2018학년도 건국대학교 편입학 필기고사

자 연 계

A형

○ **시험 시간은 10:00 ~ 11:00 (60분)입니다.**

○ 이 문제지는 **총 40문항**으로 구성되어 있습니다. 문제지 하단의 쪽수(현재 쪽/전체 쪽수)를 보시고 페이지 누락여부를 확인한 후, 누락된 페이지가 있으면 즉시 감독자에게 말씀하셔서 문제지를 교체하시기 바랍니다.

○ **각 문항별로 배점이 상이**하므로 유의하시기 바랍니다.

○ 답안지에 **성명, 수험생 지원 모집단위, 수험번호, 문제 유형(A형/B형)**을 **정확하게 기재 또는 마킹** 하십시오.
(1) OMR 답안지에 수험생이 직접 쓰는 ① **성명,** ② **지원모집단위,** ③ **수험번호**
- 반드시 **흑색 볼펜 또는 컴퓨터용 사인펜**만 사용하여 기재 (연필, 샤프, 색깔 볼펜 등 사용 불가)
(2) OMR 답안지 상의 ① **수험번호 숫자 마킹란,** ② **문제유형(A형/B형),** ③ **답안 표기란**
- 반드시 **컴퓨터용 사인펜**만 사용하여 마킹
(3) 컴퓨터용 사인펜과 흑색 볼펜을 개인 지참하여 사용 가능
(4) 수정테이프(수정액 사용 불가)를 사용하여 답안 수정 가능

○ 답안지 작성 시 **아래의 경우를 유의**하시기 바랍니다.
(1) 답안지 전체 0점 처리
- 문제지 유형(A형/B형)을 마킹하지 않은 경우
- OMR 답안지에 마킹하는 것 이외에 불필요한 표시 및 낙서를 하거나 답안과 무관한 서술을 기입한 경우
- 본인 신분을 나타낼 수 있는 표현 및 표시를 하는 경우

(2) 해당 문항 0점 처리
- 컴퓨터용 사인펜 이외의 필기구로 답안을 마킹하거나 바른 방법으로 표기하지 않아 전산에 인식되지 않은 경우
- 답안을 중복하여 마킹한 경우
- 수정테이프가 답안지에서 떨어지는 등 불완전한 수정처리로 인해 답안이 중복처리 될 경우

※ 시험이 시작되기 전에는 표지를 넘기지 마십시오.

A형

2018학년도 건국대학교 편입학
필기고사 문제지

자연계

편입구분	지원 모집단위	수험번호	성명
일반편입 / 학사편입			

※ [1-20번: 문항 당 2점 / 21-40번: 문항 당 3점]

[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 않는 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 덤불에서 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

17. 다음 글의 목적으로 가장 적절한 것은?

Demarketing in a tourism context is the process of discouraging all or certain tourists from visiting a particular destination. General demarketing occurs when all visitors are temporarily discouraged from visiting a location, usually due to perceived carrying capacity problems. A notable example is Venice, where intensive summer crowding occasionally prompts local authorities to run ads depicting unpleasant scenes of litter, polluted water, dead pigeons and the like. The assumption is that the brand image of Venice is so strong that such imagery will not cause any permanent damage to the tourism industry. Most other destinations, however, do not have such a powerful brand and hence are generally reluctant to countermand brand-building efforts with demarketing.

① 역(逆) 마케팅의 개념을 소개하려고
② 베니스라는 브랜드 이미지의 형성 과정을 소개하려고
③ 특정 여행지를 방문하려는 관광객들에게 정보를 제공하려고
④ 관광산업에서 역(逆) 마케팅이 어떻게 활용되는지 설명하려고
⑤ 불쾌한 장면들을 묘사하는 광고를 만드는 방법을 소개하려고

18. 다음 글의 내용과 일치하는 것은?

Some British people are worried about the increasing influence of American English on British English. Both written and spoken British English are today more aggressive and direct. But one development which most people welcome is the campaign to replace the difficult and obscure language used on official forms with plain English. Britain has no language academy to set and enforce standards, though recently there have been calls for one to be set up. Others argue that rules laid down by such an organization would hinder the natural development of the language and would in any case probably be resisted by the public.

① 영국영어는 미국영어의 영향을 거의 받지 않았다.
② 영국영어는 예전보다 덜 공격적이고 직설적이다.
③ 대부분의 영국인은 평이한 영어를 더 선호한다.
④ 영국에는 언어에 대한 규정을 제정하는 기관이 있다.
⑤ 모든 영국인들은 언어의 자연스러운 변화를 거부한다.

[19-20] 다음 글을 읽고 물음에 답하시오.

Everyone knows what sharks look like. We also know that sharks can be dangerous. However, many people may not realize that sharks are one of the oldest species of animals on earth, as well as one of the most interesting. Sharks share some things in common with other fish, but they are somewhat (A)different. First of all, almost all sharks are carnivores, or meat eaters. They eat dolphins, seals, other sharks, and other fish. Like all fish, though, sharks are (B)cold-blooded animals — their bodies change temperature as the water temperature changes. Also, like other fish, the shark's body has gill slits, or openings that help the shark (C)breathe in the water. However, a shark's skeleton is unusual for a fish. Its bones are tough and (D)inflexible. In fact, shark bones feel like a human ear. In addition, a shark's skin is unusual for a fish. Its skin is like armor. It has many sharp spikes or nails to (E)protect it. Consequently, you can hurt yourself by just touching a shark's skin.

19. (A)~(E) 가운데, 문맥상 낱말의 쓰임이 적절하지 않은 것은?
① (A) ② (B) ③ (C)
④ (D) ⑤ (E)

20. 위 글의 제목으로 가장 적절한 것은?
① Don't Touch Sharks: It's Dangerous!
② Do You Know What Sharks Look Like?
③ Sharks and Dolphins: How Different?
④ How Sharks Breathe in the Deep Sea
⑤ How Sharks Are Different from Other Fish

※ [21-40번: 문항 당 3점]

21. 다음과 같이 정의된 함수 $f(x)$가 모든 실수 x에 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 <u>모두</u> 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 ∞

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_1까지 거리와 직선 l_2까지 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 $40cm$, $40cm$, $60cm$인 직육면체가 있다. 각 변의 길이를 최대 $0.1cm$의 오차범위 내에서 측정하였을 때, 전미분을 이용하여 구한 직육면체 부피의 최대오차는?

① $580\,cm^3$
② $600\,cm^3$
③ $620\,cm^3$
④ $640\,cm^3$
⑤ $680\,cm^3$

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 f에 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^2w
③ $2xw$
④ $2x^2w$
⑤ $2xe^{x^2}w$

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

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

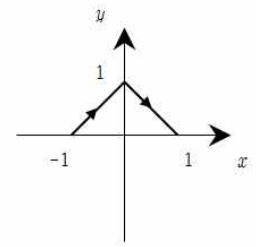
36. $x=r^2+s^2$, $y=2rs$ 이고 $z=2x^2-xy+y^2-y$ 이라고 하자. $r=1, s=0$일 때, $\frac{\partial z}{\partial s}$의 값은?

① -4 ② -2 ③ 0 ④ 2 ⑤ 4

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

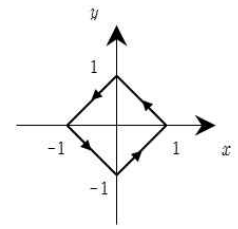
① $\sqrt{2}$
② $\sqrt{3}$
③ $2\sqrt{2}$
④ $2\sqrt{3}$
⑤ 4

38. 좌표평면에서 곡선 C가 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 C는 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 R이 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 $4\int_0^{\frac{1}{2}}\int_0^1 f(-2v,2u+v)\,du\,dv$

※ 시험이 시작되기 전에는 표지를 넘기지 마십시오.