

# 2026학년도 동국대학교 편입학모집 자연계열 필답고사 문제지

㉠형

출제문항 : 영어 20문항, 수학 20문항 - 90분

| 지원학과/전공 | 수험번호 | 성명 |
|---------|------|----|
|         |      |    |

## ◆ 답안 작성시 유의사항 ◆

- ◇ 필답고사 문제지의 이상 유무(계열, 과목, 문제유형, 문제번호 순서, 인쇄상태 등)를 확인한 후 답안을 작성하기 바랍니다.
- ◇ 필답고사 답안지의 이상 유무(계열, 과목 등)를 확인한 후 답안을 작성하기 바랍니다.
- ◇ 답안지의 인적사항, 수험번호 및 답안은 반드시 컴퓨터용 수성 사인펜을 사용하여 표기하기 바랍니다.
- ◇ 본인이 배부받은 문제지의 문제유형을 반드시 확인한 후, 문제유형 표기란에 정확히 마킹하기 바랍니다.
- ◇ 각 문제의 답안은 OMR 답안지에 표시된 문제지 번호에 맞춰 표기하기 바랍니다.
- ◇ 답안지 여백에 개인 신상과 관련된 어떤 내용 또는 불필요한 표시를 하는 경우 답안지는 무효 처리됩니다.

<영어>

■ [1-2] Choose the answer that has the closest meaning to the word underlined in each sentence below.

1. After a chaotic year filled with trade wars, market gyrations and the longest government shutdown in history, the U.S. economy has, once again, proved more resilient than many forecasters feared. [1점]

- Ⓐ vulnerable
- Ⓑ incompetent
- Ⓒ restrictive
- Ⓓ inept
- Ⓔ robust

2. Federal prosecutors have charged a Massachusetts judge and a court officer with conspiracy and obstruction of justice, alleging that they helped an undocumented immigrant escape a courthouse to elude immigration officials. [1점]

- Ⓐ ensue                      Ⓑ eschew                      Ⓒ expose
- Ⓓ endorse                      Ⓔ elucidate

■ [3-4] Identify the LEAST acceptable expression underlined in each passage below.

3. The actress, singer and activist Brigitte Bardot, Ⓐ who has died at 91, Ⓑ personified France in a literal way: In 1969, she became the first celebrity to Ⓒ use as the model for Marianne, the symbol of the Republic that has adorned the country's City Halls Ⓓ as well as official documents, stamps and coins Ⓔ since the French Revolution. [1점]

4. Although the singing voice might be thought of Ⓐ as an extension Ⓑ to or development Ⓒ of the speaking voice, the experience of actors and singers Ⓓ suggest that the two modes of vocal delivery remain Ⓔ independent. [1점]

■ [5-8] Choose the most appropriate expression to complete each passage.

5. All living languages change with time. It is fortunate that (        ). It would be inconvenient to

have to relearn our native language every twenty years. As years pass, we hardly notice any change. Yet, if we were to turn on a radio and miraculously receive a broadcast in our "native language" from the year 1000, we would probably think we had tuned into a foreign language station. [2점]

- Ⓐ human beings can enjoy longer life span due to medical science
- Ⓑ they have expected life spans motivated by linguists
- Ⓒ they can be divided into native language and foreign language
- Ⓓ they do so rather slowly compared to the human life span
- Ⓔ human beings can develop their language skills by listening to radios

6. For decades, higher education has been widely regarded as the most reliable path to social mobility. The prevailing belief is that universities reward talent and effort, allowing individuals to rise regardless of their background. This assumption underlies not only public trust in educational institutions but also the moral legitimacy of inequality itself: if success is earned through (        ), then unequal outcomes appear justified. [2점]

- Ⓐ seniority
- Ⓑ luck
- Ⓒ connections
- Ⓓ merit
- Ⓔ civilization

7. Modern scientists communicate with one another by e-mail and telephone, and they sometimes attend conferences where they meet colleagues working in the same field. A journey of a few hours by car, train, or air is sufficient to bring people together. This is a very recent development, however. In the days before modern fast transport, and before telephones and e-mails, when people traveled on horseback or by horse-drawn coach and went overseas by sailing ship, journeys were long, uncomfortable, and sometimes dangerous. There was (        ), and people communicated mainly by letter instead of meeting face-to-face. [2점]

- Ⓐ much communal exchange between country dwellers and city residents

- Ⓑ much less travel than there is now
- Ⓒ transportation revolution supported by the invention of telephones
- Ⓓ strong desire to travel overseas with the development of e-mail and telephones
- Ⓔ much stronger preference for direct contact rather than staying home

8. One of the most transformative developments of recent decades has been the completion of the Human Genome Project and the subsequent rise of gene-editing technologies. By successfully mapping the human genome, scientists created a foundational reference that revolutionized fields ranging from medicine to anthropology. Building on this knowledge, researchers adapted a natural bacterial defense system known as CRISPR into a powerful gene-editing tool, enabling precise modifications of DNA. Since its introduction in 2012, CRISPR has led to breakthroughs such as genetic therapies for previously incurable diseases and the development of highly personalized treatments, suggesting that medicine may increasingly shift toward ( ) rather than standardized care. [3점]

- Ⓐ unmodified interventions
- Ⓑ ready-made care
- Ⓒ generic solution
- Ⓓ off-the-rack solution
- Ⓔ tailored interventions

■ [9-20] Read each passage below and answer the questions that follow.

Every year, flu season in North America starts to Ⓐ peak around the holiday season. But this year, doctors and researchers are especially worried. Why? The version of the virus that's circulating around the globe has undergone significant genetic changes that make it easier to infect people, and therefore to spread between them. It means "our antibodies won't see it as well," says Danuta Skowronski, a physician-epidemiologist and flu researcher at the British Columbia Centre for Disease Control. What's worse, these genetic changes happened too Ⓑ late to account for in flu shot formulations. Flu rates have already begun Ⓒ ticking up in the U.S. As of late November, respiratory illnesses (which includes

colds and COVID-19) comprised some five percent of doctor visits, up from three a week earlier. Because these viruses are extremely ( Ⓐ ), once rates start rising, they can quickly Ⓓ disappear. But while this year's vaccine is not a perfect match for the dominant strain, experts emphasize that it's still important to get the shot, as well as to take other steps to Ⓔ combat the freight-train of flu likely heading our way.

9. Choose the best answer to fill in the blank (A). [2점]

- Ⓐ contagious
- Ⓑ amicable
- Ⓒ manageable
- Ⓓ cordial
- Ⓔ controllable

10. Choose the expression which is NOT appropriate in the passage. [2점]

- Ⓐ peak
- Ⓑ late
- Ⓒ ticking up
- Ⓓ disappear
- Ⓔ combat

The future holds immense power. As such, it's always been something capable of being hijacked and wielded for particular ends, to be shaped by those with authority or the desire to possess it. Throughout history there's been a tension between future-tellers and those who look on, waiting for their visions to ( Ⓐ ). As Hannah Arendt put it in *On Violence* (1970), there's a skepticism that calcifies: "Predictions of the future are never anything but projections of present automatic processes and procedures, that is, of occurrences that are likely to come to pass if men do not act and if nothing unexpected happens." In other words, you cannot trust a futurist. Futurology, as it is sometimes known, is the practice of making predictions about the future according to one's claim to it. A futurist, then, not only imagines what the future might look or be like, as a philosopher or science-fiction writer may, but imbues their predictions with a paternalistic authority over the future that they envision, an assurance of its ( Ⓑ ), and, in

some cases, access to the means and the resources to make it happen. As such, there's an expectation, often eagerly taken up by governments and corporations, that their predictions influence policy decisions and economic development. This idea of futurism holds a strong presence in our lives today, just as it has through different periods of history and in various contexts. By taking a closer look at these moments of futurist influence, from the proto-utopian socialism of Henri de Saint-Simon in the late eighteenth and early nineteenth centuries to the Italian Fascist Futurists of the early twentieth to our current-day tech overlords, we can see that this conception of the future and how to make use of it has been key to understanding particular dynamics of power in the world for centuries.

11. What is the main idea of the passage? [3점]

- Ⓐ The future resists prediction.
- Ⓑ Futurism is scientific.
- Ⓒ Future claims involve power.
- Ⓓ Prophecy has vanished.
- Ⓔ Futurism strengthens skepticism.

12. Choose the best answer to fill in the blank (A). [2점]

- Ⓐ come true
- Ⓑ come out
- Ⓒ come apart
- Ⓓ come around
- Ⓔ come by

13. Choose the best answer to fill in the blank (B). [3점]

- Ⓐ inevitability
- Ⓑ liability
- Ⓒ neutrality
- Ⓓ uncertainty
- Ⓔ obscurity

In modern times, the reality of war has become impossible to ignore. The photographs of Hiroshima's ruins, the televised images from the Vietnam War, the viral pictures from the Bucha massacre in Ukraine and the latest livestreamed

bombardments of Gaza all make clear what earlier generations could more easily conceal or forget. War is not only the threat of violence. It is the collapse of moral and political order: a moment when the rules of coexistence fall apart, laws twist into something else, and human life loses its value, or takes on a new one. Yet even in such devastation, responsibility does not disappear. To inherit war is to inherit the responsibility to Ⓐ boost it. In democracies, that burden is said to be shared - rooted in consent, exercised through Ⓑ representation. And still, while war may be as old as humanity, democracy is not, and that difference reshapes the questions citizens must ask. What happens when the gravest of political acts - the decision to kill - is taken without the citizens' Ⓒ assent? That is the paradox of what I call the (A) silent mandate: leaders treat the people's silence, which is structurally imposed, as if it were consent, turning absence into Ⓓ acquiescence. It is the point where democracy keeps its name but loses its meaning. If conflict is the most serious act a political community can undertake, shouldn't it face a higher bar than ordinary political decisions in a democratic state? And even if a conflict seems to meet the conditions of a 'just war' - if such a thing exists - it may still be Ⓔ illegitimate if those in whose name it is fought were never asked.

14. What is the main idea of the passage? [3점]

- Ⓐ War undermines democracy.
- Ⓑ Democracy prevents violence.
- Ⓒ War decisions lack consent.
- Ⓓ War is unavoidable.
- Ⓔ Citizens wage war.

15. The underlined expression (A) silent mandate means \_\_\_\_\_. [2점]

- Ⓐ public approval
- Ⓑ institutional debate
- Ⓒ silence as consent
- Ⓓ legal prohibition
- Ⓔ threat of violence

16. Choose the expression which is NOT appropriate in the passage. [2점]

- Ⓐ boost
- Ⓑ representation
- Ⓒ assent
- Ⓓ acquiescence
- Ⓔ illegitimate

“Net zero” has become a buzzword in the realm of climate science and policy. Nations, states, and cities must achieve net zero carbon emissions within decades to meet the stated goals of the Paris Climate Accord. Corporations have set targets aligned with net zero to appeal to a growing appetite for environmentally conscious products. Even individuals, especially those with carbon-intensive lifestyles, have charted out net zero pathways for themselves. Despite its increasing popularity, however, the term net zero remains ill-defined among the public and is often used as a misnomer by bad-faith actors looking to appear good for the planet at face value. As defined by the University of Oxford’s Net Zero Group, net zero is both an action and an end state. As an action, to go net zero means to “reduce greenhouse gas emissions and/or ensure that any ongoing emissions are balanced by removals.” The concept of net zero arose as a means to slow ( A ) climate change caused by the accumulation of carbon dioxide in the atmosphere, which resulted from humans clearing land for development and our burning of fossil fuels. By unlocking carbon reservoirs in the geosphere, humans have altered the timescales at which carbon cycles through the Earth system, creating a significant imbalance of carbon which has ( B )—most notably the increased global surface temperature warming that causes more chaotic and frequent storms, droughts, and floods. Even though carbon is naturally removed from the atmosphere through cellular respiration and ocean absorption, humans can enhance the removal capacity of the natural world through ecosystem management and technology to balance out ( C ) residual emissions from harder-to-mitigate sectors, such as aviation or steel manufacturing.

17. According to the passage, which of the following is true? [2점]

- Ⓐ Carbon removal technologies will inevitably fail.
- Ⓑ Net zero strategies are inherently unjust.
- Ⓒ Net zero must be understood and applied more critically.
- Ⓓ Net zero policies have already solved climate change.
- Ⓔ Carbon offsetting is more effective than emission reduction.

18. Choose the best answer to fill in the blank (A). [2점]

- Ⓐ anthropogenic    Ⓑ somatic    Ⓒ ballistic
- Ⓓ acoustic    Ⓔ euphonic

19. Choose the expression which is NOT appropriate in the blank (B). [3점]

- Ⓐ cascading effects
- Ⓑ ripple effects
- Ⓒ domino effects
- Ⓓ knock-on effects
- Ⓔ side effects

20. The underlined word (C) residual means\_\_\_\_\_. [1점]

- Ⓐ accidental
- Ⓑ invisible
- Ⓒ illegal
- Ⓓ remaining
- Ⓔ seasonal

< 수학 >

\*문제풀이는 문제사이의 여백을 이용할 것.

1. 일차방정식  $y = (1! + 2! + \dots + 1000!)x + 3$ 에 대하여  $x$  값이 2일 때  $y$  값의 1의 자리의 수는? [2점]

- ① 1    ② 3    ③ 5    ④ 7    ⑤ 9

2. 정적분  $\int_0^{\pi} \sin^4 \theta d\theta$ 의 값은? [2점]

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

3. 점  $(1, 1, 1)$ 에서부터 평면  $x - 2y + z = 1$ 까지의 거리를 반지름으로 하는 원의 넓이는? [2점]

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

4. 함수  $f(x) = xe^{-x}$ 의 변곡점에서의 접선의 방정식은? [2점]

- ①  $y = -e^{-2}x + 4e^{-2}$     ②  $y = e^{-2}x + 4e^{-2}$   
③  $y = -e^{-2}x - 4e^{-2}$     ④  $y = e^{-2}x - 4e^{-2}$   
⑤  $y = -e^{-2}x - 2e^{-2}$

5. 곡면  $z = \sin(xy)$  위의 점  $(\frac{\pi}{6}, 1, \frac{1}{2})$ 에서의 접평면의 방정식은? [2점]

- ①  $\frac{1}{2}(x - \frac{\pi}{6}) + \frac{\pi}{12}(y - 1) - (z - \frac{1}{2}) = 0$   
 ②  $\frac{1}{2}(x - \frac{\pi}{6}) - \frac{\pi}{12}(y - 1) - (z - \frac{1}{2}) = 0$   
 ③  $\frac{\sqrt{2}}{2}(x - \frac{\pi}{6}) + \frac{\sqrt{2}\pi}{12}(y - 1) - (z - \frac{1}{2}) = 0$   
 ④  $\frac{\sqrt{3}}{2}(x - \frac{\pi}{6}) + \frac{\sqrt{3}\pi}{12}(y - 1) - (z - \frac{1}{2}) = 0$   
 ⑤  $\frac{\sqrt{3}}{2}(x - \frac{\pi}{6}) - \frac{\sqrt{3}\pi}{12}(y - 1) - (z - \frac{1}{2}) = 0$

6. 멱급수  $\sum_{n=1}^{\infty} (-1)^n \frac{x^n}{n}$ 의 수렴구간은? [3점]

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

7. 극한  $\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{1}{n+k}$ 의 값은? [3점]

- ①  $5\ln 2$       ②  $4\ln 2$       ③  $3\ln 2$   
 ④  $2\ln 2$       ⑤  $\ln 2$

8. 이상적분  $\int_0^1 \frac{1}{\sqrt{1-x^2}} dx$ 의 값은? [3점]

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

9. 원  $x^2 + y^2 = 4$  위의 점  $(a, b)$ 에 대하여 함수  $f(a, b, c) = a \sin c + b \cos c$ 의 최댓값은? [3점]

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

10. 좌표평면의 제1사분면 내에서 포물선  $y = x^2$ , 직선  $y = 2 - x$ , 그리고  $y$ 축으로 둘러싸인 영역을  $y$ 축으로 회전시킬 때 생기는 입체도형의 부피는? [3점]

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

11. 곡선  $x = \sqrt{a^2 - y^2}$  ( $-\frac{a}{2} \leq y \leq \frac{a}{2}$ )를  $y$ 축으로 회전시킬 때 생기는 회전면의 넓이는? [3점]

- ①  $\pi a^2$     ②  $2\pi a^2$     ③  $\frac{5}{2}\pi a^2$     ④  $3\pi a^2$     ⑤  $\frac{7}{2}\pi a^2$

12. 세 점

$A = (-1, 2, 4)$ ,  $B = (2, 0, 6)$ ,  $C = (3, -1, 6)$ 을 꼭지점으로 하는 삼각형의 넓이는? [3점]

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

13. 영역  $D = \{(x, y) \in \mathbb{R}^2 \mid x^2 + y^2 < 1\}$ 에 대하여 이중적분  $\iint_D (1 - x^2 - y^2) dx dy$ 의 값은? [3점]

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

14. 시작점이  $(0, 0, 0)$ 이고 끝점이  $(1, 2, 3)$ 인 선분  $C$ 에 대하여 선적분  $\int_C yz dx + xz dy + xy dz$ 의 값은? [3점]

- ① 2    ② 3    ③ 5    ④ 6    ⑤ 7

15. 좌표공간에서 입자가 시작점이  $(1, 2, \frac{\pi}{2})$ 이고 끝점이  $(1, 3, 0)$ 인 경로를 따라 움직일 때, 힘  $\mathbf{F}(x, y, z) = (y \cos z, x \cos z, -xy \sin z)$ 가 입자에 작용하여 한 일은? [3점]

- ① 1    ② 2    ③ 3    ④ 4    ⑤ 5

16. 곡면  $x^2 + 2y^2 + 3z^2 = 1$  위의 점  $(x, y, z)$ 에 대하여  $x + y + z$ 의 최댓값은? [4점]

- ①  $2\sqrt{66}$     ②  $\sqrt{66}$     ③  $\frac{\sqrt{66}}{2}$   
④  $\frac{\sqrt{66}}{3}$     ⑤  $\frac{\sqrt{66}}{6}$

17. 두 벡터  $\overrightarrow{OA} = (2, 3)$ ,  $\overrightarrow{OB} = (1, 2)$ 에 대하여  
 $\overrightarrow{OP} = 2m\overrightarrow{OA} + (2-m)\overrightarrow{OB}$ 일 때,  $0 \leq m \leq 2$ 를 만  
족하는 점  $P$ 의 자취의 길이는? [4점]

- ① 10    ②  $\sqrt{60}\pi$     ③ 11    ④  $4\pi$     ⑤ 12

18. 행렬  $A = \begin{pmatrix} 3 & -1 \\ 4 & -2 \end{pmatrix}$ 에 대하여  $tr(A^{2026})$ 의 값은?  
(단, 정사각행렬  $B$ 에 대하여  $tr(B)$ 는  $B$ 의 대각합  
(trace)를 나타낸다.) [4점]

- ①  $2^{2026} - 1$     ②  $2^{2026} + 1$     ③  $2^{2026}$   
④  $2^{2025} - 1$     ⑤  $2^{2025} + 1$

19. 좌표평면에서  $x$ 축,  $y$ 축, 그리고 직선  $y = 1 - x$ 로  
둘러싸인 삼각형의 경계를 반시계 방향으로 매개화한  
단순 닫힌 경로를  $C$ 라 할 때, 선적분

$\oint_C (e^{x^2} - y)dx + (x + e^{y^2})dy$ 의 값은? [4점]

- ① 1    ② 2    ③ 3    ④ 4    ⑤ 5

20. 좌표공간에서 8개의 점

$(0, 0, 0)$ ,  $(1, 0, 0)$ ,  $(0, 1, 0)$ ,  $(0, 0, 1)$ ,  
 $(1, 1, 0)$ ,  $(1, 0, 1)$ ,  $(0, 1, 1)$ ,  $(1, 1, 1)$

을 꼭지점으로 하는 정육면체의 표면을  $S$ 라 할 때, 곡  
면  $S$ 의 내부에서 외부로  $S$ 를 통과하는 벡터장  
 $\mathbf{F}(x, y, z) = (x, y, z)$ 의 유동(선속, flux)은? [4점]

- ① 1    ② 2    ③ 3    ④ 4    ⑤ 5