가톨릭대학교 2018학년도 편입학 영어·수학 A형

(일반 · 학사) 편입학   지원전공(학과) : _____

성명 : _____   수험번호 : _____

답안지 작성 유의사항

1. 수험생 인적사항과 답안은 반드시 검정색 필기구로 작성하시기 바랍니다.

   (파란색 필기구, 연필, 샤프 사용금지, 단 예비 마킹시 빨간펜 사용 가능)

2. 문제지와 답안지의 문제번호가 일치하는지 반드시 확인하시기 바랍니다.

3. 답안지에 수정테이프 사용 가능합니다.

4. 문제유형을 정확하게 선택하십시오.

가톨릭대학교

THE CATHOLIC UNIVERSITY OF KOREA

[1-3] 빈칸에 들어갈 가장 적절한 표현을 고르시오.

1. An appropriate amount of frustration is necessary for developing _____; you can ruin your kid by unconditionally granting all of his or her wishes the moment they are expressed.

① confidence   ② indulgence
③ patience   ④ self-esteem

2. Love of truth is the core of the professor's philosophy. He is always ready to revise his views when presented with adequate evidence of their lack of _____.

① diversity   ② opacity
③ popularity   ④ validity

3. Cybercriminals _____ Equifax, one of the largest credit bureaus, in July and stole the personal data of 145 million people. It was considered among the worst breaches of all time because of the amount of sensitive information exposed, including Social Security numbers.

① investigated   ② penetrated
③ transformed   ④ traversed

[4-5] 빈칸에 들어갈 가장 적절한 표현을 고르시오.

4. _____ against him, the alleged spy from France was finally released from the federal prison after a couple of days of confinement.

① Being no evidence there
② To be no evidence there
③ There being no evidence
④ That there was no evidence

5. Fifty European cities introduced tax-supported street lighting by 1700 and made it safe and socially acceptable to move about publicly after dark, a time of day _____ had previously been considered the domain solely of suspicious characters.

① when   ② that
③ what   ④ while

[6-10] 빈칸에 들어갈 가장 적절한 표현을 고르시오.

6. Those who are regarded as inferior members of society may play an important role in the shaping of history. Their importance lies in the readiness with which they are collectively swayed in any direction; they can be easily persuaded to take risks and _____.

① abandon their privileges
② plunge into some united action
③ step toward the mainstream current of politics
④ disregard the consequences of their mobilization

7. For thousands of years nomads, conquerors, traders, and pilgrims have traversed Afghanistan, contributing to its _____ and its wealth of artifacts: From Alexander the Great to Babur of the Moguls, invaders introduced new customs. Caravans imported Roman and Islamic glassware, Indian ivories, and Chinese textiles, while travelers inspired by faith brought Buddhism and Islam.

① eternal progression
② pioneering pathway
③ territorial expansion
④ multicultural heritage

8. The single most common nervous system disorder and the third leading cause of death in the United States are *cerebrovascular accidents* (CVAs), also called *strokes* or *brain attacks*. CVAs occur when blood circulation to a brain area is blocked and brain tissue dies. Those who survive a CVA are often paralyzed and exhibit sensory deficits. Whatever the cause, fewer than 35% of patients who survive a CVA are alive three years later. _____, the picture is not hopeless. Some patients recover at least part of their lost faculties, because undamaged neurons sprout new branches that spread into the injured area and take over some lost functions.

① If not
② Even so
③ What's more
④ As a result

9. Like all polar bears, those on Hudson Bay need solid ice as a platform for hunting seals and seal cubs, their main prey. Yet the bay _____, so from June to October bears must live off their fat reserves. For millennia they've coped, but climate change may be tipping the balance: The ice has begun to disappear from Hudson Bay, and if the trend continues, then it's pretty clear that the bears will disappear too.

① is frozen only in winter and spring
② is full of fish for at most six months
③ doesn't provide enough food in summer
④ is visited by many tourists during the winter

10. Weather accompanies air masses as they travel across the earth's surface. A large part of weather forecasting involves locating air masses, determining their characteristics, and plotting their movements on a regular schedule so that predictions of the masses' future movements can be made. To do this, meteorologists _____. Therefore, thousands of individual surface weather stations in the U.S. report their measurements to the National Weather Service (NWS). The NWS also receives many thousands of surface aviation reports from airports, many hundreds of reports from ships at sea, and several thousand aircraft reports.

① should be able to make weather maps easy to read
② need to know the weather over a large area
③ should be able to transmit data to airports
④ need to communicate with ships at sea

[11-14] 다음 글을 읽고 물음에 답하시오.

11. In Mexico, _____. The revenues from new trade policies and foreign investment are flowing to an all too visible superclass of the very rich. But at the same time, the great mass of Mexicans are struggling with overcrowding, a breakdown of critical services and lack of productive jobs.

Q: What is the best topic sentence for the blank?
① economy falters as national politics suffers from severe agitation
② the gap between reality and expectations has become too wide
③ the inflation rate hits its highest level in ten years
④ superficial prosperity gilds a fragile economic core

12. As long as the term *art* is applied to a realm so vast and indefinite as to embrace literature, music and dance, theater and film, the visual and decorative arts, and other equally diverse activities, their classification — the way in which each is regarded as being either unique or like others — will remain a controversial but necessary undertaking. Classification is a useful approach to the organization of knowledge in any field: The classification of plants and animals in the 18th century led to the discovery of evolution in the 19th. In the arts, classification can be of immense help in understanding the interrelationships between arts and in drawing attention to characteristics of each that might otherwise go unnoticed.

Q: What is the passage mainly about?
① how we classify the wide range of arts
② the general classification procedure to follow
③ the main pitfalls we encounter in classifying arts
④ why classification is necessary in the field of arts

13. Unlike mammals and birds, snakes cannot generate body heat through the digestion of food. They must depend on external sources of heat, such as sunlight, to maintain body temperature. Temperature control is particularly important when snakes are digesting a meal, or in the case of females, reproducing. Many snakes increase the amount of time spent basking in the sun after they have eaten a large meal in order to speed up the digestive process. To conserve their heat, snakes coil up tightly, so that only a small portion of their skin is exposed to cooler air.

Q: Which of the following is NOT true about snakes?
① They usually get heat by lying in sunlight.
② They coil their bodies in order to stay warm.
③ Food is an important source of their body heat.
④ Maintaining body temperature is important for digestion.

14. This Christmas was nearly John Russel's last: The 38-year-old got lost while hunting birds and was stranded overnight as the temperature dropped to 20 degrees below zero. Russel decided to spend the holiday hunting near his home in Monterey, Virginia. Not long into the trip, the 38-year-old's car got stuck. Without a phone to alert anyone of his situation, Russel was forced to brave the freezing night on his own. Luckily, his will to live and some impressive survival skills allowed the hunter to welcome in yet another new year.

Q: Which of the following is true about John Russel?
① He went hunting on Christmas with his family.
② He found an abandoned car while he was hunting birds.
③ His survival skills were helpful in escaping from isolation.
④ He was brave enough to rescue those who got lost in the forest.

Gustav III of Sweden was disgusted by coffee and convinced it had bad effects on one's health. He was so against the bitter brew that he decided to use science to prove to his subjects that they should give up coffee once and for all. In a move that would make modern scientists' jaws drop, Gustav enlisted prisoners for a scientific experiment. He found two convicted murderers on whom to conduct his experiment—an early example of a controlled study. (A) The men had been sentenced to death, so the king offered them life in prison instead if they'd participate. (B) The men were given a not-so-terrible task in prison: drinking coffee and tea. (C) By then, tea had replaced coffee in Sweden as the daily drink of choice. (D) One man was required to drink three pots of coffee every day; the other was assigned an equal amount of tea. The men set about their tasks, and Gustav awaited the results of the scientific control experiment. But the king's prediction was not borne out. The man provided coffee lived…and, ironically, outlived Gustav himself. Not only did the prisoner outlive the king, but he outlived the doctors Gustav appointed to oversee him.

15. Choose one that is unnecessary for the flow of the passage.
① (A)　　　　　　　　② (B)
③ (C)　　　　　　　　④ (D)

16. What did the king expect from his experiment?
① Both the prisoners will have mental disorder.
② The coffee-drinking prisoner's health will fail soon.
③ Both the prisoners will suffer from caffeine addiction.
④ The coffee-drinker will refuse to participate in the experiment.

You already know that making a good first impression can go a long way. But forget all the advice you've received about dressing to impress or putting on a cheesy smile. The true secret to building a lasting connection reaches much deeper than what you wear. According to Dr. Turner, who has researched first impressions for more than 10 years, everyone (consciously or subconsciously) asks two questions when meeting someone new: _____ And can I respect this person?

Both questions help you measure a person's warmth and competence, respectively. But, Dr. Turner says, you should put gaining your peers' trust over winning their respect, even in a workplace setting. "If someone you're trying to influence doesn't trust you, you're not going to get very far; in fact, you might even elicit suspicion because you come across as manipulative," Dr. Turner wrote in her article. "A warm, trustworthy person who is also strong elicits admiration, but only after you've established trust does your strength become a gift rather than a threat."
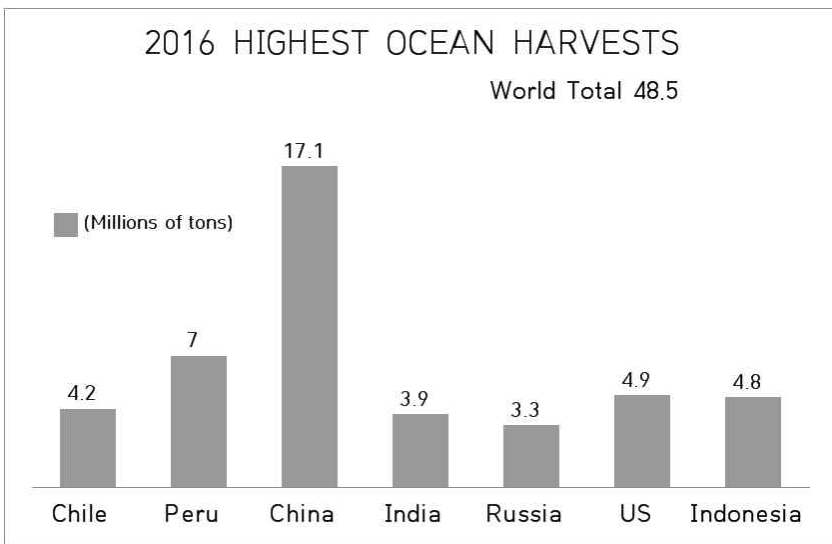
17. What is the best expression for the blank?
① Can I trust this person?
② Can I influence this person?
③ Will this person respect me?
④ Will this person be warm and competent?

18. What does the underlined part mean?
① you happen to meet somebody you can control easily
② you're considered as a competent and creative person
③ you're not confident but only suggestive in your discussion
④ you make an impression as being influential in a negative way

[19-20] 다음 글을 읽고 물음에 답하시오.

The oceans are stretched, and certain fish species are approaching depletion. Leading scientists project that if we continue to fish this way, without allowing our oceans time to recover, our oceans could become virtual deserts by 2050. We as fish consumers have all contributed to this situation, with several countries harvesting most of the fish, as shown in the graph below. Fishermen from those countries already began to catch small and immature fish, and sometimes they almost destroy the species in that process. Given that demand for seafood — along with the world's population — is rising, don't be surprised if the window closes even faster than 2050. Make your peace with fish, because it may not last much longer.

2016 HIGHEST OCEAN HARVESTS
World Total 48.5
(Millions of tons)

Chile 4.2, Peru 7, China 17.1, India 3.9, Russia 3.3, US 4.9, Indonesia 4.8

19. What does this passage suggest?
① We must not overfish.
② We must stop polluting the oceans.
③ We must introduce new fish species in the sea.
④ We must help sick sea animals recover.

20. Which of the following is the correct description of the graph?
① Russia harvested more fish than Chile did.
② Indonesia's harvest was less than a half of Peru's.
③ China alone harvested about 17% of the total ocean harvests.
④ Most of the ocean harvests were from Asia and South America.

21. 함수 $f(x) = \log_2(2x^2+1)$에 대하여 $f'(1)$은?
① $\dfrac{2}{3}$ ② $\dfrac{4}{3}$ ③ $\dfrac{2}{3\ln 2}$ ④ $\dfrac{4}{3\ln 2}$

22. 다음 중 다항식 $x^{2n}+x+1$이 x^2+x+1로 나누어떨어지는 자연수 n의 값은?
① 35 ② 45 ③ 55 ④ 65

23. 함수 $f(x) = \sqrt{4x-x^2} - \sqrt{6x-x^2-8}$의 최댓값은?
① 1 ② $\sqrt{2}$ ③ 2 ④ 4

24. 함수 $f(x) = 1+x+x^2+\cdots+x^{100}$에 대하여, $\dfrac{f'(2)}{f(2)}$에 가장 가까운 자연수는?
① 49 ② 50 ③ 51 ④ 52

25. 양의 실수에서 정의된 미분 가능한 함수 $f(x)$가
$$\sqrt{f(x+2h)} - \sqrt{f(x)} = 3h \qquad (x>0,\ h>0)$$
를 만족할 때, 다음 중 도함수 $f'(x)$와 같은 것은?

① $\dfrac{3}{2\sqrt{f(x)}}$ ② $\dfrac{3}{\sqrt{f(x)}}$

③ $\dfrac{3\sqrt{f(x)}}{2}$ ④ $3\sqrt{f(x)}$

26. 양의 실수에서 정의된 함수 $f(x) = \lim\limits_{n\to\infty} \dfrac{x - |\log_3 x|^n}{x^2 - |\log_3 x|^n}$ 에서 불연속인 점들의 모든 x좌표의 합은?

① $\dfrac{10}{3}$ ② $\dfrac{11}{3}$ ③ $\dfrac{13}{3}$ ④ $\dfrac{14}{3}$

27. 다음 극한값은?

$$\lim_{x\to 0^+}(x^2 + \sin x)^{\frac{1}{\ln x}}$$

① 0 ② $\dfrac{1}{e}$ ③ 1 ④ e

28. 함수 $y = \dfrac{\sqrt{3x+1}}{ax+b}$ 의 $x=0$에서의 선형근사식이 $y = 2x+1$일 때, $a+b$의 값은?

① $\dfrac{1}{2}$ ② $\dfrac{5}{2}$ ③ $\dfrac{9}{2}$ ④ $\dfrac{13}{2}$

29. 함수 $f(x) = e^x + x + a$에 대하여, $f(x)=0$의 해를 뉴턴의 방법을 적용하여 구하려고 한다. 첫 번째 근삿값이 0일 때, 두 번째 근삿값이 0.5라면 a의 값은?

① -5 ② -4 ③ -3 ④ -2

30. 함수 $f(x) = x\ln x + (1-x)\ln(1-x)$의 최솟값은?

① $-\ln 2$ ② $-\dfrac{1}{2}$ ③ $\dfrac{1}{2}$ ④ $\ln 2$

31. A는 $k \times l$ 행렬, B는 4×3 행렬, C는 $m \times n$ 행렬, D는 $p \times q$ 행렬이고 $ABC + D = \begin{pmatrix} 1 \\ 1 \\ 9 \end{pmatrix}$일 때, $k+l+m+p$의 값은?

① 9　　　② 11　　　③ 13　　　④ 15

32. 다음 급수 중 수렴하는 것을 모두 고르면?

$$(\daleth) \sum_{n=1}^{\infty} \frac{n!}{e^{n^2}} \quad (\daleth) \sum_{n=1}^{\infty} \left(\frac{n}{n+1}\right)^n \quad (\daleth) \sum_{n=1}^{\infty} \frac{2^n n^3}{n!}$$

① (ㄱ), (ㄴ)　　　　② (ㄱ), (ㄷ)
③ (ㄴ), (ㄷ)　　　　④ (ㄱ), (ㄴ), (ㄷ)

33. $\int_0^a \sin x (\cos x + 1)dx = 2$일 때 a의 값은? (단, $0 \le a \le \pi$)

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

34. 함수 $f(t) = \int_t^{t+1} |e^x - 1|dx$가 최소가 되는 t의 값은?

① $\ln\left(\frac{1}{1+e}\right)$　　　　② $\ln\left(\frac{2}{1+e}\right)$

③ $\ln\left(\frac{e}{1+e}\right)$　　　　④ $\ln\left(\frac{2e}{1+e}\right)$

35. 자연수 n에 대하여 $I_n = \int_0^\pi \frac{\sin nx}{\sin x}dx$일 때, $|I_{2018} - I_{2017}|$의 값은?

① 0　　　② $\frac{\pi}{2}$　　　③ π　　　④ 2π

36. 평면 $x - 2y + z = 1$에 수직이고 직선 $x = 2y = 3z$를 포함하는 평면의 방정식은?

① $7x - 4y - 15z = 0$　　　② $4x + y - 2z = 0$
③ $6x + 3y + 2z = 0$　　　④ $x - 4y + 3z = 0$

37. 함수 $f(x,y)=x^3+y^3-3xy-1$의 극솟값은?

① -4 ② -3 ③ -2 ④ -1

38. 함수 $f(x,y)$에 대하여, 점 $(x,y)=\left(1,-\sqrt{3}\right)$에서 f_{xx}, f_{yy}, f_{xy}의 값이 각각 $-6\sqrt{3}$, 2, $-2\sqrt{3}-2$이다. 이 점에서의 $\dfrac{\partial^2 f}{\partial r^2}$ 의 값은? (단, $x=r\cos\theta$, $y=r\sin\theta$ 이다.)

① $\dfrac{9}{2}-\sqrt{3}$ ② $\dfrac{9}{2}-\dfrac{\sqrt{3}}{2}$

③ $\dfrac{9}{2}+\dfrac{\sqrt{3}}{2}$ ④ $\dfrac{9}{2}+\sqrt{3}$

39. 이변수 함수
$$f(x,y)=\begin{cases}2(x+y) & 0\le x,y\le 2\\ 0 & \text{그 밖의 } x,y\end{cases}$$
에 대하여 $A=\{(x,y)\mid x-y>1\}$일 때 $\displaystyle\iint_A f(x,y)\,dxdy$는?

① 1 ② 2 ③ 3 ④ 4

40. 1사분면에서 정의된 이변수 함수 $f(x,y)=\displaystyle\int_{x+y}^{xy}\dfrac{e^{-xt}}{t}dt$ 에 대하여 $\nabla f(1,1)$은?

① $\left(\dfrac{2}{e}-\dfrac{1}{e^2},\dfrac{1}{2e^2}\right)$ ② $\left(\dfrac{1}{2e^2},\dfrac{1}{e}-\dfrac{1}{2e^2}\right)$

③ $\left(\dfrac{2}{e}-\dfrac{3}{2e^2},\dfrac{1}{e}-\dfrac{1}{2e^2}\right)$ ④ $\left(\dfrac{2}{e}-\dfrac{3}{2e^2},\dfrac{1}{2e^2}\right)$