

영어+수학 B형(40문항, 70분)

2026학년도 편입학 전형

● 지망학부(과) : _____ 성명 : _____ 가번호 : _____

● 유의사항

1. 문제지에 지망학부(과), 성명, 가번호를 정확히 쓰시오.
2. OMR 답안지에 지망학부(과), 성명, 가번호를 정확히 쓰고, 가번호를 마킹하시오.
3. OMR 답안지는 컴퓨터용 사인펜으로 마킹하고, 답 이외에는 어떠한 표기도 하지 마시오.
4. OMR 답안지의 “문제유형” 란에 B를 마킹하시오.
5. 시험 종료 후 OMR 답안지와 문제지를 모두 제출하시오.

영 어 25문항 (1-25)

I. Choose the one that is closest in meaning to the underlined word. (1-9)

1. He should have offered his profuse apologies to the nation to overcome the negative situation resulted from the recent political scandal.
 ① venomous ② limited
 ③ ardent ④ plentiful
2. The board members of the university encumbered the whole process for four years due to their bureaucratic attitude.
 ① endorsed ② improvised
 ③ enlisted ④ impeded
3. In the past, the “one-hit wonder” performer was an *ipso facto* nano-celebrity; today, a viral phenomenon such as “Gangnam Style” has taken its place, but in so doing has reduced the period of nano-celebrity so drastically that it has impacted deleteriously on the notions of both celebrity and popularity.
 ① harmfully ② ignorably
 ③ omisibly ④ admittedly
4. Anyone who defends a cause deemed obsolete and superfluous by the spirit of the age places himself in the most disadvantageous position.
 ① excremental ② exculpatory
 ③ excogitable ④ excrescent
5. The car has been restored to pristine condition after it was damaged due to sever traffic accident last week.
 ① squalid ② dilatory
 ③ untainted ④ procrastinate

6. Velikovsky spoke alone, a voice of reason against narrow-minded dogmatism and privilege.

- ① adenoidal ② mawkish
 ③ hidebound ④ withal

7. We need to develop suitable empirical interpretations of certain principles about geometrical objects that let us apply the pure geometrical systems to a messy, motley, often incongruous world.

- ① entrenched ② meticulous
 ③ hyperbolic ④ polychromatic

8. However, they are so sure of themselves, that for two days after the eruption of the volcano, the Natural Park staffs insisted that the park remained undamaged.

- ① intrigued ② intact
 ③ instreaming ④ indicated

9. By the time the dinosaurs roamed the earth some 180 million years ago, seed-bearing treed had evolved that shed their leaves in winter.

- ① rarefied ② dominated
 ③ wandered ④ enthralled

II. Choose the word that is grammatically most inappropriate. (10-15)

10. Many of these court ballets ①involving figured dances, in which elaborately ②costumed performers moved through various geometrical formations: spectators ③might watch the patterns from above and often ④joined in a general ball at the end.
11. Their obsession ①with that past not only disables them ②live in the present but also prevents them ③from working ④towards a liveable future.

12. Every successful TV ①commercial uses a creative strategy which can attract the attention of the ②targeting consumers who are willingly ③buying the product the commercial ④promotes.
13. The effect of the semi-conductor trade ①to Korea and Europe, ②geographically far away from each other, ③demonstrates ④how the interdependence of the world economy operates.
14. This opposition ①between material presence as both the domain of subjective experience and residue of ②ossifying tendency of the historical record ③manifest most immediately in the design of the book ④itself.
15. They have worked to encourage the government ①establishing and ②enforce a national minimum ③drinking age since there were ④a number of tragic car accidents.

III. Choose the one that is most suitable for the blank.
(16-19)

16. The fragile human fetus is vulnerable to its effects because alcohol is quickly _____ into the blood stream and assaults the tissues and membranes.
- ① dispersed ② scrutinized
③ invigorated ④ anticipated
17. His _____ should not be confused with miserliness; as long as I have known him, he has always been willing to assist those who are in need.
- ① frugality ② intemperance
③ diffidence ④ aberrance
18. A _____ for vitamins, Wittgenstein had discovered vitamin B, used to combat tiredness and mood swings. But, with or without vitamins, teaching always left him in a state of nervous fatigue.
- ① forsaker ② lackluster
③ proselytizer ④ prologuizer
19. Because Waltman stubbornly believed the effect of vitamin D to cure Covid19 despite much evidence to the contrary, his colleagues felt that he had lost his scientific _____.
- ① audacity ② objectivity
③ tenacity ④ apparatus

IV. Read the following passage and answer the questions.
(20-22)

Scientists are developing a simple blood test to predict who is most at risk from the world's most common inherited heart condition. Millions of people worldwide have hypertrophic cardiomyopathy (HCM), a disease of the heart muscle where the wall of the heart becomes thickened. It is caused by a change in one or more genes and mostly passed on through families. Some feel fine most of the time and have few or no symptoms. But others can suffer complications, such as heart failure and abnormal heart rhythms, which can lead to a cardiac arrest. The problem is there is no cure. Doctors also do not know which patients with the genetic condition are most at risk from deadly complications.

[A] _____ now a team of scientists from universities including Harvard and Oxford have found a way to forecast risk for people living with HCM. The blood test could identify those patients most in danger of complications, enabling them to be monitored more closely or receive life-saving treatment.

In a landmark study, the team measured the levels of a protein, N-terminal Pro-B-type natriuretic peptide (NT-Pro-BNP), in the blood of 700 HCM patients. NT-Pro-BNP is released by the heart as part of normal pumping. But high levels are a sign the heart is working too hard. Those with the highest levels had poorer blood flow, more scar tissue and changes in their heart which could lead to atrial fibrillation or heart failure.

A blood test measuring NT-Pro-BNP could transform the care of millions of people with the world's most common inherited heart condition. The study leader, Prof Carolyn Ho, the medical director of the cardiovascular genetics centre at Harvard medical school, said the test could help "target the right therapies to the right patients at the right time."

She added: "Continued studies on blood biomarkers will lead to better understanding of HCM so that, in future, we can offer our patients a blood test to identify who is at high versus low risk of experiencing serious consequences of the disease.

"People with the highest risk could be targeted for potentially life-saving treatments as they stand to receive the greatest benefit, while those at lowest risk could avoid unnecessary treatment."

20. Which of the following is most appropriate for the blank [A]?

- ① Since ② So
③ But ④ Therefore

21. What would be the best title for the passage?

- ① A new surgical technology to cure heart disease was invented recently
- ② Blood test could predict who is most at risk from common inherited heart condition
- ③ The result of recent medical research about the reason of serious heart disease
- ④ A breakthrough to cure heart disease but it is too expensive for the patients

22. According to the passage, which of the following is true relating to the characteristics of hypertrophic cardiomyopathy (HCM)?

- ① It is a disease of the heart muscle where the wall of the heart becomes sheer and has puncture eventually.
- ② The reason of hypertrophic cardiomyopathy has been found and can be prevented with medical surgery in advance.
- ③ HCM is caused by an environment and mostly passed on through families.
- ④ Based on the result of blood test, medical staffs can give the careful monitoring for the patients who have high risk.

V. Read the following passage and answer the questions. (23-25)

Critics of artificial life argue that it is not the biology of the possible: it may be computer science and mathematics, but as biology it is impossible. The reason is simple: biology must be founded upon the exploration of life as it actually appears here on this planet, because one of the most important features of life is that it is unique. We can certainly not give a definition of life, but we can give an incomplete list of certain properties associated with living processes. Ernst Mayr, one of the founders of the “modern synthesis” or neo-Darwinism in biology, has composed such a list, and we can simply mention the point that Mayr calls uniqueness. The chemically unique feature of life consists in the fact that in no other place in nature do we find the macromolecules that we find in living cells: nucleic acids, proteins of various kinds, membrane lipids, etc. To believe that we can abstract this away and at the same time

maintain that we are still investigating something living is an illusion. [A] _____, life is biologically unique because we cannot find two organisms that are identical in every respect: life exhibits an enormous variability that in a radical sense distinguishes organisms from objects in the physical or mathematical sciences. There is nothing there that resembles the drastic changes from birth to death that characterize living beings. On this point, Mayr believes that biology — which is intrinsically related to life's historicity — radically distinguishes itself from the concerns of the physical-chemical disciplines.

One of the problems with this objection is that it builds upon an outdated view of physics and mathematics as identical to, respectively, mechanics and logic. Many of the features Mayr cites as characteristic for life (e.g., “indeterminism,” whereby he means the emergence of new, unpredictable qualities at a higher level) are now preoccupations of physicists studying nonequilibrium thermodynamics, chaos theory, and artificial life. By emphasizing chemical uniqueness, a virtue is made out of what the researchers on artificial life call [B] carbon chauvinism. Rather than disproving the idea of life in other media, carbon chauvinism simply precludes it out of hand. One could instead discuss the relevance of sacrificing scientific resources — people, time, money — to investigate life in alien media while we still know so little about so many areas of life here on earth.

23. Which of the following is unlikely to be inferred from the passage?

- ① Critics of artificial life think that studies of artificial life can be anything but biology, because biology should be concerned with organisms made of carbon.
- ② Some physicists study indeterministic properties in the nature and in the physical world, just like biologists.
- ③ Mayr would believe that a life cannot be simulated in a computer because simulated 'lives' would not show variability.
- ④ No two artificial lives in a computer can be identical to each other because they are not made of carbon.

24. Which of the following is the most appropriate for the blank [A]?

- ① Despite ② However
③ Besides ④ Nevertheless

25. According to the passage, [B] carbon chauvinism means the belief that _____.

- ① biology should study physical objects which are made of carbon and therefore do not show variability
- ② objects of biology should consist of macromolecules which are made of carbon and exhibit uniqueness
- ③ physics and computer science should study objects in a physical world which show carbonic variability
- ④ carbonic organisms should not be studied by physics or computer science because those organisms do not show uniqueness

수 학 15문항 (26-40)

26. 다음 중 극곡선 $r = \frac{5}{2 - \cos\theta}$ 에 대해 옳지 않은 것을 고르시오.

- ① 곡선의 종류는 타원이다.
- ② 준선이 존재하며, 준선 ℓ 의 식은 $x = -5$ 이다.
- ③ $\theta = \frac{\pi}{4}$ 일 때, 곡선의 접선의 기울기 $\frac{dy}{dx}$ 는 -1 이다.
- ④ 이심률은 $e = \frac{1}{2}$ 이다.

27. 거듭제곱급수 $\sum_{n=0}^{\infty} \frac{3^n(x+3)^{2n}}{(n+1)^2}$ 의 수렴반지름을 구하시오.

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

28. 실수 전체의 집합에서 정의된 함수 $f(x)$ 에 대하여 $f_0(x) = f(x)$, $f_{n+1}(x) = f_n(f(x))$ 라 하자. 다음 중 급수 $\sum_{n=0}^{\infty} f_n(x)$ 가 실수 전체의 집합에서 수렴하도록 하는 함수 $f(x)$ 로 알맞은 것은?

- ① $f(x) = \sin x$ ② $f(x) = -\sin x$
- ③ $f(x) = \cos x$ ④ $f(x) = -\cos x$

29. 다음 이상적분

$$\int_0^{\infty} \left(\frac{2}{\sqrt{x^2+1}} - \frac{C}{x+1} \right) dx$$

가 수렴하도록 하는 상수 C 와 그때의 적분값을 I 라 할 때 $C+I$ 의 값을 구하시오.

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

30. 다음 중 극한이 존재하는 것의 개수를 구하시오.

(가) $\lim_{(x,y) \rightarrow (0,0)} \frac{xy}{x^2+y^2}$

(나) $\lim_{(x,y) \rightarrow (0,0)} \frac{xy}{\sqrt{x^2+y^2}}$

(다) $\lim_{(x,y) \rightarrow (0,0)} \frac{x^2y}{x^4+y^2}$

(라) $\lim_{(x,y) \rightarrow (0,0)} \sqrt{x^2+y^2} \ln(x^2+y^2)$

- ① 1개 ② 2개 ③ 3개 ④ 4개

31. $x > 0$ 에서, $x^2 - y^2 = 1$, $x^2 - y^2 = 9$, $xy = 1$,

$xy = -1$ 로 둘러싸인 영역 R 에서 $\iint_R \frac{x^2 + y^2}{1 + x^2 y^2} dA$ 를
구하시오.

- ① 0 ② $\frac{\pi}{2}$ ③ π ④ 2π

32. x, y 에 관한 함수 z 가 $x^3 + x + y^3 + z^3 + 6xyz + 8 = 0$ 을
만족할 때, $x = y = 0$ 에서 $\frac{\partial z}{\partial x}$ 의 값을 구하시오.

- ① $-\frac{1}{12}$ ② $-\frac{1}{6}$ ③ $-\frac{1}{4}$ ④ $-\frac{1}{3}$

33. 꼬인 위치에 있는 두 직선 l_1, l_2 에 대해, l_1 위의 서로
다른 두 점 P_1, P_2 와, l_2 위의 서로 다른 두 점 P_3, P_4 를
고려하자. 다음 중 두 꼬인 직선 사이의 거리를 고르시오.

- ① $\frac{|\overrightarrow{P_1 P_2} \times \overrightarrow{P_1 P_3}|}{|\overrightarrow{P_1 P_2}|}$
② $\frac{|\overrightarrow{P_3 P_4} \times \overrightarrow{P_2 P_4}|}{|\overrightarrow{P_3 P_4}|}$
③ $\frac{|\overrightarrow{P_2 P_3} \cdot (\overrightarrow{P_1 P_2} \times \overrightarrow{P_3 P_4})|}{|\overrightarrow{P_1 P_2} \times \overrightarrow{P_3 P_4}|}$
④ $\frac{|\overrightarrow{P_1 P_4} \cdot (\overrightarrow{P_1 P_3} \times \overrightarrow{P_2 P_4})|}{|\overrightarrow{P_1 P_3} \times \overrightarrow{P_2 P_4}|}$

34. 행렬

$$\begin{bmatrix} 1 & 2 & 1 & -2 \\ 0 & 0 & 1 & 0 \\ 1 & 3 & 2 & 0 \\ -2 & 0 & -1 & a \end{bmatrix}$$

의 역행렬이 존재하지 않도록 하는 상수 a 의 값을 구하시오.

- ① -4 ② 4 ③ -12 ④ 12

35. 인구를 $y(t)$ 로 나타낼 때, 태어나는 비율은 $y(t)$ 에
비례하고, 사망하는 비율은 $y(t)$ 의 제곱에 비례한다고 한다.
이때의 비례상수를 각각 k, ℓ 이라 할 때 ($k \neq \ell$), $y(t)$ 에
대한 서술이 잘못된 것을 고르시오.

- ① 적당한 상수 C 에 대해 $y = \frac{kC}{\ell e^{-kt} + kC}$ 이다.
② $y = \frac{k}{2\ell}$ 일 때 해곡선은 변곡점을 가진다.
③ $y = \frac{k}{\ell}$ 는 유일한 점근적 안정점이다.
④ $y = 0$ 은 불안정 임계점이다.

36. 함수 $y = y(x)$ 가 $x^2 y'' + xy' + y = 0$, $y(1) = 1$,

$y'(1) = 2$ 를 만족한다. $x = \exp\left(\frac{\pi}{4}\right)$ 일 때 y 의 값을
구하시오.

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

37. 함수 $f(t) = |\sin t|$, $t \geq 0$ 의 Laplace 변환을 구하시오.

- ① $\frac{1}{s^2 + 1}$ ② $\frac{\coth(\pi s)}{s^2 + 1}$
 ③ $\frac{2e^{-\pi s}}{(1 - e^{-\pi s})(s^2 + 1)}$ ④ $\frac{1 + e^{-\pi s}}{(1 - e^{-\pi s})(s^2 + 1)}$

38. 양쪽 끝이 고정되어 있는 길이 2인 진동하는 현에서, 위치 x , 시간 t 일 때의 수직 변위를 $u(x, t)$ 라 하자. 현의 초기 변위가 $f(x)$, 초기 속도가 0일 때의 파동방정식

$$a^2 \frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial t^2}, \quad 0 < x < 2, \quad t > 0$$

$$u(0, t) = 0, \quad u(2, t) = 0, \quad t > 0$$

$$u(x, 0) = f(x), \quad \left. \frac{\partial u}{\partial t} \right|_{t=0} = 0, \quad 0 < x < 2$$

은 해를 $u(x, t) = \sum_{n=1}^{\infty} A_n \cos\left(\frac{n\pi a}{2}t\right) \sin\left(\frac{n\pi}{2}x\right)$ 의 형태로

가지게 된다. $f(x) = \sin(2\pi x)$ 로 주어질 때, $\sum_{n=1}^5 A_n$ 를 구하시오.

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

39. 곡선 $C : x^2 + 4xy + 6y^2 = 1$ 을 따라 벡터장

$\mathbf{F}(x, y) = -y\mathbf{i} + x\mathbf{j}$ 를 시계 반대 방향으로 선적분한 값을 구하시오.

- ① π ② $\sqrt{2}\pi$ ③ $\sqrt{3}\pi$ ④ 2π

40. 곡면 S 는 $z = x^2 + 3y^2$ 의 $x^2 + 2y^2 \leq 4$ 인 부분이고 위쪽 방향을 가진다. 벡터장 $\mathbf{F} = (xy - y)\mathbf{i} + (y^2 - z)\mathbf{j} + y\mathbf{k}$ 에 대해, $\iint_S \text{curl} \mathbf{F} \cdot \mathbf{n} dS$ 를 구하시오.

- ① $2\sqrt{2}\pi$ ② $\sqrt{2}\pi$ ③ 0 ④ $-\sqrt{2}\pi$

- 수고하셨습니다 -