英　　語

(問　題)

2016年度

〈H28101119〉

注　意　事　項

1. 試験開始の指示があるまで、問題冊子および解答用紙には手を触れないこと。
2. 問題は２～11ページに記載されている。試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁及び解答用紙の汚損等に気付いた場合は、手を挙げて監督員に知らせること。
3. 解答はすべて、ＨＢの黒鉛筆またはＨＢのシャープペンシルで記入すること。
4. マーク解答用紙記入上の注意
   (1) 印刷されている受験番号が、自分の受験番号と一致していることを確認したうえで、氏名欄に氏名を記入すること。
   (2) マーク欄にははっきりとマークすること。また、訂正する場合は、消しゴムで丁寧に、消し残しがないようによく消すこと。

マークする時	●良い	◯悪い	◯悪い
マークを消す時	◯良い	◯悪い	◯悪い

5. 解答はすべて所定の解答欄に記入すること。所定欄以外に何かを記入した解答用紙は採点の対象外となる場合がある。
6. 試験終了の指示が出たら、すぐに解答をやめ、筆記用具を置き解答用紙を裏返しにすること。
7. いかなる場合でも、解答用紙は必ず提出すること。

〔Ⅰ〕 次の英文（ⅰ）～(ⅷ) を読んで、設問1～25の解答として最も適当なものを、(A)～(D) の中から選びなさい。

(ⅰ) The journey of growing up was once personal; now it is so public. Today teenagers' sense of self is being defined by what they see on YouTube and Facebook and how they present themselves on social networking sites. How can parents keep their teenagers safe and raise them to be successful, caring, and productive adults in the face of technology's grip? Susan Morris Shaffer, president of an educational nonprofit, and Linda Perlman Gordon, a psychotherapist, authors of "How to Connect with Your iTeen," explain how parents can negotiate the teen world that seems apart from theirs.

"Today, the media has an unprecedented influence on teenage development. Teens spend much of their day juggling between various forms of media, often at the same time. A new nationwide survey from Pew Research reveals that 24% of teens ages 13-17 say they are online 'almost constantly,' and 92% go online daily. It's up to parents to provide an anchor to counter the barrage of information and manipulation by helping their teens develop critical thinking skills."

"Parents must be tech savvy in order to become familiar with the places their teens go online. Think of social media as a virtual playground that requires the same scrutiny as any other place your child may visit. Parents should engage their teen in conversation about the lack of filters and boundaries in cyberspace. Teen postings are public and have an infinite lifespan. Remind teens that any posting can have unintended consequences, something teens don't often foresee."

1. To whom is this article directed?
(A) Facebook users
(B) Parents
(C) Psychotherapists
(D) Teens

2. How can parents help their teenage children?
(A) Become tech savvy on social media.
(B) Develop critical thinking skills.
(C) Friend them on Facebook.
(D) Limit their children's online time.

3. Why do some teenagers get into trouble online?
(A) Kids don't foresee unintended consequences.
(B) Postings are public with an infinite lifespan.
(C) Social media is a virtual playground.
(D) There is a lack of filters and boundaries in cyberspace.

4. What is the best title for this passage?
(A) How Parents Can Help Kids Avoid Online Problems
(B) Media's Unprecedented Influence on Teen Development
(C) Parents Helpless Against Barrage of Online Information
(D) Research Shows Teens Addicted to Social Media

(ii) At first glance (or click), spending your time on social media websites can seem like a dream if you aren't confident in your social skills. You don't really have to deal with people directly, you have all the time you need to say what you think someone else would like to read, and if you are feeling uncomfortable, you can simply log off.

What is really going on with social media is that you are comparing your life to just what is shown to you, and most people only want to show the good stuff. So if you are reading all the positives (and some may be made up), it can end up making you feel that you have no life, because all your "friends" are posting pics from their vacations, their dinners, and their projects.

Sure you can join them, but do you really want to live vicariously through others, or do you want to experience the joy of living your own life? The truth here is that hiding behind a computer, talking with people you often don't even know, is not ultimately very fulfilling. You have to bring things and people into your life, not just read about them or "like" what they have to say.

5. What does the author claim is the reality of spending time on social media websites?
(A) Uncomfortable
(B) Unconfident
(C) Unfriendly
(D) Unfulfilling

6. Why can going on social media be bad for some people?
(A) Compare their life to friends' lives.
(B) Hide behind a computer.
(C) Read all the positive posts.
(D) Talk to people they don't know.

7. What is the main idea of this passage?
(A) People should be more active on social media.
(B) Social media can help people with poor social skills.
(C) Social media websites can expand one's horizons.
(D) The real world is better for people than social media.

(iii) Only purebred dogs are allowed to compete at the Westminster Kennel Club's annual dog show. "The basic purpose of dog shows is to facilitate the evaluation of breeding stock for use in producing the next generations," the organization's website says. Judges choose winners based on how closely a dog fits a standard, or "ideal breed." Standards are based on both personality traits and physical ones — from eye color to ear shape and even tail placement. Mutts need not apply.

It is competitions like these that contribute to the common perception that mixing animal species leads to "maladapted" animals, according to Michael Arnold, a professor of genetics at the University of Georgia. But closer analysis of genetics suggests that perception is far from settled. What is clear is that global warming is increasing many opportunities for gene mixing. "As we've developed genomic methodologies, we're finding that organisms are exchanging genes with other species," Arnold said. "Genetic exchange due to organisms coming together from climate change is the rule rather than the exception."

Animals have been interbreeding for millennia. Even modern humans are the product of genetic exchange with Neanderthals some 60,000 years ago. But the rate at which species interbreed is accelerating because of climate change, researchers say. As habitats and animal ranges change and bleed into one another, species that never before would have encountered one another are now mating. Warmer temperatures have allowed grizzly bears and polar bears to venture to habitats they don't usually occupy and mate to form a hybrid: the pizzly or grolar bear.

8. What kinds of dogs compete at the Westminster Kennel Club's annual dog show?
(A) Hybrid
(B) Maladapted
(C) Mixed
(D) Purebred

9. What role does climate change have on interbreeding in the wild?
(A) Changes
(B) Exchanges
(C) Facilitates
(D) Mixes

10. What species have been influenced by interbreeding?
(A) Bears
(B) Dogs
(C) Humans
(D) All of the above

(iv) Researchers at Stanford University recently set out to explore the neural basis of creativity and came up with surprising findings. Their study, published in *Scientific Reports*, suggests the cerebellum, the brain region typically associated with movement, is involved in creativity. If so, the discovery could change our understanding of the neurological mechanisms behind some thought processes.

Three and a half years ago, Grace Hawthorne, an associate professor of design at Stanford University Institute of Design, known as the "d.school," approached Allan Reiss, a behavioral scientist at Stanford's School of Medicine. Hawthorne wanted to find a way to objectively measure whether or not her design class enhanced students' creativity and Reiss, inspired by the game Pictionary, developed an experiment.

Participants in the study were placed into a functional magnetic resonance imaging machine (fMRI) with a nonmagnetic tablet and asked to draw a series of pictures based on action words (for example, vote, exhaust, salute) with 30 seconds for each word. The participants later ranked each word picture based on its difficulty to draw. The tablet transmitted the drawings to researchers at the d.school who scored them on a 5-point scale of creativity, and researchers at the School of Medicine analyzed the fMRI scans for brain activity patterns.

The results were surprising: The prefrontal cortex, traditionally associated with thinking, was most active for the drawings the participants ranked as most difficult; the cerebellum was most active for the drawings the participants scored highest on for creativity.

11. What was the goal of the study?
(A) Develop creativity and movement.
(B) Enhance students' creativity.
(C) Evaluate design class effectiveness.
(D) Map brain activity when being creative.

12. Why were the study's results important?
(A) Data yielded unexpected results.
(B) Established a neural basis for creativity.
(C) First use of fMRI to measure creativity.
(D) Linked the cerebellum to creativity.

13. What is the main idea of this passage?
(A) Creativity is something that people are born with and it can't be taught.
(B) Drawings done in an fMRI machine can be ranked and linked to brain activity.
(C) Drawings seen as creative showed activity in an unexpected part of the brain.
(D) Medical tests can help improve college classes that develop creativity.

(v) After nearly a century of research, scientists in Switzerland — of course — have finally discovered why Swiss cheese has holes, and it has nothing to do with hungry mice. Rather, it's tiny flecks of hay that fall into the milk during production that give Swiss cheese its distinctive appearance, according to experts from Agroscope, a governmental agriculture research group.

In 1917, American William Clark became the first scientist to systematically study the origin of Swiss cheese's holes, and he published a detailed paper in the *Journal of Dairy Science*. He concluded that carbon dioxide burps from microscopic bacteria were floating in the milk. Still, Clark couldn't provide an exact description of the bubble-forming mechanism, and ever since he published his landmark study, myriad researchers around the world have attempted to pin down the origin of Swiss cheese's holes.

But in a report released Thursday, experts at Agroscope believe they've solved this vexing scientific riddle. Scientists took multiple CT scans of Swiss cheese as it developed over 130 days to track where and how holes formed. They found that altering the number of hay particles in milk used to make cheese allowed them to control the number of holes that appeared. Their findings also explain why, over the past 10 to 15 years, Swiss cheese in the stores has fewer and fewer holes. Today, milk is filtered through modern-day milking machines, and it isn't exposed to the barn's open environment, so hay particles don't get a chance to settle in the milk and form holes.

14. What causes Swiss cheese to have holes?
(A) Contamination
(B) Filtration
(C) Pasteurization
(D) All of the above

15. Where does Swiss cheese get the necessary elements to form holes?
(A) Barn
(B) Laboratory
(C) Stores
(D) Switzerland

16. What is the main idea of this passage?
(A) Holes give Swiss cheese its distinctive appearance.
(B) Modern processing prevents holes from forming in cheese.
(C) Researchers discover secret to 100-year cheese mystery.
(D) Swiss cheese's popularity declines as holes disappear.

(vi) The word dinosaur may mean "terrible lizard" in Greek, but these creatures may have had a lot more in common with warm-blooded animals than their cold-blooded name implies. Paleontologist Michael D'Emic, in a new study, says he's found evidence in dinosaur bones that indicates these ancient creatures were fully warm-blooded. D'Emic arrived at this conclusion after reexamining findings from a widely publicized 2014 study that concluded dinosaurs were neither cold- nor warm-blooded, but a hybrid of both categories.

In the 2014 study, published in *Science*, researchers evaluated the metabolism of 21 dinosaur species by building a formula based on dinosaurs' body mass (indicated by the size of thigh bones) and growth rates (indicated by rings in fossils). Growth rings, like tree rings, demarcate periods of arrested growth, while the spaces between rings indicate periods of rapid growth. Researchers then used these rings to estimate different dinosaur species' daily growth rates, and compared their findings to modern-day warm-blooded animals. They concluded that dinosaur growth rates weren't characteristic of either warm- or cold-blooded animals, and were instead most similar to mesotherms — animals that can regulate body temperature, but their internal temperature doesn't remain fixed. Only a few existing species are mesotherms, including some sharks and turtles.

But researchers' daily growth rate formula assumed dinosaurs grew at a constant rate each year. However, D'Emic points out that dinosaurs probably grew sporadically, packing on the pounds during brief wet periods when food was abundant, and halting their growth during dry periods, for example. The space between growth rings may represent only a few months, rather than an entire year as the 2014 study indicated, D'Emic claims.

17. Where did D'Emic get data for his study?
(A) 21 dinosaur species
(B) Dinosaur thigh bones
(C) Growth rings in fossils
(D) Widely publicized study

18. What is the main point of D'Emic's theory?
(A) Dinosaurs grew faster than previously thought.
(B) Dinosaurs' temperature didn't remain fixed.
(C) Estimates of dinosaurs' body mass were off.
(D) Previous growth ring analysis was inaccurate.

19. What is the best title for this passage?
(A) Analysis of Dinosaur Bone Growth Rings Disputed
(B) Data Analysis Changes How Dinosaurs are Classified
(C) Dinosaurs Were Warm-Blooded, Researcher Claims
(D) *Science* Magazine Criticized for Publishing Study

(vii) Researchers from Stanford University have built an aluminum-ion battery prototype, and it's a glimmer of hope for every thumb-pounding smartphone addict. The battery can fully charge in about one minute, hold a charge longer than conventional batteries and is safer than lithium-ion batteries.

Aluminum is an attractive metal for batteries due to its low cost and high charge capacity, but attempts to build an aluminum battery over the past 30 years have largely failed. Past aluminum battery iterations didn't pack enough juice to power devices, had extremely short life cycles and were susceptible to deterioration. Finding the right combination of materials to produce sufficient voltage after repeated recharge cycles has, to this point, eluded researchers.

However, the team at Stanford cleared these hurdles by using graphite for the battery's cathode, the place where current leaves the battery, and aluminum for the anode, the place where current flows into the battery. The researchers placed their aluminum anode and graphite cathode, along with an ionic liquid electrolyte, into a flexible polymer pouch. The combination yielded a high performing, cheap battery.

The aluminum battery can produce about two volts of electricity and can be recharged more than 7,500 times without any decay in its total capacity. For comparison, other experimental aluminum batteries died after 100 charges, and the conventional lithium-ion battery lasts about 1,000 cycles.

20. Which of the following is NOT an advantage the aluminum-ion battery has over previous batteries?
(A) Cheaper
(B) Lighter
(C) Longer life
(D) Safer

21. Why did past attempts to build aluminum-ion batteries fail?
(A) Expensive
(B) Inflexible
(C) Short
(D) Weak

22. What was the key to creating the new aluminum-ion battery prototype?
(A) Clearing many hurdles
(B) Developing a high performing, cheap battery
(C) Selecting an attractive metal
(D) Using the right combination of materials

(viii) Scientists showed women wearing brain-scan equipment snapshots of low-calorie foods — vegetables, fish, fruits — and tempting "forbidden" foods — candy, ice-cream. The high-cal food caused a bigger spike in brain activity associated with rewards. No surprise! But the study did bring news: Brain activity was much less during the evening.

"We thought the responses would be greater at night because we tend to over-consume later in the day," professor of exercise sciences and study co-author Lance Davidson said in a statement. "But just to know that the brain responds differently at different times of day could have implications for eating."

The study also found that participants were more food-obsessed at night even if they weren't especially hungry, perhaps because they kept seeking out the reward spike. We often hear that your metabolism slows down at night, or that everything you eat after a certain hour "turns to fat." That's wrong. The problem is that people who eat late eat more, perhaps in search of more of a boost in mood. In one study, researchers found that night eaters ate about 300 more calories each day. In a follow-up three years later, the night eaters had gained 14 pounds, on average. People who did not eat late at night had gained only 4 pounds.

23. What happened when women in the study were shown pictures of food?
(A) Brain activity increased.
(B) Received a reward.
(C) Were not surprised.
(D) All of the above

24. Why were the researchers surprised by the study's results?
(A) Night eaters gained more weight on average.
(B) Nighttime brain response was different.
(C) Participants were more food-obsessed at night.
(D) People tend to over-consume later in the day.

25. What is the main idea of this passage?
(A) Brain activity varies throughout the day.
(B) Brain spikes can be linked to different foods.
(C) It is better to eat earlier in the day.
(D) Late night snacks contribute to obesity.

〔Ⅱ〕 次の設問26～40の空所を補うものとして最も適当な語を、（A）～（K）の中から選びなさい。ただし、使われない語が含まれていることもあります。また、同じ語を繰り返して使うこともできます。空所に何も補う必要のない場合には（L）を選びなさい。

（A）about	（B）at	（C）for	（D）into	（E）of	（F）on
（G）out	（H）over	（I）through	（J）to	（K）up	（L）NO WORD

26. Nick is arrogant. So is his sister, _____ that matter.

27. She's really sharp, so it's hard to put anything _____ on her.

28. The job is quite demanding, but he is holding _____ his end.

29. If you don't stand up _____ others, they won't do the same for you.

30. The researchers reported _____ online the results of their study.

31. Our chairman rose _____ the occasion and made a brilliant decision.

32. What _____ individuals who cannot afford their rent when they retire?

33. Somehow or other we managed to get _____ the day without taking a break.

34. There was an accident downtown and traffic was tied _____ for several hours.

35. Car manufacturers around the world put _____ new models at least once a year.

36. Several countries imposed economic sanctions _____ Greece.

37. The teacher picked up _____ the student's confusion and explained the assignment again.

38. His illness was fairly serious, but with good medical care, he managed to pull _____.

39. If you will grab hold _____ that end of the table, let's move it to the other side of the room.

40. Taking everything _____ consideration, InterSolution's product line is superior to the others.

〔Ⅲ〕 次の設問41～50のA～Dのうち、誤った英語表現を含んだ部分がある場合にはA～Dの中の一つを、誤りがない場合にはEを選びなさい。

41. It is possible that none of our members will attend the conference even they are free that weekend.
A B C D
NO ERROR
E

42. If I had followed his advice, I might have avoided to irritate the participants in the planning
A B C D
session. NO ERROR
E

43. All it took to make the office more comfortable and efficient was to move the furnitures around.
A B C D
NO ERROR
E

44. Had we known that the museum was close today, we would have made plans to go on a tour of
A B C D
the city. NO ERROR
E

45. There is only one place in where I feel completely relaxed and can concentrate on the work
A B C
that I have to do. NO ERROR
D E

46. I drew up a proposal to my graduation thesis and submitted it to my professor to get her response.
A B C D
NO ERROR
E

47. Without a doubt, despite his flaws, he is brilliant when it comes to solving about technical
A B C D
problems. NO ERROR
E

48. Maya's father is proud that his daughter took her master's at Harvard. NO ERROR
A B C D E

49. All things considered, what seemed tragic to my family turned out to be a blessing. NO ERROR
A B C D E

50. While I drive to Jackson, I was stopped by a policeman for going over the speed limit.
A B C D
NO ERROR
E

〔以 下 余 白〕