5-01 · 5-1 진화의 논리
05 생명과 자연 · 교재 p.126

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Since hydra and the immortal jellyfish don't exhibit obvious signs of aging, they are often called biologically immortal. This doesn't mean they don't die. Nor does it even mean that they cannot die of biological causes. But, unlike most every animal, their likelihood of dying does not increase with age. Species such as hydra and the immortal jellyfish excite gerontologists because they may provide clues about how to defeat the aging process. But their property of being able to regenerate entire body parts, or even a whole organism, makes them _____. Although we may learn some fascinating things about their lack of apparent aging, it is not at all clear how relevant those findings will be to human aging. Sometimes biology is universal, especially if it relates to fundamental mechanisms. But in other cases, even discoveries in rats or mice, which are mammals and biologically much closer to us, are difficult to translate into humans. It may be a very long time before any findings gained from hydra or jellyfish are useful to us.

1. 빈칸 추론 윗글의 빈칸에 들어갈 말로 가장 적절한 것은?

① more similar to trees than to us
② more complex than mammals
③ exactly like human cells
④ unable to survive in water
⑤ closer to mice and rats

2. 요지 윗글의 요지로 가장 적절한 것은?

① 히드라와 해파리는 결코 죽지 않는다.
② 쥐 실험 결과는 인간에게 쉽게 적용된다.
③ 히드라와 해파리의 노화 연구 결과가 인간에게 적용되기까지는 어렵고 오랜 시간이 걸릴 수 있다.
④ 생물학은 언제나 보편적이다.
⑤ 노화 연구는 더 이상 필요 없다.

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It's important for humans to have many kinds of minds, because variation is ① critical for the survival of a species. One of Charles Darwin's greatest insights was that variation is a ② obstacle for natural selection to work. Think about it: If there's a huge change in the environment, like a catastrophic drop in the food supply or a big increase in temperature, a species ③ without much variation might be completely wiped out. A species with great variation will more likely have some survivors after any catastrophe—the members who are well ④ suited for the new environment. Darwin observed variation in the bodies of animals, and the same principle applies to human minds. If we all had the same kind of mind—if there were only one human nature—then when disaster struck, we might become extinct. Thankfully, our species has many kinds of minds, both within a single culture and across cultures, so we're less likely to be wiped out. This variation ⑤ preserves the evolvability of our species.

1. 어휘 윗글의 밑줄 친 부분 중, 문맥상 낱말의 쓰임이 적절하지 않은 것은?

① ② ③ ④ ⑤

2. 제목 윗글의 제목으로 가장 적절한 것은?

① One Human Nature for All
② Why Darwin Ignored Minds
③ Variation Weakens a Species
④ Disasters Wipe Out Every Species
⑤ Many Minds, One Survival Strategy

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In most respects, humans are one of a relatively small number of species that ① evolved a very different strategy of investing more energy to reproduce more slowly. Like apes and elephants, we mature at a leisurely pace, grow large bodies, and have few babies but ② devote much time and energy to raising them well. This unusual strategy ③ succeed because while apes and elephants produce fewer babies than mice, a larger percentage of their offspring survive to then reproduce. A house mouse can become a mother when she is just five weeks old, has four to ten pups per litter, and can have a new litter every two months over the course of her approximately twelve-month life. However, the vast majority of her pups ④ die young. In contrast, a chimp or elephant mother does not reproduce until she is at least twelve years old, and she gives birth to only one infant every five or six years over the next thirty or so years. About half of these offspring ⑤ make it to becoming parents.

1. 어법 윗글의 밑줄 친 부분 중, 어법상 틀린 것은?

① ② ③ ④ ⑤

2. 요약문 완성 윗글의 내용을 한 문장으로 요약하고자 한다. 빈칸 (A), (B)에 들어갈 말로 가장 적절한 것은?

Humans, like apes and elephants, (A) _____ slowly and have few babies, but a larger share of their offspring (B) _____ to reproduce.

	(A)		(B)
①	mature	……	survive
②	mature	……	fail
③	breed quickly	……	survive
④	grow small	……	die
⑤	give birth often	……	return

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Life is what physicists might call a ‘high-dimensional system,’ which is their fancy way of saying that there’s a lot going on. ① In just a single cell, the number of possible interactions between different molecules is enormous. ② Such a system can only hope to be stable if only a smaller number of collective ways of being may emerge. ③ Some physicists also enjoy writing popular science books for young readers. ④ For example, it is only a limited number of tissues and body shapes that may result from the development of a human embryo. ⑤ In 1942, the biologist Conrad Waddington called this drastic narrowing of outcomes canalization. The organism may switch between a small number of well-defined possible states, but can’t exist in random states in between them, rather as a ball in a rough landscape must roll to the bottom of one valley or another. We’ll see that this is true also of health and disease: there are many causes of illness, but their manifestations at the physiological and symptomatic levels are often strikingly similar.

1. 무관한 문장 윗글에서 전체 흐름과 관계 없는 문장은?

① ② ③ ④ ⑤

2. 주제 윗글의 주제로 가장 적절한 것은?

① why cells contain few molecules
② canalization: how complex life settles into a few stable states
③ the random states of a human embryo
④ how balls roll in rough landscapes
⑤ the history of physics in biology

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2024년 9월 시행 · 전국연합학력평가

Biologists distinguish two kinds of similarity. “Analogous” traits are ones that have a common function but arose on different branches of the evolutionary tree and are in an important sense not “the same” organ. The wings of birds and the wings of bees are both used for flight and are similar in some ways because anything used for flight has to be built in those ways, but they arose independently in evolution and have nothing in common beyond their use in flight. “Homologous” traits, in contrast, may or may not have a common function, but they descended from _____ and hence have some common structure that indicates their being “the same” organ. The wing of a bat and the front leg of a horse have very different functions, but they are all modifications of the forelimb of the ancestor of all mammals. As a result, they share nonfunctional traits like the number of bones and the ways they are connected. To distinguish analogy from homology, biologists usually look at the overall architecture of the organs and focus on their most useless properties.

1. 빈칸 추론 윗글의 빈칸에 들어갈 말로 가장 적절한 것은?

① a common function
② different branches
③ the same environment
④ similar uses in flight
⑤ a common ancestor

2. 제목 윗글의 제목으로 가장 적절한 것은?

① Why Bees Fly Like Birds
② Bats Are Related to Bees
③ Useful Traits Reveal Ancestry
④ Analogy and Homology: Two Kinds of Similarity
⑤ The Wings of Every Animal Are the Same

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2024년 6월 시행 · 전국연합학력평가

How did the human mind evolve? One possibility is that competition and ① conflicts with other human tribes caused our brains to evolve the way they did. A human tribe that could out-think its enemies, even slightly, possessed a ② vital advantage. The ability of your tribe to imagine and predict where and when a ③ hostile enemy tribe might strike, and plan accordingly, gives your tribe a significant military advantage. The human mind became a weapon in the struggle for survival, a weapon far more ④ decisive than any before it. And this mental advantage was applied, over and over, within each succeeding generation. The tribe that could out-think its opponents was more likely to succeed in battle and would then pass on the genes responsible for this mental advantage to its offspring. You and I are the ⑤ ancestors of the winners.

1. 어휘 윗글의 밑줄 친 부분 중, 문맥상 낱말의 쓰임이 적절하지 않은 것은?

① ② ③ ④ ⑤

2. 요지 윗글의 요지로 가장 적절한 것은?

① 다른 부족과의 경쟁과 갈등이 인간의 정신을 더 뛰어나게 진화시켰다.
② 인간의 정신은 협력을 통해서만 진화했다.
③ 전쟁은 인간의 두뇌 발달을 방해했다.
④ 정신적 능력은 유전되지 않는다.
⑤ 적을 예측하는 능력은 생존과 무관하다.

정답 및 해설

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1. ① 신체 전체를 재생하는 능력 때문에 히드라와 해파리는 우리보다 '나무에 더 가깝다'. 그래서 그 연구가 인간에게 얼마나 관련 있을지 불분명하다.

2. ③ 생물학적으로 불멸인 생물은 흥미롭지만 우리와 너무 달라, 그 발견이 인간 노화에 쓰이기는 쉽지 않다는 것이 요지다. ①은 글이 부정한 내용이다.

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1. ② 다윈의 통찰은 변이가 자연 선택이 작동하기 위한 '전제 조건'이라는 것이다. ② obstacle → prerequisite.

2. ⑤ 몸의 변이처럼 마음의 다양성도 재난 속에서 종의 생존과 진화 가능성을 지켜 준다는 글이다.

5-03 · 2025년 6월 고1 학평 33번

1. ③ 주어가 단수 This unusual strategy이므로 succeeds가 알맞다. ③ succeed → succeeds.

2. ① 인간은 유인원·코끼리처럼 천천히 '성숙하고' 자식을 적게 낳지만, 더 많은 비율의 새끼가 번식할 때까지 '살아남는다'.

5-04 · 2024년 10월 고1 학평 39번

1. ③ 글은 복잡한 생명 체계가 소수의 안정된 상태로 수렴한다는 내용이다. ③은 물리학자들의 책 집필 이야기로 흐름과 무관하다.

2. ② 생명은 상호작용이 엄청난 고차원 체계지만 소수의 정해진 상태로만 수렴하며, 이를 운하화라 부른다는 내용이다.

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1. ⑤ 상동 형질은 기능이 같든 다르든 '공통 조상'에서 내려와 공통 구조를 가진다. ①은 상사 형질의 특징이다.

2. ④ 기능이 같지만 따로 생긴 상사 형질과, 공통 조상에서 내려온 상동 형질을 구분하는 글이다. ③은 글과 반대로 쓸모없는 속성을 본다.

5-06 · 2024년 6월 고1 학평 33번

1. ⑤ 적보다 더 잘 생각한 부족이 유전자를 남겼으므로 우리는 승자들의 '후손'이다. ⑤ ancestors → descendants.

2. ① 적을 더 잘 예측하고 계획한 부족이 살아남아 유전자를 전했으므로, 인간의 정신은 생존 경쟁의 무기로 진화했다는 것이 요지다.