〔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) We've learned time and time again that people are really bad at picking strong passwords. Look at any list of leaked passwords, and the most popular ones will no doubt be things like "123456" and "password." CNBC had the best of intentions when it ran an online feature on password security recently. The implementation, however, resulted in many users potentially exposing their passwords for all to see.

The article itself is a perfectly competent explanation of how passwords can be brute forced, and how to make sure yours is as hard to guess as possible. The catastrophic failure is not in the writing of that piece, but the little password testing widget right in the middle. After a password was submitted in the widget, CNBC's page would copy it to a Google Docs spreadsheet for ranking. You can imagine that spreadsheet is a veritable goldmine for malicious hackers. The spreadsheet is at least private. Perhaps the worst part of all this is that advertisers and analytics firms, of which there were more than 30 on that page, all had access to the data from that password widget. If you entered your real password, you just gave it to 30 companies which may or may not have secure data storage themselves.

If CNBC's goal was to teach people to be more careful about password security, it might have done just that. Not with actual education, but by putting people at risk of being hacked. CNBC has not spoken about this disastrous crash course in password security. The article has been taken down, so no more unsuspecting users will give away their passwords.

1. What makes for a good password?
(A) Competent
(B) Hard to guess
(C) Hard to remember
(D) Popular

2. What was the problem with the CNBC online feature?
(A) Didn't explain how brute force attacks work.
(B) Passwords were stored on a spreadsheet.
(C) People were taught to be more careful.
(D) The article was hard to understand.

3. How did CNBC react to this problem?
(A) Apologized to participants.
(B) Taught people about security.
(C) Took down the article.
(D) All of the above

4. What is the best title for this passage?
(A) Article on Online Security Backfires
(B) CNBC Online Feature Hacked
(C) Online Documents Goldmine for Hackers
(D) Simple Passwords Threaten Security

(ii) Decades ago, engineers largely dismissed vertical-axis wind turbines — which spin around a central axis like a top — because they could not match the efficiency of the propeller-like turbines common today. But researchers have found recently that clusters of vertical-axis turbines, arranged to take advantage of each other's turbulence, can outperform conventional wind farms. When added to conventional farms, according to a study published this month, they can even increase the older turbines' output. "We're able to get significantly higher performance," said Stanford Professor John Dabiri, "both due to the fact that you can put the turbines closer together, but also in putting the turbines together we improve the performance of the individual turbines."

Dabiri works with vertical-axis turbines that are 10 meters tall, compared to 100 meters for a conventional horizontal-axis turbine. Dabiri and his team have shown that sets of much smaller vertical-axis turbines can outperform conventional wind farms because they respond to turbulence much better. "I would note that they're still doing this using conventional horizontal wind turbines. Even in these systems you can see benefits." Turbulence is bad for conventional turbines, not only reducing their efficiency, but also their lifespan. As a result, they are typically spaced far apart, and the wind that passes between them, according to Dabiri, is "wasted energy." Small vertical-axis turbines placed in those open spaces can capture that wind.

5. Which of the following best describes modern vertical-axis wind turbines' characteristics?
(A) Increase older turbines' output.
(B) Installed close together.
(C) Outperform conventional wind farms.
(D) All of the above

6. How are sets of the new turbines arranged?
(A) Array
(B) Cluster
(C) Horizontal
(D) Vertical

7. What is the main idea of this passage?
(A) Conventional wind farms are obsolete.
(B) Decades-old technology revised.
(C) Groups of new turbines improve performance.
(D) Wind farm turbulence problem solved.

(iii) A tantalizing trio of Earth-sized worlds circles a tiny, dim star relatively close to us, and each planet is within or near the region where the star's light could support the early beginnings of extraterrestrial life. But don't get too hopeful for Earth look-alikes — while we don't know much yet about their characteristics, these three worlds exist in very different environments than our home planet. Still, this is the first time three such worlds have been spotted around an ultracool dwarf star, a discovery that bodes well for planet hunters scouring the galaxy for small, rocky planets. "This is a brand new planetary population that is revealed, and it could well dominate the total number of planets in the Milky Way," says Michaël Gillon of Belgium's University of Liège. "This indicates that the formation of Earth-sized planets around these downplayed ultracool dwarf stars — that are much more frequent than sunlike stars in the galaxy — is very efficient."

As they report this week in *Nature*, scientists found the system using the Transiting Planets and Planetesimals Small Telescope, or TRAPPIST. This robotic instrument in Chile searches for planets around the 60 brightest ultracool dwarfs. The host star for the newfound trio, called TRAPPIST-1, is just a tiny bit bigger than the planet Jupiter, and it is so cool that most of the light it emits is in the infrared. So, if alien life happened to emerge on any of the star's three known planets, the landscapes might look very different from our green world.

8. How are the three TRAPPIST-1 worlds described?
(A) Tiny dim stars
(B) Earth-sized planets
(C) Ultracool dwarfs
(D) None of the above

9. What bodes well for planet hunters?
(A) 60 ultracool dwarf stars
(B) Spotting the TRAPPIST-1 worlds
(C) Many sunlike stars in the galaxy
(D) None of the above

10. What is a characteristic of TRAPPIST-1?
(A) A little smaller than Jupiter.
(B) It's a small, rocky planet.
(C) The light is mostly infrared.
(D) None of the above

(iv) London, the city that barely withstood the Great Fire of 1666 is considering adding something to its skyline once thought to be a terrible mistake: timber. Conceptual plans for an 80-story skyscraper, almost 1,000 feet tall, have been presented to the Mayor of London. To put that in context, the current tallest building in the world with a timber frame is a fourteen-story tall apartment building in Norway.

The most obvious benefit of building with timber is that it is, unlike steel or glass, a renewable resource. You can plant more trees. "If London is going to survive," says Dr. Michael Ramage of Cambridge University, which is affiliated with the project, "it needs to increasingly densify. One way is taller buildings. We believe people have a greater affinity for taller buildings in natural materials rather than steel and concrete towers. The fundamental premise is that timber and other natural materials are vastly underused and we don't give them nearly enough credit. Nearly every historic building, from King's College Chapel to Westminster Hall, has made extensive use of timber."

There are other clear-cut advantages to using timber, including the quickness of construction. In Norway, workers were able to build four stories of the building every three days. They also encountered unique problems, such as strong winds causing the building to sway. The project managers were able to fix that problem by strategically adding concrete, weighing the building down.

11. What is a benefit of timber buildings?
(A) Faster to build
(B) Historic tradition
(C) Renewable resource
(D) All of the above

12. How are timber structures described?
(A) Historic
(B) Renewable
(C) Underused
(D) All of the above

13. What is the main idea of this passage?
(A) Building timber structures requires strategic problem solving.
(B) London's future may require more wooden buildings.
(C) Record-breaking wooden structure to be built in London.
(D) Tall timber buildings offer several advantages.

(v) Astronomers have found that a first-of-its-kind "tailless comet" may offer clues into long-standing questions about the solar system's formation and evolution, according to research published Friday in the journal Science Advances. The "Manx" comet, named after a breed of cats without tails, is made of rocky materials that are normally found near Earth. Most comets are made of ice and other frozen compounds and were formed in the solar system's frigid far reaches.

Researchers believe the newly-found comet was formed in the same region as Earth, then was slung to the solar system's outer reaches as planets jostled for position. It is the only object known that is essentially a pristine asteroid, uncooked by eons of exposure to the sun. Scientists involved in the discovery now seek to learn how many more Manx comets exist, which could help to resolve debate over exactly how and when the solar system settled into its current configuration. "Depending on how many we find, we will know whether the giant planets danced across the solar system when they were young, or if they grew up quietly without moving much," paper co-author Olivier Hainaut, an astronomer with the European Southern Observatory in Germany, said in a statement.

Typically comets coming in from the same region as the Manx grow bright tails as they approach the sun, the result of ice vaporizing off their bodies and gleaming in reflected sunlight. But the Manx comet was dark and virtually tailless when it was spotted about twice as far away from the sun as is the Earth. Later analysis showed that instead of ice typically found on comets, the Manx comet contained materials similar to the rocky asteroids located in a belt between Mars and Jupiter.

14. How is the Manx comet described?
(A) Gleaming
(B) Pristine
(C) Spotted
(D) All of the above

15. What happened to the Manx comet?
(A) Jostled
(B) Reflected
(C) Slung
(D) Vaporized

16. What is the best title for this passage?
(A) Manx Comet May Hold Solar System's Secrets
(B) Comet Brings Materials from between Mars and Jupiter
(C) Manx Comet Twice as Far Away as Regular Comets
(D) Unique Tailless Comet Puzzles Scientists

(vi) Working out keeps your brain young, suggests a new study from Columbia University and the University of Miami. Researchers asked people over age 40 about their exercise habits and tested their cognitive abilities. The scientists checked in five years later to test their brains again. Some mental skills dwindle around age 30, says study author Clinton Wright, M.D. But the participants who did moderate-to-intense workouts like running or swimming experienced significantly less cognitive decline over a five-year period than people who were more sedentary. The active participants had better memories and were able to think faster.

In fact, exercising throughout your lifetime may be as good for your brain as turning back the clock 10 years, according to the researchers' mathematical models. One possible explanation: Physical activity boosts blood flow to your brain, delivering oxygen and nutrients and removing toxins at a greater rate, says Dr. Wright. Exercise also fights diabetes, hypertension, and inflammation — conditions that could slowly damage your brain, he says. Dr. Wright, a neurologist, advises his patients to start working out if they aren't already. It's important to get your heart rate up, he says.

17. What was the study's goal?
(A) Confirm some mental skills dwindle around age 30.
(B) Develop mathematical models to predict exercise benefits.
(C) Learn about the exercise habits of people over 40.
(D) Study the relationship between exercise and cognitive abilities over 40.

18. How did participants who had moderate-to-intense workouts benefit?
(A) Better memories
(B) Fewer toxins
(C) Improved blood flow
(D) Less brain damage

19. What is the best title for this passage?
(A) Exercise Slows Cognitive Decline
(B) People Over 40 Need More Exercise
(C) Reversing Cognitive Decline After 30
(D) Working Out Turns Back the Clock

(vii) Hampshire College in Amherst, Massachusetts, is scheduled next week to open a sustainably-designed 17,000-square-foot campus facility designed to provide its own energy and water, and treat its own waste. The college says the R.W. Kern Center has been designed to become the sixth building in the world to receive Living Building Certification as a net-zero energy, waste, and water building. The facility's green design and construction is part of the institution's efforts to become a carbon-neutral campus within the next few years. Alumni and other donors gave a total of $8.9 million to Hampshire to pay for the building.

When it opens this spring, the Kern Center will serve as a new entry point onto the campus and will house the offices of admissions and financial aid, as well as welcome areas, classrooms, and social areas such as a coffee bar.

The facility was built mostly with materials from local and regional sources and avoided products that had potentially hazardous chemicals such as asbestos, chlorofluorocarbons, neoprene, formaldehyde, hydrochlorofluorocarbons, lead, mercury, and polyvinyl chloride. The building is outfitted with composting toilets, solar panels, rainwater collection, and wastewater treatment systems. Heavily-insulated roofs and walls, and energy-efficient windows enable the center to minimize energy consumption.

20. What is unusual about the Kern Center?
(A) 17,000-square-foot college facility
(B) Generates its own energy and water.
(C) New entry point onto the campus
(D) Paid for by alumni and other donors.

21. Which item is most likely to be found in the new building?
(A) Asbestos
(B) Lead
(C) Polyvinyl chloride
(D) Wastewater

22. How does this building contribute to Hampshire becoming a carbon-neutral campus?
(A) Contains composting toilets, solar panels, and rainwater collection systems.
(B) Doesn't require outside energy, water, or waste management.
(C) Uses heavily-insulated roofs, walls, and energy-efficient windows.
(D) All of the above

(viii) When it comes to excelling in the classroom, it turns out the air students are breathing is just as important as the lessons they are learning. Studies show poor indoor air quality (IAQ) can lessen the comfort of students as well as staff, affecting concentration, attendance and student performance. It can even lead to lower IQs. What's more, poor indoor air quality can lead to health problems, including fatigue, nausea and asthma.

About 20 percent of the U.S. population — roughly 55 million people — spend their days inside elementary and secondary schools. Improving indoor air quality in education facilities would be an important step toward improving public health. It can help reduce absenteeism; improve student and staff concentration, student productivity and performance; and decrease IAQ-related health risks.

Human exposure to air pollutants indoors may be two to five times, and occasionally more than 100 times, higher than outdoor levels. In schools, respiratory problems — such as asthma, allergies and bronchitis — have been associated with excessive use of pollutants such as formaldehyde, pesticides and cleaning compounds.

Reducing indoor contaminant levels with high-efficiency filters and germicidal lights, as well as using lower-emission cleaning supplies, can help reverse the adverse effects of pollutants in the air. These products help control three classes of air contaminants: particles (pollen, dust mites, dirt and pet dander); bioaerosols (bacteria, viruses, mold spores and fungi); and odors/chemical vapors (chlorine, cleaning supplies and paint). Studies show that reducing the levels of these chemical irritants can significantly decrease absenteeism attributed to chronic respiratory illnesses.

23. What is NOT a negative consequence of poor indoor air quality in schools?
(A) Absenteeism
(B) Allergies
(C) Asthma
(D) None of the above

24. How much have indoor air quality problems increased in recent years?
(A) 20 percent
(B) More than 100 times
(C) Two to five times
(D) Not enough information given

25. What is the best title for this passage?
(A) Poor IAQ in Schools: Before and After
(B) Poor IAQ in Schools: Beginnings and Endings
(C) Poor IAQ in Schools: Causes and Cures
(D) Poor IAQ in Schools: Fact or Fiction?

〔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）across	（C）for	（D）in	（E）into	（F）of
（G）on	（H）out	（I）over	（J）to	（K）with	（L）No Word

26. We hoped to finish the project in one day, but we eventually ran _____ of time.

27. If tensions in the region continue to escalate, I'm afraid we may go _____ war.

28. The authors of the new theory faced _____ harsh criticism from their colleagues.

29. It's difficult to get your idea _____ to someone unfamiliar with the topic area.

30. I was truly happy when she said, "You'll always have a good friend _____ me."

31. Some people were upset about the tax hike, but it doesn't bother _____ me.

32. The secretary took extensive notes to transcribe the interview _____ verbatim.

33. The weather forecast calls _____ a severe thunderstorm this evening.

34. By working together, we were able to succeed _____ our new business.

35. Daniel has set his sights _____ being a graphic designer after graduation.

36. My eighteen-year-old daughter has only driven our car a handful _____ times.

37. The company decided to pull _____ of some unprofitable businesses.

38. The self-driving vehicle somehow avoided running _____ the building.

39. The researchers admitted _____ themselves that their theory was inadequate.

40. Sarah could still play the violin _____ the best of them.

〔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. Most stories in my literature class are uninteresting but I enjoyed from the most recent book.
A B C D

NO ERROR
E

42. She looked forward to meet the new family that was moving in next door to her house.
A B C D

NO ERROR
E

43. I was born in Canada, lived in France for several years, but am now living in United States.
A B C D

NO ERROR
E

44. I'm too busy to have lunch with you today but I promise I call you later this week. NO ERROR
A B C D E

45. Although she struggled for many years, she finally became a big success in Hollywood.
A B C D

NO ERROR
E

46. As her mother, the young girl was outgoing and often helped people in her neighborhood.
A B C D

NO ERROR
E

47. I should be able to attend the meeting, but if I will be late, I will send you a text message.
A B C D

NO ERROR
E

48. My family lived in Wisconsin for several years and there is a cold part of America. NO ERROR
A B C D E

49. We would have been happy to help her if she would have come to us in the first place.
A B C D

NO ERROR
E

50. Chiharu is busy with all the houseworks since her marriage last year. NO ERROR
A B C D E

〔以 下 余 白〕