

[1-8] 빈 칸에 들어갈 말로 가장 적절한 것을 고르시오.

1. British and American parents often tell their children that '\_\_\_\_\_' is the magic word: if the children remember to say '\_\_\_\_\_', their parents are more likely to give them the things they ask for. '\_\_\_\_\_' is used in many situations. People generally say '\_\_\_\_\_' whenever they ask for something, whether it is goods in a shop, help, a favor or information.

- ① Yes                      ② Please                      ③ Sorry  
④ Hello                      ⑤ Thanks

2. \_\_\_\_\_ are prepared from harmful viruses or bacteria and administered to patients to provide immunity to specific diseases. The various types of \_\_\_\_\_ are classified according to the method by which they are derived.

- ① toxins                      ② organisms                      ③ antigens  
④ vaccines                      ⑤ cures

3. "Every time you eat a sweet, drink green tea." This is what some Japanese mothers used to tell their children. However, modern dentists \_\_\_\_\_ took this advice very seriously until just recently. Research now shows that green tea really does help your teeth. It contains something that naturally kills the bacteria that damage teeth.

- ① never                      ② usually                      ③ long  
④ somehow                      ⑤ surely

4. The dog was the first \_\_\_\_\_ animal. Very early in human history, people realized that a dog could help with hunting and could protect them against dangerous wild animals. They also realized that dogs were good company, and so they began to keep them as pets. We can say that the dog is man's best friend and his oldest friend.

- ① wild                      ② hunting                      ③ indigenous  
④ domesticated                      ⑤ recorded

5. Set a time frame for the goal. For example, *I want to read the next chapter within two weeks.* Time limits help to \_\_\_\_\_ focus and momentum. Setting a time limit that is too brief may lead to more anxiety or a poor job since you rush to complete the goal. On the other hand, time limits that are too far away may not offer the sense of urgency that helps us to complete goals.

- ① shift                      ② memorize                      ③ maintain  
④ integrate                      ⑤ interpret

6. Musicians use many different strategies against \_\_\_\_\_ and its signs: icy fingers, shaky limbs, racing heart, blank mind. Teachers and psychologists offer strategies, too. In recent years, schools have started addressing anxiety in courses dealing with performance techniques or career preparation.

- ① stage fright                      ② fatigue                      ③ anger  
④ noisy audience                      ⑤ loss of memory

7. When teachers work in \_\_\_\_\_, they tend to see the world through one set of eyes—their own. The fact that there might be someone somewhere in the same building or district who may be more successful at teaching this or that subject or lesson is lost on teachers who close the door and work their way through the school calendar virtually alone.

- ① concentration                      ② isolation                      ③ cooperaton  
④ nervousness                      ⑤ carelessness

8. Imagine holding a set of directions in your memory while driving. If a billboard advertisement catches your attention, it may invade your mental workspace and cause you to forget these directions. The same thing may happen if an unrelated thought suddenly comes to mind. Information in working memory fades away unless it is refreshed. Maintaining information in your short-term memory requires a lot of \_\_\_\_\_. The more you are able to focus on task-relevant information and ignore distractions, the better your memory performance will be.

- ① processes                      ② factors                      ③ motivation  
④ endurance                      ⑤ attention

9. 빈 칸 (A), (B)에 들어갈 말로 가장 적절한 것은?

Many reports show that there are still very few women in high government positions. (A)\_\_\_\_\_, only about 15% of the positions in government are held by women. In addition, more than half of the people who can't read and write are women. Being illiterate doesn't mean people are not intelligent. However, not being able to read and write does make it more difficult for people to change their lives. There are many programs to help people improve their farming skills. (B)\_\_\_\_\_, for years, these programs provided money and training for men but not for women. Now this is changing. International organizations and programs are helping women, as well as men, improve their agricultural productions.

- |   |                |     |             |
|---|----------------|-----|-------------|
|   | (A)            |     | (B)         |
| ① | In fact        | ... | However     |
| ② | In fact        | ... | As a result |
| ③ | In other words | ... | As a result |
| ④ | Therefore      | ... | However     |
| ⑤ | Therefore      | ... | For example |

10. (A), (B), (C)의 각 네모 안에서 문맥에 맞는 낱말로 가장 적절한 것은?

"Symptoms and signs" in Oriental Medicine have a rather different meaning than in Western Medicine. They are different from the relatively (A)wide / narrow area explored by Western Medicine despite its battery of clinical tests. Instead, the doctor of Oriental Medicine widens his or her view to assess changes in a broad range of common (B)emotional / bodily functions such as urination, sweating, thirst and so on. Furthermore, the doctor of Oriental Medicine takes into account many clinical manifestation ranging from certain facial and bodily signs to psychological and emotional traits which are not really "symptoms" or "signs" as such, but rather expressions of a certain (C)harmony / disharmony.

- | (A)      | (B)           | (C)            |
|----------|---------------|----------------|
| ① wide   | ... bodily    | ... harmony    |
| ② wide   | ... emotional | ... disharmony |
| ③ narrow | ... emotional | ... disharmony |
| ④ narrow | ... bodily    | ... harmony    |
| ⑤ narrow | ... bodily    | ... disharmony |

[11-12] 밑줄 친 부분 중, 어법상 틀린 것은?

11. The locations of stars in the sky (A)relating to one another do not appear to the naked eye to change, and as a result stars are often considered (B)to be fixed in position. Many unaware stargazers falsely assume that each star has (C)its own permanent home in the nighttime sky. In reality, though, stars are always (D)moving, but because of the tremendous distances between stars themselves and (E)from stars to Earth, the changes are barely perceptible here.

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

12. The remote control device became popular during the 1980's, and it has had a significant impact on the manner (A)which people experience television. Industry researchers quickly began (B)to observe new viewing patterns that they described as "grazing." Many viewers used the remote control to avoid (C)watching commercials, while others learned to scan restlessly through the channels, not watching entire programs, but looking for an arresting image or sound that entices them (D)to stop on a particular channel. As one result, many cable networks crafted a signature visual style, using distinctive logos, graphic designs, and other techniques, (E)that made the network immediately identifiable to the restless, remote-control-enhanced television viewer.

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

13. 글의 흐름으로 보아, 주어진 문장이 들어가기에 가장 적절한 곳은?

He wanted to see if the monkey could use the boxes and the stick to get the banana.

We all know that monkeys are smart animals, but sometimes their intelligence is surprising and entertaining. (A) A psychologist once wanted to see just how smart a monkey was. (B) He hung a banana high up in a monkey's cage and placed several large boxes and a stick nearby. (C) The monkey looked at the banana, the boxes, and the stick. (D) Then it took the psychologist's hand and led him to where the banana was hanging. (E) It jumped up onto his shoulders and reached the banana from there.

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

14. 밑줄 친 (A)~(E) 가운데, 문맥상 적절하지 않은 것은?

Amphibians are at risk due to habitat destruction. Most amphibians live in wetlands. Wetlands provided a (A)crucial service by filtering pollutants out of water, and providing food and shelter for (B)young fish and amphibians. But (C)underdevelopment of the land has caused the destruction of amphibian habitats and, as a result, (D)reduced their populations. Once a species is gone, it is gone forever. When this happens, we all are poorer—the world is (E)less diverse, a gene pool that might be useful is gone.

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

15. Cranberry에 관한 다음 글의 내용과 일치하지 않은 것은?

The cranberry is a North American fruit that grows on a bush. The settlers from England in the 1600s liked the berries and called them "crane berries" because birds called cranes ate them. The cranberry bush does not grow everywhere in the United States. In fact, it grows in only five states. These states have the special conditions that the cranberry bush needs. Cranberries ripen when the weather starts to become cold. We see cranberries in the stores in the fall. Cranberry growers separate the best cranberries from all the rest. It's hard to recognize the best cranberries just by looking. So cranberry growers use a special method. They use a seven-step test to separate berries. The best cranberries are the ones that bounce down seven steps!

- ① 덩불에서 자라는 북아메리카 과일이다.
- ② 이름의 유래가 그것을 먹는 새와 관련이 있다.
- ③ 미국의 5개 주에서만 자란다.
- ④ 날씨가 추워지기 시작하면 열매가 익는다.
- ⑤ 제품의 품질을 육안으로 구별할 수 있다.

16. 다음 글의 주제로 가장 적절한 것은?

As adults, many of us have difficulty acknowledging our anger, even when it is fully justified. We may swallow our anger and ignore other feelings because we learned when we were very young that we were unacceptable when we had such feelings. As children we might have shouted at our parents: "I hate you! I never want to see you again!" Then we may have heard an upset parent reply: "How dare you say such a thing — after all I've done for you! I don't ever want to hear that from you again!" We soon take these messages to mean, "Don't be angry! Never be angry with those you love! Keep control of yourself!" And we do just that, keeping many of our feelings to ourselves, stuffing them in the pit of our stomach and pretending we do not experience them. It is not surprising that so many people suffer from migraine headaches, peptic ulcers, hypertension, and heart disease.

- ① 분노를 억제하는 방법
- ② 타인의 감정 존중하기
- ③ 질병들 간의 상호 연관성
- ④ 분노 억제로 인한 부작용
- ⑤ 부모와 자녀 간 대화의 중요성



\* [21-40번: 문항 당 3점]

21. 다음과 같이 정의된 함수  $f(x)$ 가 모든 실수  $x$ 에 대하여 미분가능할 때  $a-b$ 의 값은?

$$f(x) = \begin{cases} ax, & x < 1 \\ ax^2 + bx + 4, & x \geq 1 \end{cases}$$

- ① 5    ② 6    ③ 7    ④ 8    ⑤ 9

22. 함수  $f(x) = 3e^x + 2x^3 - 2$ 의 역함수를  $g(x)$ 라 할 때  $g'(1)$ 의 값은?

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

23. 멱급수  $\sum_{n=0}^{\infty} \frac{(3-2x)^{2n}}{\sqrt{2n+1}}$ 의 수렴구간은?

- ① (1,2)  
 ② [1,2)  
 ③ (1,2]  
 ④ [1,2]  
 ⑤  $(-\infty, \infty)$

24. 급수  $\sum_{n=0}^{\infty} \frac{(-1)^n}{n+1} \left(\frac{1}{2}\right)^n$ 의 합은?

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

25. 모든 항이 양수인 수열  $\{na_n\}$ 이 2로 수렴하는 증가수열일 때, 다음 급수 중 반드시 수렴하는 것을 모두 고르면?

- (a)  $\sum_{n=1}^{\infty} a_n$   
 (b)  $\sum_{n=1}^{\infty} a_n^2$   
 (c)  $\sum_{n=1}^{\infty} \left(\frac{1}{2}\right)^{a_n}$

- ① (a)    ② (b)    ③ (c)  
 ④ (b), (c)    ⑤ (a), (b), (c)

26. 점 (1,1,1)에서 세 점 (0,0,0), (1,0,1), (0,1,1)을 포함하는 평면에 내린 수선의 발의 좌표는?

- ①  $\left(\frac{1}{6}, \frac{1}{6}, \frac{1}{3}\right)$   
 ②  $\left(\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right)$   
 ③  $\left(\frac{1}{2}, \frac{1}{2}, 1\right)$   
 ④  $\left(\frac{2}{3}, \frac{2}{3}, \frac{4}{3}\right)$   
 ⑤ (1,1,2)

27. 정적분  $\int_{-2}^{-1} \frac{x}{(x^2+4x+5)^2} dx$ 의 값은?

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

28. 극좌표로  $r = 1 + \cos \theta$ 로 표시되는 곡선이 있다.  $\theta = \frac{\pi}{6}$ 로 지정된 점에서 이 곡선의 접선의 기울기는?

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

29. 이상적분  $\int_{e^2}^{\infty} \frac{1}{x((\ln x)^2 + \ln x)} dx$ 의 값은?

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

30. 함수  $f(x) = \int_0^{x^2} e^{-t^2} dt$ 에 대해  $f^{(10)}(0)$ 의 값은?

- ①  $-\frac{9!}{2}$   
 ②  $-9!$   
 ③  $8!$   
 ④  $\frac{8!}{2}$   
 ⑤  $9!$

31. 좌표평면 위에 직선  $l_1 : x-y=0$ 과  $l_2 : x+y=0$ 이 있다. 직선  $l_1$ 까지 거리와 직선  $l_2$ 까지 거리의 합이 4인 점들이 그리는 곡선의 길이는?

- ①  $8\sqrt{2}$   
 ②  $8\sqrt{3}$   
 ③ 16  
 ④  $16\sqrt{2}$   
 ⑤ 32

32. 가로, 세로, 높이가 각각  $40\text{cm}$ ,  $40\text{cm}$ ,  $60\text{cm}$ 인 직육면체가 있다. 각 변의 길이를 최대  $0.1\text{cm}$ 의 오차범위 내에서 측정하였을 때, 전미분을 이용하여 구한 직육면체 부피의 최대오차는?

- ①  $580\text{ cm}^3$
- ②  $600\text{ cm}^3$
- ③  $620\text{ cm}^3$
- ④  $640\text{ cm}^3$
- ⑤  $680\text{ cm}^3$

33. 미분가능한 함수  $f(x)$ 의 도함수  $f'(x) = \int_x^1 e^{t^2} dt$  이다.  $f(0) = 0$ 일 때,  $f(1)$ 의 값은?

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

34. 실수값을 갖는 미분가능한 이변수함수  $f$ 에 대하여  $w = e^{x^2} f\left(\frac{y}{x}, \frac{z}{x}\right)$  라 하자.  $x \frac{\partial w}{\partial x} + y \frac{\partial w}{\partial y} + z \frac{\partial w}{\partial z}$  를 구하면?

- ①  $e^{x^2} w$
- ②  $x^2 w$
- ③  $2xw$
- ④  $2x^2 w$
- ⑤  $2xe^{x^2} w$

35. 원  $x^2 + y^2 = 1$  위에서 함수  $f(x, y) = 9x^2 y$ 의 최댓값은?

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

36.  $x = r^2 + s^2$ ,  $y = 2rs$  이고  $z = 2x^2 - xy + y^2 - y$  이라고 하자.

$r = 1, s = 0$ 일 때,  $\frac{\partial z}{\partial s}$ 의 값은?

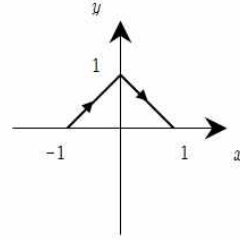
- ①  $-4$
- ②  $-2$
- ③  $0$
- ④  $2$
- ⑤  $4$

37.  $\Sigma$ 가 곡면  $x^2 + y^2 + z^2 = 1$ ,  $x \geq 0$ ,  $y \geq 0$ ,  $z \geq \sqrt{x^2 + y^2}$ 일 때 면적분  $\iint_{\Sigma} 24yz \, dS$ 의 값은?

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

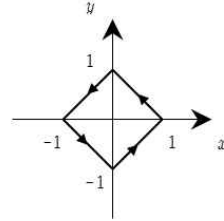
38. 좌표평면에서 곡선  $C$ 가 점  $(-1, 0)$ 에서 시작하여 점  $(0, 1)$ 을 거쳐 점  $(1, 0)$ 으로 이어지는 꺾인 직선일 때, 선적분

$$\int_C (1 - ye^{-x}) dx + e^{-x} dy$$
의 값을 구하면?



- ①  $0$
- ②  $e^{-1}$
- ③  $1$
- ④  $2$
- ⑤  $e$

39. 곡선  $C$ 는 좌표평면에서 점  $(1, 0)$ ,  $(0, 1)$ ,  $(-1, 0)$ ,  $(0, -1)$ 을 꼭짓점으로 갖는 사각형이다. 선적분  $\oint_C -y dx + x dy$ 의 값은?



- ①  $0$
- ②  $1$
- ③  $2$
- ④  $3$
- ⑤  $4$

40. 영역  $R$ 이 좌표평면에서 점  $(0, 0)$ ,  $(0, 2)$ ,  $(-2, 1)$ ,  $(-2, 3)$ 을 꼭짓점으로 갖는 사각형이라 하자. 주어진 연속함수  $f(x, y)$ 에 대하여 적분  $\iint_R f(x, y) dA$ 와 항상 같은 값을 갖는 것은?

- ①  $\int_0^1 \int_0^1 f(-2v, 2u + v) du dv$
- ②  $4 \int_0^1 \int_0^1 f(-2v, 2u + v) du dv$
- ③  $\int_0^1 \int_0^{\frac{1}{2}} f(-2v, 2u + v) du dv$
- ④  $4 \int_0^1 \int_0^{\frac{1}{2}} f(-2v, 2u + v) du dv$
- ⑤  $4 \int_0^{\frac{1}{2}} \int_0^1 f(-2v, 2u + v) du dv$