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**2021학년도**  
**재외국민과 외국인 특별전형 수강능력시험**

**자연계열**



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Directions for questions 1~25: In this part you will read a selection of English texts. Each text is followed by several questions. Choose the best answer for each question and mark the number (1), (2), (3), (4), or (5) on your answer sheet.

## [Questions 1-3]

Severe depression is not something people can pull themselves out of any more than they can pull themselves out of congestive heart failure, kidney disease, or gallstones. When patients with congestive heart failure develop difficulty breathing, they are usually grateful for \_\_\_\_①\_\_\_\_ that relieves their distress. They \_\_\_\_②\_\_\_\_ believe they can handle such illnesses themselves because they have no sense of being in control over the workings of their heart. We also do not sense our brains at work, but we feel in control of our minds. This sense of being in control of our minds allows those with depression to believe they can pull themselves out of severe depression. In my experience, once older adults understand that depression is a disease of the brain, and not something they have control over, they become more open to considering \_\_\_\_③\_\_\_\_. It's not that they can't handle their problems any longer; rather, their brain has let them down. I often say to my patients, "\_\_\_\_④\_\_\_\_"

\*congestive heart failure 울혈성 심부전 \*\*gallstone 담석

1. Which best fits into the blank ① and ③ commonly? [1.5점]

- (1) advice      (2) environment      (3) treatment      (4) recovery      (5) operation

2. Which best fits into the blank ②? [1.5점]

- (1) rarely      (2) clearly      (3) usually      (4) accordingly      (5) yet

3. Which is the most suitable one that can be placed in ④? [2.1점]

- (1) No pain, no gain.  
 (2) Get used to depression.  
 (3) Just be yourself, keeping your body healthy.  
 (4) Forget about what you are mentally suffering from.  
 (5) It's not you; it's your brain.

## [Questions 4-7]

The cultural area is where the sky is truly the limit in regard to music. There are countless examples. Music is a wonderful avenue to introduce cultures from around the world. The many recordings depicting the traditional music of each culture are readily available for teachers to add to their collection. Also, musical recordings of the various instruments from countries around the world provide children with an auditory and visual representation of culture. It is important to include an \_\_\_ ⑤ \_\_\_ balance of multicultural materials in the classroom to ensure that each child's heritage is represented and all children are exposed to the heritage of other cultures. ⑥ Today the holistic classroom method draws and builds upon which the child already knows, engaging the child – since one learns best when passion and interaction are at play – and also addressing the needs of the whole child. Learning begins with the \_\_\_ ⑦ \_\_\_, progresses through to analysis of the parts, and finishes full circle with the \_\_\_ ⑧ \_\_\_ picture.

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

- (1) assured      (2) improper      (3) acknowledged      (4) unfavorable      (5) equitable

5. Choose a grammatically incorrect expression of the underlined part ⑥. [2.1점]

- (1) the holistic classroom method      (2) draws and builds      (3) which  
(4) the child      (5) knows

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

- |     | ⑦           | ⑧           |
|-----|-------------|-------------|
| (1) | expectation | whole       |
| (2) | engagement  | interactive |
| (3) | interaction | specific    |
| (4) | whole       | whole       |
| (5) | motivation  | clear       |

7. Which of the following can be inferred from the passage? [2.1점]

- (1) The levels to which music training and therapy can rise are limitless.  
(2) Pop music is a good source to understand cultural perspectives.  
(3) Teachers need to be good at selecting and presenting multicultural materials.  
(4) For cultural understanding, children must get interested in classical music.  
(5) Children who enjoy playing are ready to learn new aspects of culture.

## [Questions 8-10]

\_\_\_\_\_ ⑨ \_\_\_\_\_ is the main attribute distinguishing humans from animals. [A] It is the consciousness that enables us to ⑩ contemplate ourselves. Reflection is the power to turn one's consciousness upon oneself, to know oneself and, especially, to know that one knows. [B] Humans are the only creation in the universe who can be the object of their own reflection and, because of that, another world is born: an inner world, a reality in which no lower animal can ever participate. [C] Incapable of contemplating itself, or of being aware of itself as the conscious subject, not even a higher type of animal, such as a dog or cat that knows who its master is and where its food is, can know that it knows. [D] Systems of physics, philosophy, mathematics, and astronomy, for example, have all been constructed because of man's unique ability to reflect inwardly. [E]

8. Where is the sentence below best placed in the above passage? [2.8점]

In consequence, it is denied access to a whole domain of reality in which mankind can move freely.

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

9. Which best fits into the blank ⑨? [2.1점]

- (1) Self-awareness                      (2) Self-regret                      (3) Self-efficacy  
(4) Self-determination                      (5) Self-actualization

10. Which of the following words is closest in meaning to the underlined word ⑩ "contemplate"? [1.5점]

- (1) relieve                      (2) love                      (3) oppress                      (4) ponder                      (5) trust

## [Questions 11-13]

In a study, participants first had to perform a series of very lengthy, extremely tedious tasks (like turning pegs in peg holes). Afterwards they were asked to tell the next participant that the tasks they would do were actually really interesting! The idea was to create in each participant the dissonant cognitions that, on the one hand, they had disliked the experiment but, on the other hand, they had told another person that they enjoyed it. In addition, half of the participants were given \$20 for \_\_\_\_⑩\_\_\_\_ with the 'lying' request and the other half a meagre \$1. The idea here was that those in the \$1 group would experience a higher level of cognitive dissonance than those in the \$20 group because they had insufficient justification for the inconsistency between their attitudes (i.e. 'that really was a boring task') and their actual behaviour (i.e. lying about the behaviour to another person). The \$20 group had the justification of a decent money payout and would thus experience less dissonance. It was predicted that the \$1 participants, being highly cognitively dissonant, would change their attitude towards enjoying or liking the tasks so as to re-establish consonance; those in the \$20 condition would not. This was exactly what happened when attitudes towards the task were measured after the experiment.

\*peg 못 \*\*dissonant 조화되지 않는 \*\*\*meagre 변변찮은

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

- (1) How People Are Placed in a Cognitively Dissonant Situation
- (2) Change of Attitude by Insufficient Justification
- (3) Individual Cognitive Style
- (4) Why Are We Sensitive to Rewards?
- (5) Psychological Effects of Boredom

12. Which best fits into the blank ⑩? [1.5점]

- (1) denial              (2) salary              (3) compliance              (4) token              (5) challenge

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

- (1) The \$1 group lies more actively than the \$20 group in the experiment.
- (2) The \$1 group is more likely to resolve cognitive dissonance than the \$20 group.
- (3) The \$20 group participates in the experiment more actively than the \$1 group.
- (4) The \$20 group shows less positive attitude to lying than the \$1 group.
- (5) Both the \$1 and the \$20 group do not feel guilty about lying.

## [Questions 14-16]

Kelvin Doe was brought up in a small town in Sierra Leone. He has built generators, batteries, and small electronic devices using parts he found in the trash. He takes things that would otherwise have been thrown out and, with almost no formal training, turns them into ⑫ products. Kelvin Doe's inventions are especially valuable in his home country of Sierra Leone, where, according to Kelvin, the lights there only turn on "about once a week." Kelvin builds batteries and generators to provide electricity for his family. At the age of 14, he created his own FM transmitter and used it as his community's first radio station, where he is known as DJ Focus. He entertains the entire neighborhood. Also, he even employs his friends. Kelvin says he hopes to use his radio station as a way for youth in Sierra Leone to debate issues in their area. He says he plans to build a windmill to provide more ⑬stable electricity for his town.

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

- (1) useful            (2) best-selling            (3) worthless            (4) durable            (5) humble

15. Which of the following words is opposite in meaning to the underlined word ⑬ "stable"? [1.5점]

- (1) powerful            (2) inexpensive            (3) instant            (4) abundant            (5) insecure

16. Which of the following is the best candidate for what Kelvin would say in a speech, according to the passage? [2.1점]

- (1) I will dedicate my life to invention.  
 (2) I will share what I've learned with my neighbors.  
 (3) Let's fight against pollution to protect the Earth.  
 (4) Why don't you get together and help endangered animals?  
 (5) I will run the biggest electricity company in Africa.

## [Questions 17-19]

Eben Bayer, a product designer, recognized that plastic foam has a negative impact on the environment. He wanted to remove the need for it. So, after years of experimenting, he created a 100% biodegradable packaging material. The main ingredient of the packaging material is mushrooms. Cheap, useless agricultural waste, like the husks of rice and wheat grain, is also needed to make mushroom packaging. After the waste is cleaned, it is mixed with mycelium, a material that can be found at the root of mushrooms. The mycelium holds the agricultural waste together and then the mixture is put into a mold. With the mixture growing in the mold, the mushroom packaging takes the shape of the mold. After a few days, the mixture is removed from the mold and it is dried to prevent any additional growth of the mycelium. Finally, a 100% biodegradable package is ready for use.

Eben Bayer hopes that this mushroom packaging will replace plastic foam. He says, "What I want to \_\_\_\_ ㉠ \_\_\_\_ is that in 10,000 years, our descendants, our children's children, will be living happily and in harmony with a healthy Earth."

17. Which of the following is not true about the passage? [2.1점]

- (1) Eben Bayer wants to save the world from plastic pollution.
- (2) Eben Bayer invented a biodegradable package.
- (3) Mycelium can be extracted from mushrooms.
- (4) Molds should be prevented to get a biodegradable package.
- (5) The husks of rice and wheat grain are easy to get.

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

- (1) An Eco-friendly Idea for Plastic
- (2) How to Live Without Plastic
- (3) Greenhouse Effect and Plastic
- (4) Mushroom Products for Cleaning
- (5) Why Do We Have to Get Rid of Plastic?

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

- (1) advise              (2) provoke              (3) recall              (4) criticize              (5) guarantee

## [Questions 20-21]

In the United States, the coming of the railroads opened up local and regional markets to competition. (A)Local producers had difficulty competing with large manufacturers, and many local companies went out of business or merged with other firms producing similar foods. (B)It was the main government policy on merge and acquisition of food companies. (C)The shipment of dressed beef from the Midwest to eastern cities, for instance, all but eliminated local slaughterhouses and reduced the number of butchers. (D)In 1860, New York City had more than 2,000 butchers; only a few hundred survived in 1900. (E)These butchers had counted on their customers' appreciation of the quality and flavor of their meats, but shoppers readily gave up locally butchered beef and pork for cheaper cuts shipped from the Midwest.

20. Choose the sentence that is not relevant to the passage. [2.8점]

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

21. Which of the following is true about the passage? [2.1점]

- (1) In the United States, local business shrank because of the railroads.  
 (2) The number of butchers increased in the 20<sup>th</sup> century in the United States.  
 (3) The United States was not interested in railroad construction in the 1800s.  
 (4) Local butchers became rich in the early 20<sup>th</sup> century in the United States.  
 (5) The price of food in the Midwest was higher than that in New York in 1900.

## [Questions 22-23]

Solving the productivity problem is \_\_\_\_ ㉕ \_\_\_\_\_. As soon as the business sector raises productivity and salaries start to rise in absolute terms, wage disparities between poorly trained and highly trained workers are likely to become more pronounced. While the rising tide of higher salaries will lift more people above the poverty line, the income differences among different sectors of society are likely to grow. As companies strive to become more productive as well as more innovative in differentiating their products from their competitors, they will increasingly either spin off low-paying, low-value jobs to Third World countries or eliminate them altogether through automation. The remaining high-value, high-paying jobs are thus likely to require an increasingly well-educated labor force. In an economy dominated by innovation and mass customization, the highly skilled and the highly trained are likely to prosper.

\*disparity 차이, 격차 \*\*spin off ~을 분리하다



22. The following sentence conveys the idea that is similar to the point of the above passage. Which best fit into the blank (A) and (B)? [2.8점]

Considering the 4<sup>th</sup> industrial revolution that is going to reshape the \_\_\_\_ (A) \_\_\_\_, we have to start to design the system facilitating access to \_\_\_\_ (B) \_\_\_\_.

- | (A)                     | (B)                       |
|-------------------------|---------------------------|
| (1) types of industries | process automation        |
| (2) social structure    | an innovative society     |
| (3) labor value         | an alternative job market |
| (4) labor structure     | high level education      |
| (5) business sector     | pioneering companies      |

23. Which best fits into the blank ㉕? [2.1점]

- |   |                            |
|---|----------------------------|
| (1) a double-edged sword                | (2) better late than never |
| (3) putting all your eggs in one basket | (4) sour grapes to a fox   |
| (5) killing two birds with one stone    |                            |

[Questions 24-25]

In the fifth century *B.C.E.*, the Greek philosopher Protagoras pronounced, “Man is the measure of all things.” In other words, we feel entitled to ask the world, “What good are you?” We assume that \_\_\_\_\_ ㉖ \_\_\_\_\_, that all things should be compared to us. Such an assumption makes us overlook a lot. Abilities said to “make us human” - empathy, communication, grief, tool-making, and so on - all exist to varying degrees among other minds sharing the world with us. Animals with backbones (fishes, amphibians, reptiles, birds, and mammals) all share the same basic skeleton, organs, nervous systems, hormones, and behaviors. Just as different models of automobiles each have an engine, drive train, four wheels, doors, and seats, we differ mainly ㉗ in terms of our outside contours and a few internal tweaks. But like naive car buyers, most people see only animals’ varied exteriors.

24. Which best fits into the blank ㉖? [2.8점]

- (1) human beings are judged by their ability
- (2) everything in the world has its own value
- (3) people tend to evaluate others
- (4) human beings are innocent
- (5) we are the world’s standard

25. Which of the following is closest in meaning to the underlined phrase ㉗ “in terms of”? [1.5점]

- |                        |                     |                    |
|------------------------|---------------------|--------------------|
| (1) in accordance with | (2) with respect to | (3) in addition to |
| (4) on a par with      | (5) for the sake of |                    |

26. 10개의 동일한 구슬을 다섯 명의 아이들에게 나누어 주려고 한다. 모든 아이가 적어도 하나 이상의 구슬을 받도록 나누어주는 방법의 수를 구하면? [1.5점]

- (1) 126                      (2) 120                      (3) 66                      (4) 36                      (5) 20

27. 1부터 10까지의 자연수가 하나씩 적혀있는 10개의 공이 들어있는 주머니에서 임의로 3개의 공을 동시에 꺼낸다. 꺼낸 3개의 공에 적혀있는 자연수 중 가장 작은 수가 3일 때, 가장 큰 수가 9일 확률은? [1.5점]

- (1)  $\frac{7}{36}$                       (2)  $\frac{2}{35}$                       (3)  $\frac{5}{21}$                       (4)  $\frac{4}{15}$                       (5)  $\frac{7}{120}$

28. 어느 제과점에서 만드는 팔빵 한 개의 무게는 평균 350g, 표준편차가 15g의 정규분포를 따른다고 한다. 이 제과점에서 만든 팔빵 중 임의 추출한 25개의 무게의 표본평균이 342.5g이상일 확률을 오른쪽 표준정규분포표를 이용하여 구한 것은? [1.5점]

$z$	$P(0 \leq Z \leq z)$
1.0	0.3413
1.5	0.4332
2.0	0.4772
2.5	0.4938

- (1) 0.3413                      (2) 0.6587                      (3) 0.9332                      (4) 0.9772                      (5) 0.9938

29. 집합  $X = \{a, b, c, d, e\}$ 에서  $Y = \{1, 2, 3\}$ 로의 함수 중 그 치역이  $Y$  인 것의 개수는? [2.8점]

- (1) 144                      (2) 150                      (3) 172                      (4) 225                      (5) 267

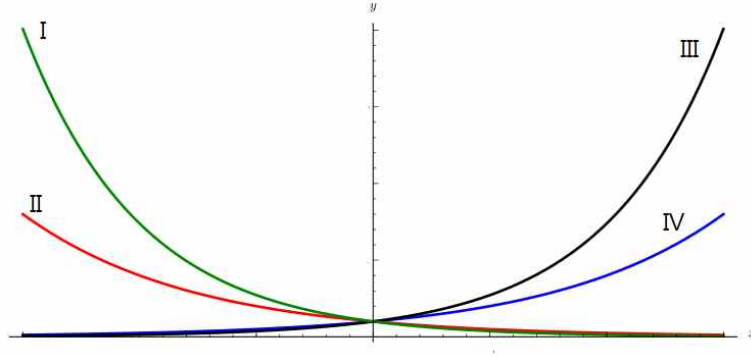
30. 두 주머니 A와 B에는 숫자 1, 3, 6, 8 이 하나씩 적혀있는 4장의 카드가 각각 들어있다. 갑은 주머니 A에서, 을은 주머니 B에서 각자 임의로 두 장의 카드를 꺼내어 가진다. 갑이 가진 두 장의 카드에 적힌 수의 합과 을이 가진 두 장의 카드에 적힌 두 수의 합이 같을 확률은  $\frac{q}{p}$ 이다.  $p+q$  의 값을 구하시오. (단,  $p$ 와  $q$  는 서로소인 자연수이다.) [2.8점]

- (1) 4                      (2) 5                      (3) 11                      (4) 27                      (5) 37

31. 2 이상의 자연수  $n$ 에 대하여  $6\log_n 2$ 의 값이 자연수가 되도록 하는 모든  $n$ 의 값의 합은?  
[1.5점]

- (1) 78                      (2) 79                      (3) 84                      (4) 86                      (5) 87

32. 다음은 네 함수  $f_1(x) = 3^{-x}$ ,  $f_2(x) = 3^x$ ,  $f_3(x) = e^{-x}$ ,  $f_4(x) = e^x$ 의 그래프를 한 평면에 그린 것이다.  $f_3(x) = e^{-x}$  과  $f_4(x) = e^x$ 의 번호를 차례대로 쓰면? [1.5점]



- (1) I, II                      (2) II, III                      (3) I, II                      (4) III, IV                      (5) II, IV

33.  $0 < \theta < \pi$  에서  $\cos \theta = -\frac{1}{7}$  일 때,  $\tan \theta$ 의 값은? [1.5점]

- (1)  $-4\sqrt{3}$                       (2)  $-2\sqrt{3}$                       (3) 4                      (4)  $4\sqrt{3}$                       (5) 8

34.  $0 \leq \theta < 2\pi$  일 때,  $4\cos^2 \theta - 6\sin \theta < 0$ 을 만족시키는 모든  $\theta$ 의 값의 범위는  $\alpha < \theta < \beta$ 이다.  $\alpha + \beta$ 의 값은? [2.1점]

- (1)  $\frac{5\pi}{6}$                       (2)  $\frac{7\pi}{6}$                       (3)  $\frac{3\pi}{2}$                       (4)  $\pi$                       (5)  $2\pi$

35. 공차가 양수인 등차수열  $\{a_n\}$ 이 다음 조건을 만족시킬 때,  $a_9$ 의 값은? [2.1점]

(가) $a_8 + a_{12} = 0$
(나) $ a_8  = 8$

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

36. 수열  $\{a_n\}$ 의 첫째항부터 제  $n$ 항까지의 합  $S_n$ 이  $S_n = n^3 + 3n^2 + 2n$ 일 때,  $\sum_{n=1}^{\infty} \frac{1}{a_n}$ 의 값은? [2.1점]

- (1)  $\infty$                       (2) 2                      (3)  $\frac{1}{3}$                       (4) 0                      (5)  $-\frac{1}{6}$

37. 함수  $f(x) = e^{x^2}$ 에 대하여  $\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{k}{n^2} f\left(\frac{k}{n}\right)$ 의 값은? [2.1점]

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

38. 다음 급수에 관한 성질 중 옳은 것을 모두 고르면? [2.1점]

- ㉠ 급수  $1 + r + r^2 + r^3 + r^4 + \dots$ 가 수렴할 필요충분조건은  $-1 < r < 1$  이다.  
 ㉡ 급수  $a_1 + a_2 + a_3 + a_4 + \dots$  이 수렴하면  $\lim_{n \rightarrow \infty} a_n = 0$  이다.  
 ㉢ 모든  $n$ 에 대해서  $|a_n| < 1$ 인 급수  $a_1 + a_2 + a_3 + a_4 + \dots$ 는 수렴한다.

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

39. 함수  $f(\theta) = \frac{1}{\sqrt{2}} \sin \theta + \frac{1}{\sqrt{2}} \cos \theta$ 에 대한 아래 설명 중 옳은 것을 모두 고르면?

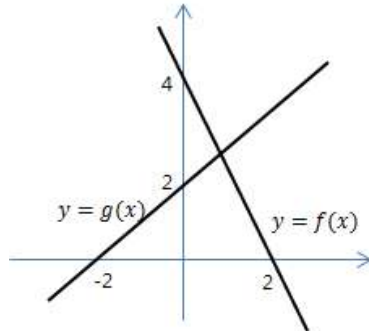
[2.8점]

- ㉠ 함수  $f(\theta)$ 는 주기 함수이다.  
 ㉡ 함수  $f(\theta)$ 의 최댓값은  $\frac{1}{\sqrt{2}}$  이다.  
 ㉢ 함수  $f(\theta)$ 는 열린 구간  $\left(-\frac{\pi}{6}, \frac{\pi}{6}\right)$ 에서 감소한다.  
 ㉣ 함수  $f(\theta)$ 의 그래프는 사인함수의 그래프를 평행이동하여 얻을 수 있다.

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

※ 40번~42번은 세트형 문제입니다. 아래 제시문을 보고 물음에 답하십시오.

다음 그림은 두 일차 함수  $f(x)$ 와  $g(x)$ 의 그래프이다.



40. 정적분  $\int_0^{\pi} g(\sin 2x) dx$  를 계산한 값은? [1.5점]

- (1) 0                      (2)  $-2\pi$                       (3) 2                      (4)  $2+2\pi$                       (5)  $2\pi$

41. 함수  $h(x) = f(g(x))$ 이고, 함수  $k(x)$ 는  $g(x)$ 의 역함수라고 하자.  $h'(1)$ 과  $k'(0)$ 의 값을 차례대로 구하면? [2.1점]

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

42. 위의 함수  $f(x)$ 에 대하여

$$F(x) = \int_0^x f(t) dt \quad (x \geq 0)$$

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

- Ⓐ  $F(3) > 0$ 이다.  
 Ⓑ  $F(x) = 0$ 이 되는 양수  $x$ 가 존재한다.  
 Ⓒ 함수  $F(x)$ 는  $x \geq 0$  일 때 증가한다.  
 Ⓓ 함수  $F'(x)$ 는  $x > 0$  일 때 감소한다.

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

43. 곡선  $y = \sqrt{4-x^2}$  ( $0 \leq x \leq 2$ ) 그리고  $x$ 축과  $y$ 축으로 둘러싸인 도형을 밑면으로 하는 입체도형이 있다. 이 입체도형을  $x$ 축에 수직인 평면으로 자른 단면이 모두 정사각형일 때, 이 입체도형의 부피는? [1.5점]

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

44. 두 함수  $f(t) = e^t - e^{-t}$ ,  $g(t) = 2t - 3$ 에 대하여 매개변수  $t$ 로 나타낸 곡선  $x = f(t)$ ,  $y = g(t)$ 를  $l$ 이라 하자. 곡선  $l$  위의 점  $(0, -3)$ 에서의 접선의 기울기는? [1.5점]

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

45. 매개변수  $t$ 로 나타낸 곡선  $x = \cos 2t$ ,  $y = \sin 2t$ 에 대하여  $0 \leq t \leq \frac{\pi}{4}$  일 때, 이 곡선의 길이는? [1.5점]

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

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

$$\lim_{x \rightarrow \frac{\pi}{3}} \frac{f(x) - f\left(\frac{\pi}{3}\right)}{x^2 - \frac{\pi^2}{9}}$$

- (1) 0                      (2)  $\frac{3}{2\pi}$                       (3)  $\frac{2}{\pi}$                       (4)  $\frac{\sqrt{3}}{4\pi}$                       (5)  $-\frac{3\sqrt{3}}{4\pi}$

47.  $f(x) = \frac{d}{dx} \left( \int_0^{\sqrt{\frac{\pi}{2}}} \sin x^2 dx \right)$  이고  $g(x) = \frac{d}{dx} \left( \int_0^{x^2} \sin \frac{\pi t}{2} dt \right)$  일 때,  $f(1)$ 과  $g(1)$ 의 값을

차례로 구하면? [2.1점]

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

48. 정의역이  $\{x | 0 \leq x \leq 2\}$ 인 함수  $f(x) = \int_0^x (1-t)e^t dt$ 의 최댓값을 구하면? [2.1점]

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

49. 함수  $h(x) = \frac{2x+7}{x+1}$ 의 그래프와 두 직선  $x=0$ ,  $x=e-1$  그리고  $x$ 축으로 둘러싸인 부분의 넓이는? [2.1점]

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

50. 함수  $g(x) = \ln|x|$  ( $-2 < x < -1$ )에 대한 다음 설명 중 옳은 것을 모두 고르면? [2.8점]

㉠ 함수  $g(x)$ 는 열린 구간  $(-2, -1)$ 에서 감소한다.

㉡  $\sum_{k=1}^3 g\left(-2 + \frac{k}{3}\right) \frac{1}{3} < \int_{-2}^{-1} g(x) dx$

㉢  $\sum_{k=1}^3 g\left(-2 + \frac{k}{3}\right) \frac{1}{3} < \sum_{k=1}^6 g\left(-2 + \frac{k}{6}\right) \frac{1}{6}$

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