

가톨릭대학교 2022학년도 편입학 영어, 수학 A형

(일반·학사·농어촌·특성화) 편입학

모집단위(지원학과) : _____

성명 : _____

수험번호 : _____

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가톨릭대학교
THE CATHOLIC UNIVERSITY OF KOREA

2022학년도 가톨릭대학교 편입학 시험 문제지

영어, 수학 (A형)

[1-3] 빈칸에 들어갈 가장 적절한 표현을 고르시오.

1. When Margaret Mitchell was deciding upon a name for the novel that became *Gone with the Wind*, _____ titles she considered included *Baa! Baa! Black Sheep*.

- ① alternative ② controversial
- ③ misleading ④ unsavory

2. Behavioral geneticists have looked for _____ influences by comparing the temperamental similarities of pairs of identical and fraternal twins.

- ① adverse ② calming
- ③ disruptive ④ hereditary

3. Aside from high teen fashion, the uniform look has always been a recurring concept in K-pop as it also _____ a pure, naive image of the stars wearing it.

- ① elicits ② obscures
- ③ sheds ④ tarnishes

[4-5] 빈칸에 들어갈 어법에 맞는 표현을 고르시오.

4. The son of working-class immigrants from _____ is now Slovakia, Andy Warhol presented a fascinating view of 20th century American culture.

- ① that ② what
- ③ where ④ which

5. Epilepsy is not a single entity but an assortment of different seizure types and syndromes _____ from several mechanisms that have in common the sudden, excessive, and synchronous discharges of cerebral neurons.

- ① originate ② originates
- ③ originating ④ originated

[6-10] 빈칸에 들어갈 가장 적절한 표현을 고르시오.

6. In early 16th century, European explorers in the Americas found many new species of plants and animals. In particular, American plants such as corn, potatoes, and tomatoes proved valuable to Europeans. European settlers and explorers also brought plants and animals from Africa, Asia, and Europe to the American continents. Cattle, horses, and pigs soon ran wild in the Americas. The explorers also brought diseases such as smallpox and measles with them. Most Europeans _____. On

the other hand, American Indians had never dealt with these illnesses before and had no resistance to them. No one knows how many Indians of North and South America died from foreign diseases, but the loss of life was staggering.

- ① had developed immunity to these sicknesses
- ② never intended to spread such diseases in the Americas
- ③ knew the risk of bringing a new civilization to the Americas
- ④ wanted to improve the hygienic conditions for American Indians

7. Stress _____. When Hungarian endocrinologist and pioneering stress researcher Hans Selye brought the word into the medical lexicon, he defined it simply as “the nonspecific response of the body to any demand.” And the immediate physiological effect of stress – increased heart rate, sweaty palms, a sudden surge of energy and even indigestion – exists for a reason. The body’s stress response is designed to help us thrive and survive when we’re faced with threats or challenges to our existence and to our goals. In fact, acute stress responses can also help us get through challenging or threatening everyday situations.

- ① shares a common feature across cultures
- ② didn’t always have such a bad reputation
- ③ has become ubiquitous in our everyday lives
- ④ has evolved as a major threat to our health in general

8. Once, technology was a cold go-between; a means to expedite communications. Now it has evolved to be more active in our interactions. As machines become arbiters of our social lives, software aspires to not only streamline but mediate our connections. The computer once asked: What do you want to say? But now it asks: _____? Twitter recently rolled out “prompts” feature that suggests users think twice before sending a tweet. Facebook announced AI “conflicts alerts” for groups so that administrators can take action when contentious or unhealthy conversations take place.

- ① Are you sure you want to say that
- ② To whom should this message be addressed
- ③ Do you need help finding the right expression
- ④ What time do you want this message to be sent

9. The modern spread of English was due not only to American economic and political power, but also to the volume of native English speakers from America and the initial dominance of America at the time globalization forces gathered speed. With globalization came economic developments on a global scale,

new communication technologies, the emergence of huge multinational organizations, increasingly global popular culture and increased mobility of the world's population. Globalization brought new linguistic opportunities and caused the need for a lingua franca for use in these diverse domains. English found itself in the midst of all of the changes and soon became the leading language. It was simply a matter of _____.

- ① English being in the right place at the right time
- ② English being a primary language in the United States
- ③ how to adjust quickly to all these changes
- ④ how to effectively engineer the propagation of English

10. Following the invasion of Paris in June 1940, the rest of Europe and the United States were cut off from French couture for four years. American fashion designers began to develop a distinctive style, focusing on easy-to-wear, modern clothing as opposed to the elaborate and elite confections of Paris. Practicality was one prominent characteristic, and resulted in the use of easy-care fabrics, adaptable styles, and capsule wardrobes with elements that could be interchanged. The need for simplicity required by mass production _____. The work of New York-based, ready-to-wear designers was promoted as symbolic of American values such as democracy, pioneer spirit, and a pragmatic approach to life. The creators of made-to-measure designers such as Valentina and Adrian, who continued in the couture tradition, were less aligned with national identity.

- ① was not seen as a hindrance but used as an advantage
- ② matched well with the artistic ambition of American designers
- ③ prompted a revival of the French fashion industry in New York
- ④ led to the growth of made-to-measure designers in the couture tradition

[11-16] 다음 글을 읽고 물음에 답하시오.

11. Cobras, cats, and vultures are among the most popular animals depicted in Egyptian art, but the humble catfish once reigned supreme in the iconography of the civilization by the Nile. Common to every continent except Antarctica, catfish are the most diverse group of fish on earth. The 2,000 to 3,000 species have some remarkable characteristics, so it is little wonder they attracted the attention of the Egyptians, one of the most animal-conscious ancient cultures. Named for its feline-like whiskers, called barbels, a catfish has finely honed senses that allow it to survive and find food in murky, muddy waters. One family of catfish has a respiratory system that allows it to use atmospheric oxygen. This is most spectacularly employed by the walking catfish (*Clarias batrachus*), familiar today as an invasive species in Florida, which uses its fins to waddle over land.

Q: According to the passage, which of the following is NOT true?

- ① Despite its plain look, the catfish was featured in Egyptian art.

- ② The catfish got its name from the behavioral similarities it shares with the cat.
- ③ Some catfish species have amphibious features and can breathe outside of water.
- ④ Walking catfish are known to outcompete native fish in Florida.

12. It is tough to deal with parenthood and depression at the same time if you also work. However, you don't have to be a supermom or a superdad every day. Don't push yourself to get a home-cooked meal on the table or keep the house spotless when your energy and mood are low. Order takeout or reheat what's in the freezer. Hire people to mow the lawn, clean your house, go grocery shopping for you, and do other household chores you can't handle yourself. And if you need a temporary break from your kids, get a sitter for the night. When you give yourself permission to take a break – something we all need every so often – you can refuel and reset so you're better able to take on your everyday responsibilities.

Q: What is the main idea of the passage?

- ① You have to do your best at everything, however trivial it is.
- ② To balance work and family life, use shortcuts when you need them.
- ③ There is always someone who can do household chores better than you.
- ④ Don't feel pressed to take on more than one task at a time.

13. As Venus is seen either shining brightly in the East before dawn or, at other times, shining in the West after sunset, it once had two names. The 'evening star' was called Vesperus or Hesperus derived from the Latin and Greek words for evening, respectively, whilst the 'morning star' was called Phosphorus (the bearer of light) or Eosphorus (the bearer of dawn). It is said that the Greeks first thought that they were two different bodies but later came around to the Babylonian view that they were one and the same. There is a famous sentence in the philosophy of language 'Hesperus is Phosphorus' that implies an understanding of this fact. Venus, which shines at close to magnitude -4, is the brightest object in the night sky after the Moon. As for its structure, many scientists believe that Venus has a very similar internal structure to that of the Earth with a core, mantle and crust. The atmosphere of Venus has been shown to largely consist of carbon dioxide with a small amount of nitrogen.

Q: According to the passage, which of the following is correct?

- ① Babylonians believed that the morning star and the evening star were different entities.
- ② Venus outshines the Moon in terms of brightness and clarity.
- ③ Different names of Venus had little to do with when it was viewed.
- ④ The Greeks changed their initial opinion and accepted the Babylonian view.

14. Growth is a life process in which the cells of living organisms increase in size, number and mass. Growth takes place by means of ingestion of nutrients and cellular respiration. Use of organic substances within the cells which gives rise to energy production is called metabolism. Metabolism is simply all the biochemical processes that take place in the cells of the body. These biochemical processes are categorized as two main types: anabolic and catabolic reactions. Anabolic reactions are synthesis reactions. Ingested food is digested by the organs of the digestive system, and then digested food particles are absorbed into the blood and transported to body cells, where they are used. In the cells, these monomers are synthesized and become various parts of the cell. On the other hand, in catabolic reactions, ingested food is catabolized within the cell, providing energy and other vital substances needed by the cell.

Q: Which of the following is correct about anabolic reaction?

- ① It follows the process of supplying energy for the cell.
- ② It refers to the increase of cells in size and number.
- ③ It is a synthesis reaction by the organs of the digestive system.
- ④ It amounts to all the biochemical processes occurring in the body cells.

15. What we know today as early modern philosophy was forged in the opening years of the 17th century, in the writings of such thinkers as Francis Bacon, Thomas Hobbes, and René Descartes. We think of this period as the beginning of modern philosophy in part because these philosophers saw themselves as the vanguard of an intellectual revolution, whose goal was to break with the philosophy of the past. Here they identified their most important target as Aristotle, whose teachings in logic and metaphysics had dominated educated opinion in Europe through most of the previous millennium. Almost all of the best-known philosophers and scientists of the 17th century saw Aristotle's views as a significant impediment to the advance of knowledge, and believed that progress could only begin once the edifice of Aristotle's system had been razed and philosophy could begin to rebuild on solid foundations.

Q: Which of the following is correct about Aristotle?

- ① He was considered as a role model by Bacon, Hobbes, and Descartes.
- ② He was influential for almost a thousand years in the field of logic and metaphysics.
- ③ His achievement in logic and metaphysics began to be appreciated after the 17th century.
- ④ Most philosophers of the 17th century did not regard his theory as an obstacle to the development of knowledge.

16. Species that can cause changes in ecosystem structures and control the availability of resources for other species or even create new habitats are called ecosystem engineers. Moreover, species that are ecosystem engineers usually create or modify mosaics of habitats within the landscape and thereby increase

niches and biodiversity within the ecosystem. The beaver is an example of an ecosystem engineer. The beaver builds dams in streams and small rivers by selectively cutting down trees in riparian forests and creating a complex landscape of ponds, bogs, and flooded meadows. Consequently, the hydrology and geomorphology of rivers and adjacent embankments is modified by the activities of beavers. Beaver ponds reduce the velocity of stream flow and initiate sedimentation. When such sediment is colonized by plants, primary succession is initiated. Beavers also affect their ecosystems when they abandon their dams as soon as food resources decline. Abandoned beaver dams are subject to community succession that can last for decades.

Q: Which of the following is NOT correct, according to the passage?

- ① Beaver dams begin to collapse as soon as the builders abandon their habitats.
- ② The beaver plays a role in creating a complex landscape by building dams in streams.
- ③ Ecosystem engineers contribute to increasing the diversity of species in the ecosystem.
- ④ Beaver dams are responsible for making the stream flow slow, which causes sedimentation.

[17-18] 다음 글을 읽고 물음에 답하시오.

Think for a moment about the characteristics of people whom you consider creative. Chances are that you view them as reasonably intelligent; but it is also likely that they display such characteristics as being highly inquisitive and flexible individuals who love their work, make connections between ideas that others don't, and may be a bit unorthodox and nonconforming. This creativity syndrome may be no accident, for researchers today generally believe that creativity results from a convergence of many personal and situational factors. If so, then it is perhaps understandable why many people with high IQs are not particularly creative or why so few are truly eminent. Yet, scholars such as Sternberg and Lubart have argued that most people have the potential to be creative and will be, at least to some degree, if they can marshal the resources that foster creativity and can invest themselves in the right kinds of goals. This investment theory of creativity is indeed becoming influential these days. According to Sternberg, creative people are willing to "buy low and sell high" in the realm of ideas. "Buying low" means that they invest themselves in ideas or projects that are novel (or out of favor) and may initially encounter resistance. But by _____, a creative individual generates a product that is highly valued, and can now "sell high" and move on to the next novel or unpopular idea that has growth potential.

17. What is the best expression for the blank?

- ① investing heavily in popular ideas
- ② conforming to conventional values

- ③ drawing the attention of potential investors
- ④ persisting in the face of such skepticism

18. According to the passage, which of the following is NOT correct?

- ① There is no guarantee that a person who has a high IQ is creative.
- ② Creative people are not afraid to take on unpopular ideas.
- ③ Creativity is not a natural gift for the selected few and can be nurtured.
- ④ "Buying low" can be interpreted as investment in popular ideas by creative people.

[19-20] 다음 글을 읽고 물음에 답하시오.

Following in Darwin's path, Princeton University biologists Peter and Rosemary Grant, along with a dedicated corps of graduate students, visited the Galápagos Islands to monitor the modifications found in succeeding generations of 13 species of finches as the birds adapted to dramatic changes in the environment. The research program, which began in 1973, lasted more than 30 years. The researchers were witnessing evolution in action, observing the differences in the small songbirds from one generation to the next. The Grants concluded that Darwin had underestimated the power of natural selection. In the case of the finches, evolution was occurring faster than expected. The variations seen in one species of finch began during severe drought conditions that affected the birds' food supply, reducing it to tough spiky seeds. Only those finches with the thickest beaks – approximately 15 percent of the population – were able to break open the seeds. Many of the birds with more slender beaks, which were unable to crack the seeds, soon died. Thus, under these dry conditions, _____.

19. What is the best expression for the blank?

- ① only carnivorous birds could survive
- ② Darwin's adaptation theory does not apply
- ③ thicker beaks were a necessary adaptation tool
- ④ the finches' food supply was not really predictable

20. What is the best title for the passage?

- ① Darwin's Prediction Still Stands
- ② The Finches' Beaks: Evolution at Work
- ③ The Transition of Adaptation Theory for Birds
- ④ The Arrival of Finches: An Unexpected Evolution

21. 방정식 $x^3 = 1$ 의 한 허근을 ω 라고 할 때, $\omega^2 + \omega^{-2}$ 의 값은?

- ① -1 ② 0 ③ 1 ④ 2

22. 3차원 공간의 세 점 $(0, 1, 1)$, $(2, -1, 2)$, $(3, 1, 5)$ 를 꼭짓점으로 하는 삼각형의 넓이는?

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

23. 함수 $f(x) = \sin^2 x + 2$ 에 대하여 극한

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

의 값은?

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

24. 극한 $\lim_{x \rightarrow 0} \frac{1 - \cos(\sin^2(2x))}{x^4}$ 의 값은?

- ① 5 ② 6 ③ 7 ④ 8

25. $xyz = 1$ 을 만족하는 모든 양의 실수 x, y, z 에 대하여 $x + 2y + 4z$ 의 최솟값은?

- ① 2 ② 4 ③ 6 ④ 8

26. 임의의 실수 x, y 에 대하여

$$\begin{pmatrix} x & y \end{pmatrix} \begin{pmatrix} 2 & -a \\ 0 & 4 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix}$$

가 항상 0 이상이 되게 하는 실수 a 의 최댓값은?

- ① $4\sqrt{2}$ ② $\sqrt{15}$ ③ $\sqrt{6}$ ④ 0

27. 함수 $f(x) = x^2 \arctan(2x)$ 에 대하여 $f'\left(\frac{1}{2}\right)$ 의 값은?

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

28. 다음 중 수렴하는 급수는?

- ① $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n}}$ ② $\sum_{n=2}^{\infty} \frac{1}{n(\ln n)^2}$
 ③ $\sum_{n=1}^{\infty} n^{n-1}$ ④ $\sum_{n=1}^{\infty} \sin\left(\frac{1}{n}\right)$

29. 변환 $x = 2r \cos \theta, y = 3r \sin \theta$ 에 대하여 야코비 행렬식 $\left| \frac{\partial(x,y)}{\partial(r,\theta)} \right|$ 을 계산한 결과는?

- ① $5r$ ② $6r$ ③ $7r$ ④ $8r$

30. 급수 $\sum_{n=0}^{\infty} (-1)^n \frac{\pi^{2n}}{(2n)!}$ 의 값은?

- ① -1 ② 0 ③ 1 ④ 2

31. 다음 중 대각화가 불가능한 행렬은?

- ① $\begin{pmatrix} 1 & 2 \\ 0 & 2 \end{pmatrix}$ ② $\begin{pmatrix} 2 & 1 \\ 0 & 2 \end{pmatrix}$
 ③ $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ ④ $\begin{pmatrix} 2 & 1 \\ 3 & 4 \end{pmatrix}$

32. 적분 $\int_0^{\infty} (1 - \tanh x) dx$ 의 값은?

- ① π^2 ② e^2 ③ $\ln 2$ ④ $\sqrt{2}$

33. 곡선 $x^2 + xy + 2y^2 = 1$ 위의 점 (1,0)에서의 접선의 기울기는?

- ① -2 ② -1 ③ 1 ④ 2

34. $y = x^2$, $y = 0$, $x = \sqrt{\pi}$ 로 둘러싸인 영역을 D 라고 할 때, 이중적분 $\iint_D x \sin y dx dy$ 의 값은?

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

35. 다음 중 행렬 $\begin{pmatrix} 1 & 0 & 1 \\ 0 & 3 & 0 \\ 1 & 0 & 1 \end{pmatrix}$ 의 고윳값이 아닌 것은?

- ① 0 ② 1 ③ 2 ④ 3

36. 좌표평면 위의 곡선

$$r(\theta) = (\theta - \sin\theta, 1 - \cos\theta) \quad (0 \leq \theta \leq 2\pi)$$

와 x 축으로 둘러싸인 도형의 넓이는?

- ① π ② 2π ③ 3π ④ 4π

37. 행렬 $A = \begin{pmatrix} 1 & 2 \\ 2 & 3 \end{pmatrix}$ 에 대하여 e^A 의 행렬식은?

- ① e^{-1} ② e^2 ③ e^{-3} ④ e^4

38. 수열 $\{a_n\}$ 은 $a_1 = 1$ 이고 $a_{n+1} = \frac{a_n}{3} + \frac{6}{a_n}$ 을 만족한다.

$A = \lim_{n \rightarrow \infty} a_n$ 라고 할 때, 극한 $\lim_{n \rightarrow \infty} \frac{a_n - A}{a_{n+1} - A}$ 의 값은?

- ① 1 ② -1 ③ 3 ④ -3

39. $x > 0$ 에서 정의된 함수

$$f(x) = \frac{x}{2} \left(x \sin \frac{1}{x} + \cos \frac{1}{x} \right) + \frac{1}{2} \int_0^{\frac{1}{x}} \frac{\sin t}{t} dt$$

가 열린구간 $\left(\frac{1}{2022\pi}, 1 \right)$ 에서 갖는 극대점의 개수는?

- ① 1010 ② 1011 ③ 2020 ④ 2022

40. 급수 $\sum_{n=1}^{\infty} \sin \frac{n\pi}{8} \left(\sin \frac{\pi}{8} \right)^n$ 의 값은?

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