

110 年度全國科學班聯合學科資格考英文科試題

第壹部份、選擇題 (占 72 分)

說明：第 1~51 題請在 **電腦答案卡** 上畫記作答。

一、詞彙題 (每題 1 分，共 10 分)

說明：第 1 題至第 10 題，每題有 4 個選項，其中只有一個是正確或最適當的選項，各題答對者，得 1 分；答錯、未作答或畫記多於一個選項者，該題以零分計算。

- _____ reading has a positive benefit; a large amount of reading will absolutely broaden our horizons.
(A) Extensive (B) Impulsive (C) Explosive (D) Oppressive
- Elevator service in the commercial building was _____ for half a day due to mechanical failure caused by a severe earthquake. People working there had to move upstairs and downstairs on foot.
(A) dispatched (B) harnessed (C) accelerated (D) suspended
- Though the chemical manufacturer's expansion plan met with much opposition from the locals, they _____ stuck to the plan and started the construction project as scheduled.
(A) contagiously (B) obstinately (C) terminally (D) liberally
- Global fish stocks are _____ to such an extent that without urgent measures we may be the last generation to catch food from the oceans.
(A) discharged (B) despised (C) depleted (D) discarded
- The members of the committee _____ agreed to the proposed policy; they all thought it was viable.
(A) unanimously (B) progressively (C) superficially (D) deceptively
- After negotiations, the government finally made some _____ to the protesters, giving in to some of their demands.
(A) transitions (B) recessions (C) processions (D) concessions
- This technological company released an AI _____ translator of 98 languages. It generates output almost at the same time as input is received.
(A) dispensable (B) simultaneous (C) perceptible (D) redundant
- According to the contract, Mindy can get a 15% _____ on every machine she sells if she takes the job. That is quite a luring offer for her.
(A) invasion (B) admission (C) commission (D) salvation
- When fatal toxic fumes from the factory accident nearby began to drift toward our neighborhood, people in our community were told to _____ as soon as possible.
(A) subordinate (B) intimidate (C) evacuate (D) accumulate
- Tommy can never forget that frightening experience when he was attacked by three _____ stray dogs on his way to school at the age of nine.
(A) cooperative (B) ferocious (C) premature (D) magnetic

二、綜合測驗 (每題 1 分，共 10 分)

說明：第 11 題至第 20 題，每題一個空格，請依文意選出最適當的一個選項。各題答對者，得 1 分；答錯、未作答或畫記多於一個選項者，該題以零分計算。

第 11 至 15 題為題組

One fifth of German households are home to over ten million home-trained dogs. To promote animal welfare for pet dogs in Germany, a draft legislation was unveiled in August 2020. The draft would hold the dog owners 11 to walk their canine friends twice a day for at least an hour in total. "Pets are not cuddly toys and their needs must be taken into account," asserted Germany's Food and Agriculture Minister Julia Klöckner. Some pet owners were 12 this dog-friendly regulation, whereas some were ambivalent about the feasibility of the requirement.

Apart from the time committed to walking their dogs, the reforms 13 a ban on keeping dogs chained at home. In addition, the welfare of new puppies was carefully considered. One rule mandated that all dog breeders 14 care

of new puppies for at least four hours a day. Thomas Schröder, president of the German Animal Welfare Association, pointed out that there were issues that the draft 15, such as regulating animal training and assessing the owners' ability to care for a dog. Nevertheless, he still considered the legislation a big leap forward for the welfare of pooches.

11. (A) liable (B) subject (C) prone (D) alert
12. (A) incompatible with (B) turning a blind eye to (C) in favor of (D) opposed to
13. (A) lifted (B) withdrew (C) imposed (D) prescribed
14. (A) took (B) to take (C) taking (D) take
15. (A) did address (B) shouldn't have addressed (C) shouldn't address (D) ought to have addressed

第 16 至 20 題為題組

E-commerce has long been the go-to business model for many retailers. Now, retail giants such as Amazon and Walmart are looking to take the model to the next level by letting customers try on clothes and see 16 a piece of furniture actually looks like in their own homes before they place orders online. This feature of offering a try-before-you-buy experience from home is of great use 17 a considerable number of customers staying in lockdown due to the COVID-19 pandemic. AR, augmented reality, proves to be in a great position to provide the solution.

Some people may speculate that AR would only serve as a(n) 18 solution for customers who cannot come to a store in person. Nevertheless, constant advancements and people's growing acceptance of virtual technology indicate that it will remain popular for years to come. AR's 19 customers has greatly increased thanks to its improving accuracy, precision, and the capacity to approximate to the real world. By utilizing lighting conditions around the user, advanced facial recognition, and personalized advice, AR retailing is 20 to radically change shopping experiences and attract more potential buyers. According to the 2020 IBM U.S. Retail Index report, 41% of manufacturers were interested in trying a virtual fitting room to enhance shopping experience, and 18% answered that they had already tried the technology. As AR technology matures, the comfort of consumers will only increase.

16. (A) that (B) how (C) what (D) whether
17. (A) with (B) despite (C) by (D) during
18. (A) obligatory (B) transient (C) pivotal (D) agreeable
19. (A) implication for (B) appeal to (C) contribution to (D) passion for
20. (A) allowed (B) doomed (C) inspired (D) set

三、文意選填（每題1分，共10分）

說明：第21題至第30題，每題1分。各題答對者，得1分；答錯、未作答或畫記多於一個選項者，該題以零分計算。

Little could people imagine a seventy-year-old man rowing a boat unassisted across a seemingly endless stretch of ocean. Frank Rothwell from Oldham of the United Kingdom did it and even became the oldest adventurer to sail solo across the 3000-mile Atlantic Ocean, setting a new world record in early February this year. Mr. Rothwell 21 on this daunting journey from Canary Island on December 12, crossing the finish line at Antigua in the Caribbean, where dozens of mega superyachts hooted their horns for him. Achieving this 22 task, Mr. Rothwell said he was feeling "euphoric." It's truly remarkable that in contrast to most elderly people who adamantly resist strenuous challenges, Mr. Rothwell has 23 embraced opportunities to push limits both physically and mentally.

Mr. Rothwell came fourth among the eight solo boats that took part in the Talisker Whisky Atlantic Challenge. Most participants 24 between rowing and sleeping every two hours. Mr. Rothwell, on the other hand, 25 started a day on the ocean with his 1.5-hour morning ritual—brushing his teeth, using his tablet, eating his breakfast and phoning his family. Then, Mr. Rothwell managed to row in two or three-hour stints, with 10 or 20-minute breaks in between for rests and meals. He kept rowing until it was completely dark. In addition, to guarantee that his boat proceeded at a faster speed, he needed to jump into the sea every week or so, wearing a safety belt 26 to his boat, to scrape barnacles off the bottom.

This extraordinary 27 has also raised more than £720,000 for dementia research with Alzheimer's Research

UK. Mr. Rothwell said that the money was raised for Alzheimer’s research in 28 to his brother-in-law Roger Wheeldon, who died of the disease at the age of 62. He received numerous messages from people who had had similar 29 experiences. “I hope I’ve helped other families in some way too,” Mr. Rothwell added.

After the rowing competition, Mr. Rothwell announced his next challenge—building a six-ton steam traction engine from scratch in his own garage, at which his wife was 30 with delight because she thought it would keep her husband anchored at home for quite a while.

- (A) alternated (B) attached (C) bursting (D) embarked (E) grievous
(AB) typically (AC) tribute (AD) undertaking (AE) unprecedented (BC) wholeheartedly

四、篇章結構（每題 2 分，共 10 分）

說明：第31題至第34題，每題2分。各題答對者，得2分；答錯、未作答或畫記多於一個選項者，該題以零分計算。

Lund University in Sweden has recently seen a major breakthrough in the search for the alternative to single-use plastic products. 31 It started out when an industrial design student named Pontus Tornqvist sought to target the fast-food industry, a large consumer of plastic cutlery due to the material’s convenience and strength. 32 Even more worrying is that millions of them go to landfills and the ocean every day, and their effect is devastating to the environment.

33 In the end, he settled on using potato starch. When mixed with water and poured into a mold, the starch dries to a plastic-like consistency. 34 It will decompose in soil within two months. In a sense, they become fertilizers and nutrients that are sent back to the earth. 35 Actually, any starchy material would work just as well. Though “potato plastic” began as a student project, Tornqvist hopes to see it through and begin professional production soon.

- A. For this alternative, Tornqvist tried and looked at the various forms that plant-based plastics could take.
B. These plastic dining utensils are only used once, but then it takes centuries for them to break down.
C. Better yet, the unique properties of starch mean that this type of cutlery doesn’t have to be made from potatoes alone.
D. The good news is that the new material is 100% biodegradable and thus ecologically friendly.
E. After use, the 100% plant-based cutlery can be thrown away.

五、閱讀測驗（每題 2 分，共 32 分）

說明：第36題至第51題，每題2分。各題答對者，得2分；答錯、未作答或畫記多於一個選項者，該題以零分計算。

36 至 39 題為題組

Nowadays, people are so familiar with the number of keys on a piano, 88, that it seems to have become common sense. Indeed, the most common number of keys is 88, more specifically 52 white keys (the naturals) and 36 black keys (the sharps and flats). Yet, not all pianos are equipped with the same number of keys on their keyboard. In fact, the majority of the older pianos are somewhat smaller than modern ones, and they have only 85 keys. Meanwhile, some manufacturers think bigger and have produced pianos with a number of extra keys. For example, Bösendorfer makes a piano with nine additional keys, consisting of five white keys and four black keys. The keyboard then ranges over the whole eight octaves. The piano often has a lid that can cover the extra keys if the pianist isn’t used to playing on a piano like that, or the extra keys can be of different color. Another manufacturer, Stuart and Sons makes a piano with 102 keys. Here, the extra keys are not different from the regular ones visually. The number of keys can **head in the other direction** though. Piano manufacturer Schoenhut specializes in producing tiny pianos with 44 or 49 keys. This version of piano is very popular with aspiring pianists who enjoy all the perks of having this instrument in a house not so spacious.

Another version of this instrument worth mentioning is Emánuel Moór Pianoforte. The most distinctive part of this piano is the fact that it comes with double keyboards. Emánuel Moór (1863-1931), a Hungarian composer and pianist, devised this weird yet intriguing instrument. Its keyboard is split into two levels, one above the other. Typically, the lower one has the regular 88 keys, and the upper one, slightly smaller, contains just 76 keys. Playing it is also a brand-new experience. When a key on the upper is pressed, the mechanism within the instrument would play the matching key on the

lower keyboard, just an octave higher. This mechanism proves to be an advantage because it allows the pianist to reach two octaves with one hand, which couldn't be achieved when playing the regular piano. It also makes playing complex pieces (originally composed for double manual harpsichord) possible, since playing them on a single keyboard piano would require extremely difficult, cross hand movements. However, the Emánuel Moór Pianoforte never went into mass production. Only a few piano manufacturers (mostly Bösendorfer, but also Bechstein, Chickering, and Steinway & Sons) have made only about 60 instruments ever.

36.



Which of the following is the manufacturer that produces the keyboard in the picture?

- (A) Chickering
- (B) Bösendorfer
- (C) Stuart and Sons
- (D) Schoenhut

37. What does “**head in the other direction**” refer to in the first paragraph?

- (A) A manufacturer making pianos with fewer keys.
- (B) A second keyboard being installed above the first one.
- (C) The size of keys being enlarged gradually.
- (D) An extension of the lid being added to cover extra keys.

38. According to the author, which of the following is the merit of the mechanism incorporated in Emánuel Moór Pianoforte?

- (A) It allows two pianists to perform on one piano.
- (B) It's so rare that it is a treasure for piano collectors.
- (C) It makes the mass-production of pianos possible.
- (D) Solo pianists are able to perform some complex pieces.

39. What is the best title for this article?

- (A) Manufacturers of Stylish Pianos
- (B) The Evolution of Piano Structures
- (C) Piano Keys: Varieties and Features
- (D) How to Choose the Right Piano

40 至 43 題為題組

The last time the British Isles were conquered was nearly a millennium ago. In 1066, the king of Normandy, a region of modern France, conquered England at the Battle of Hastings. The repercussions of this battle can be felt to this day. One of the most profound effects of the event was the mixing of French with English that has resulted in modern English spoken today.

Before the Battle of Hastings, England was made up of many small areas, like little kingdoms, each led by a local lord. These lords were ruled by a single Saxon king, Edward the Confessor, but his control over the lords was weak. After Edward's death, three successors to the throne fought for supremacy: Harold, a Saxon from England; William, a Norman from France; and Harold, a Viking from Norway. Harold of Saxon had the advantage of being English, and the lords preferred an English king over one coming from foreign regions. Unfortunately, Harold of Saxon's two competitors attacked at the same time, forcing him to fight on two fronts. William, known afterward as the Conqueror, finally defeated Harold of Saxon and captured the throne.

From his home in Normandy, William brought native French-speaking advisers to England to help him rule. This created a divided system of government and culture. Within a decade, the language of government had been converted to French while the business of the towns was still carried out in English. Even though the Normans were eventually dethroned, French words remain an important part of English language until today.

This part of history explains why many of the French words used in English today are related to topics of government, law, arts, and religion. When one speaks about a lawyer in English, it is also possible to use its French-derived **counterpart** attorney. The English word *books* sounds more formal when the French word *literature* is used instead. This is a source of confusion for many people who are trying to learn English. They might be surprised to learn the Battle of Hastings is the reason that cows become beef, pigs become pork, and sheep become mutton when they are put on the dinner table.

40. Which of the following is true according to the passage?

- (A) Many modern French words are actually English in origin.
- (B) Some famous English kings preferred to speak French.
- (C) A king of England traveled to Normandy to learn French.
- (D) A Norman became king and changed the English language forever.

41. According to the article, what is an effect of the Battle of Hastings that is still felt today?

- (A) It caused the deaths of many people.
- (B) It led to a new form of government.
- (C) It brought one language into another.
- (D) It led to a bitter hatred between two countries.

42. Which of the following statements is true about William the Conqueror?

- (A) He defeated Edward the Confessor and came to the throne.
- (B) He allied himself with Harold of Saxon and killed the other competitor.
- (C) The English people wanted him to reign in England because he was from France.
- (D) He hired some French people to help him rule the English territory.

43. Which of the following can best replace **counterpart** in the 4th paragraph?

- (A) Term.
- (B) Occupation.
- (C) Procedure.
- (D) Usage.

44 至 47 題為題組

In *Metamorphoses*, the Roman poet Ovid tells the tale of Pygmalion, king of Cyprus, and his rather unusual love affair. The story has been interpreted in many ways, and its fascinating hero and heroine have inspired numerous artists, poets, filmmakers, writers, composers and choreographers.

Disgusted by Cypriot women's immortality, Pygmalion takes comfort in a statue of a beautiful woman, which he sculpts from ivory. Soon, he becomes obsessed with the sculpture. He kisses and caresses her, and showers her with gifts, making himself believe that the woman is made not of ivory but of flesh and blood.

Pygmalion falls completely in love with the statue. Therefore, when the festival of Aphrodite comes around, he begs that the goddess would give him a wife just like his ivory girl. When he returns home and kisses his sculpted female, he finds that her lips are soft and warm. Pygmalion's wish has been granted: his beloved statue is a living being. The two wed, and she bears him a son, Paphos.

There are various reinterpretations of the myth. The most famous one is George Bernard Shaw's piece—*Pygmalion in Five Acts*, a story of a professor who makes a bet that he can train an uneducated Londoner to behave like an upper class lady. The theme of the man creating his ideal woman is seen in **both tales**. In Bernard Shaw's more feminist version, though, the heroine ultimately rejects her "creator." In 1964, the play was adapted for a movie, *My Fair Lady*. Different from its stage presentation, it leaves the audience wondering whether or not the flower seller Eliza goes back to Prof. Henry

Higgins, who teaches her to speak "proper" English, thereby making her presentable in the high society of Edwardian London.

Whether you see Pygmalion as a hopeless romantic, a misogynist, or both, there's no doubt that the myth has inspired many fine works of art and literature. The story of the king and his ivory wife is certainly one that captures the imagination.

44. In the myth of Pygmalion, which of the following events happens first?

- (A) The birth of Paphos.
- (B) The festival of Aphrodite.
- (C) The wedding of Pygmalion and his bride.
- (D) The transformation of the statue into a real person.

45. Which statement is NOT true about *Pygmalion in Five Acts*?

- (A) It was later adapted into a movie.
- (B) It is a play by George Bernard Shaw.
- (C) The theme of the tale isn't original.
- (D) The professor in the story is a gambler.

46. What does **both tales** in the 4th paragraph refer to?

- (A) *Metamorphoses* and *My Fair Lady*.
- (B) A professor and an uneducated Londoner's story.
- (C) *Pygmalion in Five Acts* and *My Fair Lady*.
- (D) *Metamorphoses* and *Pygmalion in Five Acts*.

47. According to the passage, which of the following is true?

- (A) *My Fair Lady* is well-received by female audiences.
- (B) *Metamorphoses* comes under heavy criticism from feminists.
- (C) The end of *My Fair Lady* leaves its audience room for imagination.
- (D) Aphrodite makes Pygmalion fall in love with the ivory sculpture.

48 至 51 題為題組

The retail giant Amazon has recently announced their plan to deliver packages to customers' homes via drones. Delivering packages this way may sound fascinating and innovative, but in reality it is nothing new. For starters, drones already have been trialed to deliver food and medical supplies to disaster-hit areas, such as Haiti, by a startup called Matternet. According to Matternet, a fleet of drones could speed up the delivery of medicines and other supplies to remote areas, and even provide a cheaper option than a road network.

The U.S.-based company sets its sights on the construction of a network of base stations. Each base station is 10 kilometers apart, and drones carry packages of up to two kilograms between bases. A drone can travel for 15 minutes before it has to land and recharge its batteries. A number of prototypes were tested in Haiti and the Dominican Republic. Andreas Raptopoulos, one of Matternet's founders, claimed triumphantly, "The trials were successful." Meanwhile, the company has gained valuable lessons on how to modify and better equip the prototypes, especially regarding the autonomous battery exchange and navigation.

One reason for the rising popularity of delivering medical supplies with drones is speed and safety. Drones make it possible to courier blood, vaccines, birth control pills, snake bite serums, and other essential health care items to remote areas safely and swiftly. According to Dr. Jeremy Tucker, vice president of patient safety and regional medical director at MEP Health. "Being able to cross long distances at faster speeds to deliver blood products and lab samples also is a huge benefit. Now transporting blood products between hospitals, for example, involves vehicles on the ground that are prone to accidents and delays. Drones can help decrease those incidents."

Drones provide exciting possibilities, which is why researchers, manufacturers, and nonprofit organizations are starting to look to drones to improve efficiency. Drone manufacturer Flirtey recently completed the first ship-to-shore

drone delivery in the U.S. **The mission** was a joint effort carried out by Flirtey, the John Hopkins University School of Medicine, and the nonprofit Field Innovation Team. It demonstrated how drones can be of help in a medical emergency. During the demo, the drones carried medical samples, flying them between an onshore medical relief camp at Cape May, N.J. and a test facility on a vessel off the New Jersey coast. The drones also transported medical supplies from the vessel to the onshore medical camp.

These applications are just scratching the surface of drones' immense potential. With drones, medical supplies can reach victims, patients, and medical professionals more efficiently and accurately. God knows what benefits drones can bring to the medical communities as the sky is the limit.

48. Which of the following is NOT mentioned as a merit of drones in the passage?
(A) Better safety. (B) Higher efficiency. (C) Lower costs. (D) More privacy.
49. What does **the mission** in the 4th paragraph refer to?
(A) Collaboration of a medical school and a nonprofit organization.
(B) Carrying out a drone delivery between the shore and a ship.
(C) Shipping blood samples to a research facility at sea.
(D) Sending medical supplies to disaster-hit areas.
50. Which of the following is true according to the passage?
(A) Matternet's drones will probably be able to change batteries by themselves.
(B) The retailer Amazon is the first company to ship packages via drones.
(C) Medical professionals are going to be replaced by drones entirely.
(D) Drones will be used as a sea transportation for passengers.
51. According to the passage, which of the following best describes the author's attitude toward future applications of drones?
(A) Doubtful. (B) Neutral. (C) Optimistic. (D) Indifferent.

第貳部分、非選擇題 (占 28 分)

說明：本部分共有二大題，請依各題指示作答，答案必須寫在**非選題答題卷**標示之作答區內，作答時不必抄題。

一、中譯英 (每題 4 分，共 8 分)

說明：1. 請將以下中文句子譯成正確、通順、達意的英文。
2. 請依序作答。

- 數位產品如智慧型手機已大大的改變了人們溝通與互動的方式。
- 然而，我們越仰賴科技，就越可能成為網路犯罪的受害者。

二、英文作文 (共 20 分)

說明：依提示寫一篇文長至少120個單詞(words)的英文作文。

提示：新冠肺炎(COVID-19)不只在全球各國造成嚴重的疫情，更為大家的生活帶來翻天覆地的改變，尤其是在教育學習的形態上。請寫一篇短文，文分兩段，第一段請敘述這場疫情為教育學習帶來的變化，第二段請說明你作為一位學生對這些改變的看法。你覺得這些改變是好的還是不好的？為什麼？

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