  
(4) laying - damaged                      (5) lain - damaging

20. Which of the following is closest in meaning to the underlined word, "anticipated"? [1.5점]

- (1) believed              (2) predicted              (3) solved              (4) forgiven              (5) analyzed

21. Which of the following is not an advice that the author would give in the passage? [2.8점]

- (1) Get ready for Plan B in case things change.  
(2) Come up with another plan when something goes wrong unexpectedly.  
(3) Plan your time carefully on taking a test.  
(4) Be flexible for effective time management in a test.  
(5) Do your best on a test, taking as much time as you can for every question.

[Questions 22-23]

[A] The 2008 winners of the annual awards for sustainable tourism all demonstrate that best practice in tourism is far-reaching, and extends beyond what was once understood to constitute tourism — mainly just planes, hotels, and beaches. As an example, the winner of the poverty reduction award was an initiative in which both local farmers and tourists benefit.

[B] At the same time, the country's travel foundation, one of the funding organizations, and the initiative have launched their own farmyard - to demonstrate best practice and to become a tourist attraction on its own merits. Taking tourists to the farmyard, for example, is one way in which they can see how their contribution to sustainability is working.

[C] The hoteliers in this award-winning nation have traditionally imported much of their food while ignoring local farmers whose produce was going to waste. Now, 1,000 farmers, most of whom are women, have been helped to supply local hotels.

\*hotelier 호텔경영자

22. What is the most suitable order of the paragraphs of the passage? [2.6점]

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

23. Considering changing trends in tourism described in the passage, who or which would probably be the best candidate for the 2009 winner of this award?

[2.8점]

- (1) A travel company which launched an easy-to-use website for booking flights  
 (2) A civil servant who improved tourists' VISA application process  
 (3) A local government that designed a theme park for disabled people  
 (4) An hotel that remodeled its lobby into an art gallery  
 (5) A fisherman's union which developed fishing and cooking experience programs for tourists

## [Questions 24-25]

There is no such thing as pure objectivity. You are not a machine. No matter how hard you may try to produce an objective paper, the fact is that every choice you make as you write is influenced to some extent by your personal beliefs and opinions. What you tell your readers is truth, in other words, is influenced, sometimes without your knowledge, by a multitude of factors: your environment, upbringing, and education; your attitude toward your audience; your career goals; and your ambitions for the paper you are writing. The influence of such factors can be very subtle, and it is something you must work to identify in your own writing and in the writing of others in order not to mislead or to be misled. Remember that one of the reasons for writing is ㉞. The writing you will do in the classes — and for the rest of your life — will give you a chance to discover and confront honestly your own views on your subjects. Responsible writers keep an eye on their own biases and are honest about them with their readers.

24. What would be the best title for this passage? [2.1점]

- (1) Attract Audience to Your Writing
- (2) Watch out for Bias When You Write
- (3) Do Not Forget the Reason Why You Write
- (4) Tell Your Readers the Truth
- (5) Do Not Write like a Machine

25. Which best fits into the blank ㉞? [1.5점]

- |                   |                    |                  |
|-------------------|--------------------|------------------|
| (1) self-efficacy | (2) reflection     | (3) storytelling |
| (4) image-making  | (5) self-discovery |                  |



26. 집합  $X = \{1, 2, 3\}$ 에서  $X$ 로의 세 함수  $f, g, h$ 가 각각 일대일 대응, 항등함수, 상수함수이다.  
 $f(1) = g(1) = h(1)$ ,  $f(2) = g(2) + h(2)$ 일 때,  $f(3) + g(3) + h(3)$ 의 값을 구하시오. [1.5점]

- (1) 4                      (2) 5                      (3) 6                      (4) 7                      (5) 8

27. 7명의 학생으로 구성된 동아리에서 대표 2명을 임의로 뽑을 때, 적어도 한 명의 여학생이 포함되도록 뽑는 경우의 수가 15이다. 이 동아리의 여학생 수는? [1.5점]

- (1) 2                      (2) 3                      (3) 4                      (4) 5                      (5) 6

28. A, B, C를 포함한 10명의 유도선수 중에서 대회에 출전할 3명의 선수를 임의로 뽑을 때, A, B, C 중 적어도 2명이 뽑힐 확률은? [2.1점]

- (1)  $\frac{11}{60}$                       (2)  $\frac{23}{120}$                       (3)  $\frac{1}{5}$                       (4)  $\frac{5}{24}$                       (5)  $\frac{13}{60}$

29. 확률변수  $X$ 가 평균이 55, 표준편차가  $\sigma$ 인 정규분포를 따르고  $P(X \leq 3) = 0.3$ 일 때,  $\sigma$ 의 값을 구하시오. (단,  $Z$ 가 표준정규분포를 따르는 확률변수일 때,  $P(0 \leq Z \leq 0.52) = 0.2$ 로 계산한다.) [2.1점]

- (1) 80                      (2) 85                      (3) 90                      (4) 95                      (5) 100

30. 실수  $x$ 에 대한 두 조건  $p, q$ 가 다음과 같다.

$$p: x^2 - 4x + 3 > 0, \quad q: x \leq a$$

$\sim p$ 가  $q$ 이기 위한 충분조건이 되도록 하는 실수  $a$ 의 최솟값은? [1.5점]

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

31. 명제

‘모든 실수  $x$ 에 대하여  $x^2 - kx + 3 \geq 0$ ’이 참이 되도록 하는 정수  $k$ 의 개수는? [1.5점]

- (1) 5                      (2) 7                      (3) 9                      (4) 11                      (5) 13

32. 함수  $f(x) = -x + b$ 의 정의역이  $X = \{x \mid -1 \leq x \leq a\}$ 이고 치역이  $Y = \{y \mid 2 \leq y \leq 5\}$ 의 부분집합일 때, 역함수  $f^{-1}: Y \rightarrow X$ 가 존재하도록 하는 상수  $a, b$ 의 합  $a + b$ 를 구하면? [2.1점]

- (1) 6                      (2) 8                      (3) 10                      (4) 11                      (5) 13

33. 이차방정식  $x^2 - x + 2 = 0$ 의 두 근을  $\alpha, \beta$ 라고 할 때,  $(1 - \alpha)(1 - \beta)$ 과  $\alpha^3 + \beta^3$ 의 값을 차례로 구하면? [2.1점]

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

34. 닫힌 구간  $[-2, 3]$ 에서 함수  $f(x) = 2x^3 - 6x - 4$ 의 최댓값을  $M$ , 최솟값을  $m$ 이라 할 때,  $M + m$ 의 값은? [2.1점]

- (1) 7                      (2) 13                      (3) 17                      (4) 20                      (5) 24

35. 함수  $f(x) = \frac{2x+2}{x-3}$ 의 그래프가 점  $(a, b)$ 에 대하여 대칭이고,  $x$ 축과 만나는 점이  $(c, 0)$

일 때,  $a + b + c$ 의 값은? [1.5점]

- (1) 3                      (2) 4                      (3) 5                      (4) 6                      (5) 7

36. 함수  $f(x) = 3 - \sqrt{2-x}$ 의 정의역은  $\{x|x \leq a\}$ 이고 치역은  $\{y|y \leq b\}$ 일 때,  $f(b-a)$ 의 값은? (단,  $a, b$ 는 상수이다.) [1.5점]

- (1) 1                      (2) 2                      (3) 3                      (4) 0                      (5) -1

37. 집합  $X = \{1, 2, 3, 4, 5\}$ 에 대하여 함수  $f: X \rightarrow X$ 를  $f(1) = f(2) = 3$ ,  $f(3) = 4$ ,  $f(4) = 5$ ,  $f(5) = 1$ 으로 정의한다.  $(f \circ f)(2) + (f \circ f \circ f)(3)$ 의 값을 구하면? [1.5점]

- (1) 4                      (2) 5                      (3) 6                      (4) 7                      (5) 8

38. 좌표평면에서 곡선  $y = \frac{1}{x-4} + 3$ 과  $x$ 축,  $y$ 축으로 둘러싸인 영역의 내부에 포함되고  $x$ 좌표와  $y$ 좌표가 모두 자연수인 점의 개수는? (단, 내부에는 경계선이 포함되지 않는다.) [2.4점]

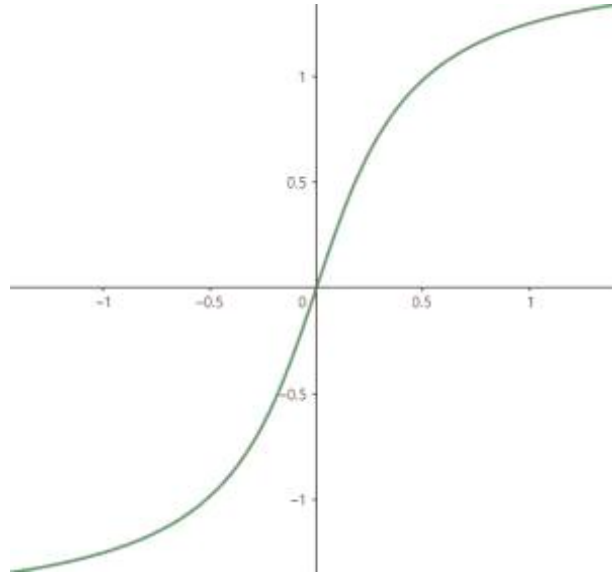
- (1) 2                      (2) 3                      (3) 4                      (4) 5                      (5) 6

39. 2와 20사이에  $n$ 개의 수를 넣어 만든 등차수열  $2, a_1, a_2, a_3, \dots, a_n, 20$ 의 모든 항의 합이 605일 때,  $a_5$ 의 값은? [2.1점]

- (1) 7                      (2)  $\frac{9}{2}$                       (3)  $\frac{11}{3}$                       (4)  $\frac{13}{4}$                       (5) 3

※ 40번과 41번은 세트형 문제입니다. 아래 제시문을 보고 물음에 답하십시오.

$f(x)$ 가 모든 실수  $x$ 에 대하여  $f(-x) = -f(x)$ 를 만족하고 이계도함수가 존재하며 함수  $y = f(x)$ 의 그래프는 다음과 같다.



40.  $f'(-0.5)$ ,  $f''(-0.5)$ ,  $f''(0.5)$ 의 부호를 차례대로 나열한 것은? [1.5점]

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

41. 위의 함수  $f(x)$ 에 대하여

$$F(x) = \int_{-1}^x f(t) dt, \quad -1 \leq x \leq 1$$

로 정의할 때, 아래 <보기>에서 옳은 것만을 모두 고른 것은? [2.8점]

- Ⓐ  $F(0.5) < 0$ 이다.  
 Ⓑ  $F(x) = 0$ 이 되는  $x$ 가 열린 구간  $(-1, 1)$ 에 존재한다.  
 Ⓒ  $F(x)$ 는 증가함수이다.  
 Ⓓ  $F'(x)$ 는 증가함수이다.

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

42. 곡선  $y = \ln x$  위의 점  $(2, \ln 2)$ 에서의 접선이  $x$ 축과 만나는 점의  $x$ 좌표를  $a_1$ , 곡선 위의 점  $(a_1, \ln a_1)$ 에서의 접선이  $x$ 축과 만나는 점의  $x$ 좌표를  $a_2$ 라 한다. 이와 같이 곡선 위의 점  $(a_n, \ln a_n)$ 에서의 접선이  $x$ 축과 만나는 점의  $x$ 좌표를  $a_{n+1}$ 이라 할 때, 수열  $\{a_n\}$ 에 대하여  $\lim_{n \rightarrow \infty} a_n$ 을 구하면? [1.5점]

- (1)  $e$                       (2) 1                      (3) 0.5                      (4) 0                      (5) -1

43. 다음 <보기>에서 옳은 것만을 모두 고른 것은? [2.5점]

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="flex-grow: 1; border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="text-align: center; font-weight: bold;">&lt;보기&gt;</div> <div style="flex-grow: 1; border-bottom: 1px solid black; margin-bottom: 5px;"></div> </div> <div style="padding: 5px;"> <p>㉠ 급수 <math>\sum_{n=1}^{\infty} a_n</math>이 수렴하면 <math>\lim_{n \rightarrow \infty} a_n = 0</math>이다.</p> <p>㉡ 급수 <math>\sum_{n=1}^{\infty} a_n</math>이 수렴하면 <math>\sum_{n=2020}^{\infty} a_n</math>도 수렴한다.</p> <p>㉢ <math>-1 \leq r &lt; 1</math>인 모든 실수 <math>r</math>에 대하여 <math>\sum_{n=1}^{\infty} r^{n-1} = \frac{1}{1-r}</math>이 성립한다.</p> <p>㉣ 급수 <math>\sum_{n=1}^{\infty} \frac{1}{n(n+1)}</math>의 값은 1보다 작다.</p> </div>
---

- (1) ㉠ ㉡                      (2) ㉠ ㉢                      (3) ㉠ ㉣                      (4) ㉡ ㉢                      (5) ㉡ ㉣

44. 곡선  $y = x^2$ 과  $x$ 축 및 두 직선  $x = 1$ ,  $x = 2$ 로 둘러싸인 도형을 밑면으로 하는 입체 도형이 있다. 이 입체도형을  $x$ 축에 수직인 평면으로 자른 단면이 모두 정사각형일 때, 이 입체도형의 부피는? [1.5점]

- (1) 3                      (2)  $\frac{15}{4}$                       (3)  $\frac{31}{5}$                       (4)  $\frac{16}{5}$                       (5) 4

45.  $f(x) = \sin^2 x$ 일 때, 다음 극한값은? [2.1점]

$$\lim_{x \rightarrow \frac{\pi}{4}} \frac{f(x) - f\left(\frac{\pi}{4}\right)}{x^2 - \frac{\pi^2}{16}}$$

- (1) 1                      (2)  $\frac{1}{\pi}$                       (3)  $\sqrt{2}$                       (4)  $\frac{2}{\pi}$                       (5) 2

46. 함수  $f(x) = e^x$ 에 대하여  $\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{k}{n^2} f\left(\frac{k}{n}\right)$ 의 값은? [2.4점]

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

47. 첫째항이 1이고 공비가  $\frac{1}{4}$ 인 등비수열  $\{a_n\}$ 에 대하여 넓이가  $a_n$ 인 정사각형의 한 대각선의 길이를  $l_n$ 이라 하자.  $\sum_{n=1}^{\infty} l_n$ 의 값은? [2.5점]

- (1) 1                      (2)  $\sqrt{2}$                       (3) 2                      (4)  $2\sqrt{2}$                       (5)  $\frac{3\sqrt{2}}{2}$

48. 함수  $f(x) = \begin{cases} x^2 + x + a & (x < 1) \\ -x^2 + bx + 2 & (x \geq 1) \end{cases}$ 이  $x = 1$ 에서 미분가능할 때, 두 상수  $a, b$ 에 대하여  $a + b$ 의 값은? [2.1점]

- (1) -6                      (2) -3                      (3) 3                      (4) 6                      (5) 9

49. 실수 전체의 집합에서 미분가능한 두 함수  $f(x), g(x)$ 가 있다.  $f(x)$ 가  $g(x)$ 의 역함수이고  $f(1) = 2, f'(1) = 3$ 이다. 함수  $h(x) = x\{g(x)\}^2$ 라 할 때,  $h'(2)$ 의 값은? [2.8점]

- (1) 1                      (2)  $\frac{4}{3}$                       (3)  $\frac{5}{3}$                       (4) 2                      (5)  $\frac{7}{3}$

50. 정의역이  $\left\{x \mid -\frac{\pi}{2} \leq x \leq \frac{\pi}{2}\right\}$ 인 두 함수  $y = \cos x$ 와  $y = -\cos 2x$ 가 있다. 좌표평면에서 두 함수의 그래프에 의해 완전히 둘러싸인 부분의 넓이는? [2.8점]

- (1)  $\sqrt{2}$                       (2)  $\frac{3\sqrt{2}}{2}$                       (3)  $\sqrt{3}$                       (4)  $\frac{3\sqrt{3}}{2}$                       (5) 2