

## 106 年度全國科學班聯合學科資格考英文科試題

第壹部分：選擇題（占 72 分）

一、詞彙題（占 15 分）

說明：第 1 題至第 15 題，每題有 4 個選項，其中只有一個是正確或最適當的選項，請畫記在答案卡之「選擇題答案區」。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。

- John is so knowledgeable that it is no \_\_\_\_\_ to call him a walking dictionary. He has a wide vocabulary and seems to know everything.  
(A) recognition (B) exaggeration (C) addiction (D) presence
- Gina's reckless remarks led to a fight with her best friend last Friday. She has since spoken and acted \_\_\_\_\_ for fear of further straining their friendship.  
(A) aggressively (B) delightfully (C) cautiously (D) desperately
- After years of fighting and negotiation, his parents eventually \_\_\_\_\_ to his becoming a musician, which contradicted their expectations.  
(A) retrieved (B) approved (C) consented (D) opposed
- The storm damaged hundreds of houses. As a result, many people had to stay in \_\_\_\_\_ accommodation for a few months.  
(A) identical (B) vicious (C) primitive (D) temporary
- Coffee was first found in Africa, and its popularity later \_\_\_\_\_ to other parts of the world.  
(A) converted (B) spread (C) transformed (D) reached
- Lots of homeless people on the street had poor teeth and most of their clothes were \_\_\_\_\_ rags.  
(A) practically (B) necessarily (C) scarcely (D) randomly
- The duplicate painting bears such a striking \_\_\_\_\_ to the original that it takes an expert to tell the subtle differences.  
(A) controversy (B) temperament (C) resemblance (D) recession
- People who violate law will face \_\_\_\_\_ punishment for their wrongdoings.  
(A) radical (B) obscure (C) severe (D) chronic
- Sean is only 17. \_\_\_\_\_, he is not eligible to vote.  
(A) Consequently (B) Compatibly (C) Exceedingly (D) Initially
- A rule of thumb in the investment is not to let greed \_\_\_\_\_ you into scams.  
(A) trigger (B) lure (C) plow (D) alter
- The castle having been under \_\_\_\_\_ for months with necessities and supplies running out, the king finally decided to surrender.  
(A) siege (B) arrest (C) debate (D) escort
- Steve seems \_\_\_\_\_ more intelligent than the rest of the team, which makes him qualified to take charge of the project.  
(A) ultimately (B) virtually (C) eminently (D) invariably
- The live-action film \_\_\_\_\_ recreated the classic animation and fascinated movie fans of all ages.  
(A) externally (B) faithfully (C) relatively (D) tentatively
- Phubbing is not only \_\_\_\_\_ and disrespectful in social settings, but even life-threatening while one is walking on the street.  
(A) credulous (B) different (C) oblivious (D) reckless
- The discovery of the oldest microorganism fossils \_\_\_\_\_ the theory that the first life on Earth formed at the bottom of the sea.  
(A) confirms (B) conflicts (C) consents (D) conceives

二、綜合測驗(占 15 分)

說明：第 16 題至第 30 題，每題一個空格，請依文意選出最適當的一個選項，請畫記在答案卡之「選擇題答案區」。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 16 題至第 20 題為題組

Scientists have known for more than 70 years that the one surefire way to extend the lives of animals is to cut calories. The question was: Why? Now a new study begins to \_\_16\_\_ the mystery. Scientists have explored the mechanism \_\_17\_\_

which reducing food intake protects cells against aging and age-related disease. The \_\_18\_\_ is likely linked to two enzymes—SIRT3 and SIRT4—in mitochondria (the cells powerhouse that converts nutrients to energy). They found a series of reactions \_\_19\_\_ by lower calorie intake raises the level of the enzymes, leading to an increase in the strength and efficiency of the cellular batteries.

By energizing the mitochondria, SIRT3 and SIRT4 extend the life of cells by preventing declining mitochondria from developing tiny holes in their membranes that allow proteins that set off cell death to seep out into the rest of the cell. Hence, SIRT3 and SIRT4 are \_\_20\_\_ drug targets for therapies aimed at extending life, as well as warding off age-related disease, such as Alzheimer's disease and cancers.

- |                     |                |                 |                |
|---------------------|----------------|-----------------|----------------|
| 16. (A) unravel     | (B) humiliate  | (C) impair      | (D) implement  |
| 17. (A) of          | (B) on         | (C) by          | (D) at         |
| 18. (A) prestige    | (B) referendum | (C) catastrophe | (D) phenomenon |
| 19. (A) illuminated | (B) triggered  | (C) strangled   | (D) tortured   |
| 20. (A) blunt       | (B) profound   | (C) trivial     | (D) potential  |

第 21 題至第 25 題為題組

Empathy, the ability to understand others and feel compassion for them, is arguably the most defining human quality. Without it, we \_\_21\_\_ function in social areas such as the schools, court rooms and office workplaces that are the cornerstones of our society.

Empathy involves being sensitive to the emotions of others, understanding those emotions and responding in an appropriate way. Studies on \_\_22\_\_ empathy develops need to look at how children understand and respond to emotions rather than their ability to recognize them. This is because children who have difficulties with empathy generally have little or no difficulty in identifying emotional reactions in others, but rather \_\_23\_\_ the purpose or causes of it.

For most children empathy seems to come naturally. Others may be perfectly capable of understanding the emotions of others but choose to respond in an inappropriate way, such as being aggressive. \_\_24\_\_, children with autism spectrum disorder may be very sensitive to the emotions of others but at the same time have difficulty in understanding those emotions and knowing how to respond. That difficulty can lead to negative social experiences, \_\_25\_\_ in poor social confidence and social withdrawal.

- |                           |                   |                      |                      |
|---------------------------|-------------------|----------------------|----------------------|
| 21. (A) can               | (B) could         | (C) shouldn't        | (D) couldn't         |
| 22. (A) what              | (B) how           | (C) which            | (D) that             |
| 23. (A) understand        | (B) to understand | (C) in understanding | (D) by understanding |
| 24. (A) On the other hand | (B) To sum up     | (C) In brief         | (D) Most of all      |
| 25. (A) result            | (B) resulting     | (C) resulted         | (D) to result        |

第 26 題至第 30 題為題組

On the full moon day in the month of Phalgun, or March, India is all set to celebrate the festival of colors, Holi, which has always been \_\_26\_\_ with colors, family gatherings, lots of food and lots of fun games and activities. Playful festival \_\_27\_\_ Holi is, it originates from a scary myth that involves the demon goddess, Holika, being burned to ashes.

The festival of Holi along with rituals \_\_28\_\_ it varies from state to state. Holi may have a different name, a different style of being celebrated, but it is the essence of the colors \_\_29\_\_ remains the main highlight of the festival. Holi is a day of victory over evil and happiness over grief. Let this Holi \_\_30\_\_ in all happiness and health in your life as well as the people you love and belong to.

- |                    |                 |                |                 |
|--------------------|-----------------|----------------|-----------------|
| 26. (A) identified | (B) regarded    | (C) associated | (D) imagined    |
| 27. (A) as         | (B) although    | (C) while      | (D) but         |
| 28. (A) surrounds  | (B) to surround | (C) surrounded | (D) surrounding |
| 29. (A) who        | (B) that        | (C) what       | (D) X           |
| 30. (A) bring      | (B) brings      | (C) to bring   | (D) bringing    |

### 三、文意選填(占 10 分)

說明：第 31 題至第 40 題，每題一個空格，請依文意在文章後所提供的 (A) 到 (BE) 選項中分別選出最適當者，並將其英文字母代號畫記在答案卡之「選擇題答案區」。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 31 題至第 40 題為題組

She used to sleep in the Fifth Street Post Office. I could smell her before I rounded the entrance to where she slept, standing up, by the public phones. I smelled the urine that seeped through the layers of her dirty clothing and the 31 from her nearly toothless mouth. If she was not asleep, she mumbled 32.

Now they close the post office at six to keep the homeless out, so she curls up on the sidewalk, talking to herself, her smells 33 by the soft breeze.

One Thanksgiving we had so much food left over, I packed it up, excused myself from the others and drove over to Fifth Street. It was a 34 night. Leaves were swirling around the streets and hardly anyone was out. But I knew I would find her.

She was dressed as she always was--the warm woolly layers concealing her old, 35 body. Her bony hands clutched the 36 shopping cart. She was squatting against a wire fence in front of the playground next to the post office. "Why didn't she choose some place more protected from the wind?" I thought, and 37 she was so crazy she did not have the sense to huddle in a doorway.

I 38 my shiny car to the curb, rolled down the window and said, "I've brought you some food. Would you like some turkey and stuffing and apple pie?"

At this the old woman looked at me and said quite clearly and 39, her two loose lower teeth wobbling as she spoke, "Oh, thank you very much, but I'm quite full now. Why don't you take it to someone who really needs it?" Her words were clear, her 40 gracious. Then I was dismissed. Her head sank into her rags again.

- |                |              |             |             |                  |                   |
|----------------|--------------|-------------|-------------|------------------|-------------------|
| (A) distinctly | (B) precious | (C) manners | (D) decay   | (E) incoherently | (AB) deliberately |
| (AC) bent      | (AD) assumed | (AE) frigid | (BC) scents | (BD) diminished  | (BE) pulled       |

### 四、閱讀測驗(占 32 分)

說明：第 41 題至第 56 題，每題請分別根據各篇文章之文意選出最適當的一個選項，請畫記在答案卡之「選擇題答案區」。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。

#### 第 41 題至第 44 題為題組

Bats have long captured the imaginations of scientists and engineers. They dart through the sky on wings made of skin, their tiny bodies swooping and swerving as they hunt insects for hours on end. Their compact and lightweight form, coupled with unrivaled agility and maneuvering characteristics, make them an ideal inspiration for a flying robot. Now we have Bat Bot, a high-tech flying machine inspired by bats.

Real bats have more than 40 joints in their wings, so replicating bat flight has been a challenge for roboticists. Earlier attempts at a bat-like flying robot failed because inventors tried to replicate the entire skeletal and muscular structure. The final devices were too bulky to fly. Then the researchers decided to simplify matters by focusing on key elements of a bat's wing—the shoulder, elbow, wrist joints and the tail—and used only those in the robot. They created carbon-fiber bones and 3D-printed plastic joints, all covered with ultra-thin, lightweight silicone skin. The whole thing weighs just 3.2 ounces, roughly the same as a large lemon.

The researchers said Bat Bot is safer to operate around people because it has soft wings rather than spinning blades and would cause little or no damage if it crashes into humans or other obstacles in its environment. The safer, more agile nature of Bat Bot enables a wide range of application. It can serve as an aerial service robot at home or in hospitals to help the elderly or disabled by quickly fetching small objects. Or it can supervise construction. Bat Bot can fly around, pay attention, and keep track of whether the building is being put together the right way. In addition, it can operate in tight quarters with humans and beyond where humans can go. For example, it can fly into crawling spaces such as mines and collapsed buildings.

A future goal is to have it perch like a bat, clinging in place, because for now that kind of precision landing is out of reach.

Other remaining challenges include improving battery life and developing stronger electronic components so that the robot can survive minor crashes.

41. Which of the following is NOT what we can learn from the creation of Bat Bot?

- (A) Close observation of nature can bring about new inventions.
- (B) Simplicity can be the key to a complex problem.
- (C) Imitating creatures in nature is the latest trend in robotics.
- (D) Along with advanced technology come new possibilities.

42. Which statement is NOT TRUE about Bat Bot?

- (A) The structure and material of its wings account for its success.
- (B) It needs to be worked on its landing and durability.
- (C) It is the perfect replica of its real-life counterpart.
- (D) Its lightweight and maneuverability are its greatest strength.

43. What can we infer from the article?

- (A) The small size makes Bat Bot safe around humans.
- (B) The bat-like design makes Bat Bot perfect for long-distance explorations.
- (C) Bat Bot's 40 bones made of carbon fiber contribute to its lightweight.
- (D) Softness is what sets Bat Bot apart from any other flying machine.

44. What is the LEAST likely task you will find Bat Bot doing in the future?

- (A) Dropping off supplies into a disaster-stricken area.
- (B) Recording work progress at a construction site.
- (C) Getting medication for bedridden persons in a nursing home.
- (D) Going inside a nuclear reactor to inspect the extent of damage.

#### 第 45 題至第 48 題為題組

According to the recent study, published in *Psychological Science*, we interpret a person's emotions by analyzing the expression in their eyes – a process that began as a universal reaction to environmental stimuli and evolved to communicate our deepest emotions.

For example, people in the study consistently associated narrowed eyes – which enhance our visual discrimination by blocking light and sharpening focus – with emotions related to discrimination, such as disgust and suspicion. In contrast, people linked open eyes – which expand our field of vision – with emotions related to sensitivity, like fear and awe.

“When looking at the face, the eyes dominate emotional communication,” Anderson said. “The eyes are windows to the soul likely because they are first conduits for sight. Emotional expressive changes around the eye influence how we see, and in turn, this communicates to others how we think and feel.”

This work builds on Anderson's research from 2013, which demonstrated that human facial expressions, such as raising one's eyebrows, arose from universal, adaptive reactions to one's environment and did not originally signal social communication.

Both studies support Charles Darwin's 19th-century theories on the evolution of emotion, which hypothesized that our expressions originated for sensory function rather than social communication.

“What our work is beginning to unravel,” said Anderson, “is the details of what Darwin theorized: why certain expressions look the way they do, how that helps the person perceive the world, and how others use those expressions to read our innermost emotions and intentions.”

“The eyes evolved over 500 million years ago for the purposes of sight but now are essential for interpersonal insight,” Anderson said.

45. What is the best title for the passage?
- (A) What do Our Eyes Say?  
 (B) Did Darwin Make a Mistake?  
 (C) Does Communication Matter?  
 (D) What Is in Body Language?
46. What is *Psychological Science*?
- (A) A TV series. (B) An academic journal.  
 (C) A radio show. (D) A digital revolution.
47. According to the passage, which of the following emotions may NOT be connected to narrowed eyes?
- (A) Dislike. (B) Discrimination. (C) Distrust. (D) Awe.
48. What can be inferred from the passage?
- (A) The expression of eyes can be easily affected by other features on the face.  
 (B) Darwin believed that the eyes evolved in order to express emotions.  
 (C) Only one of the two studies mentioned corresponds to Darwin's theory.  
 (D) There is scientific proof for "The eyes are the windows to the soul."

第 49 題至第 52 題為題組

Since its release in late January 2017, the music video of "Chicken Attack" has gone viral and received over nine million views on YouTube. In the video, a grey-haired Japanese martial arts master holds a white chicken in his arms and sings a catchy English song in an enchanting yodeling style. His singing mystically transforms the white chicken into a ninja in white, who prevails over wrongdoers and transforms back into the animal form.

This video was released by the Gregory Brothers, an American musical group that characterizes their music as "Country & Soul, Folk & Roll". Their latest YouTube series *Song Voyage* features them traveling the Asian-Pacific Region collaborating with local musicians to create original songs, and they **enlisted** the Japanese Yodeler, Takeo Ischi, for this chicken song. Ischi is an internationally acknowledged yodeler who is mostly active in Germany. Born and raised in Tokyo, Ischi became fascinated with yodeling after he heard it for the first time on the radio. He then taught himself by listening to Franzl Lang, known as the Yodel king, and started his performing career.

The intriguing singing style in the video is called yodeling, a singing technique in which a singer produces distinctive sounds by alternating between the low-pitch chest register and the high-pitch head register. Originated from the Alpines, yodeling was used by the local herdsmen to call the herds or communicate with other herdsmen at quite a distance. In fact, that was exactly what he did in his 2011 release "New Bibi Hendl": Ischi yodelled in German to chickens! The creative combination with techno pop has caused a sensation and earned more than nine million views on YouTube. If you haven't seen these two videos, check them out and catch up with this chicken craze!

49. What is the best title for the passage?
- (A) What the West can learn from the East  
 (B) An Internet Celebrity  
 (C) What's All the Buzz About?  
 (D) A Unique Vocalist and His Technique
50. Which of the following statements is true?
- (A) Ischi learned yodeling from the Yodel king in person in Germany.  
 (B) The Gregory Brothers' music features country and techno pop.  
 (C) Ischi is a world-famous yodeler touring the Asian-Pacific Region.  
 (D) Yodeling is a form of singing via changes in pitch between two registers.

51. Which of the following words is closest in meaning to “**enlisted**” in the second paragraph?  
(A) Cast. (B) Enrolled. (C) Recruited. (D) Scouted.
52. What’s the writer’s purpose of writing this passage?  
(A) To present sensational phenomena in the music industry.  
(B) To give instructions on the basics of chicken yodeling.  
(C) To increase the sales of music videos on Youtube. .  
(D) To enhance bilateral exchanges through music.

第 53 題至第 56 題為題組

After you’re diagnosed with shellfish allergy, the best treatment is avoiding exposure to shellfish. You’ll have to be extra careful when preparing meals at home and when eating out. Get into a regular habit of reading food labels and avoid any foods containing shellfish. Be aware that some foods contain shellfish products, such as fish stock and artificial seafood flavoring. Realize it’s also possible to have an allergic reaction after handling shellfish or inhaling steam from cooking shellfish.

Whether you’re eating a home-cooked meal or a meal prepared at a restaurant, let food preparers know about your allergy. Even if you don't eat shellfish, you can have an allergic reaction if your meal is prepared in the same kitchen as meals containing shellfish due to cross contamination. Your non-shellfish meal can come in contact if they use the same grill, or with utensils used to prepare shellfish dishes, or the restaurant may use the same oil to prepare seafood and non-seafood dishes.

If you have a mild or moderate allergic reaction to shellfish, taking over-the-counter antihistamines can reduce your symptoms. Ask your doctor about safe, effective antihistamines. In the case of a moderate or severe allergic reaction to shellfish, an injectable epinephrine (EpiPen) can reverse symptoms of a reaction by opening your airways and stabilizing blood pressure.

If any of your children have a shellfish allergy, it’s important to educate them about their allergy and make sure they understand how to protect themselves. Train your children not to accept food from classmates, neighbors, or anyone else. Notify your child’s teacher or school about the allergy. Even if the school has a stock of EpiPens in the nurse’s office, make sure your children carry their medicine with them at all times, and teach them how to administer the drug.

53. What is the best title of this passage?  
(A) An Overview of Shellfish Allergy  
(B) How to Diagnose Shellfish Allergy  
(C) Symptoms of a Shellfish Allergy  
(D) Treatment and Prevention for Shellfish Allergy
54. If people are diagnosed with shellfish allergy, what should they do?  
(A) Stand next to someone cooking lobster.  
(B) Accept homemade food from their friends.  
(C) Read food labels to know what they are going to consume.  
(D) Cook shellfish for their family members.
55. Which is NOT the reason why people with shellfish allergy need to tell food preparers about their allergy?  
(A) To have food preparers cook non-shellfish meals for them.  
(B) To get cooks to prepare their food with a different grill.  
(C) To be given an injectable epinephrine.  
(D)To prevent allergens from spreading to other food.
56. According to this passage, which of the following is true?  
(A) Three types of drugs are mentioned to treat allergy.  
(B) Antihistamines is the most effective medicine to reduce the allergic reaction.  
(C) You can buy antihistamines in a shop without a prescription from a doctor.  
(D)Antihistamines can stabilize blood pressure.

第貳部分：非選擇題（占 28 分）

說明：本部分共有二題，請依各題指示作答，答案必須寫在「答案卷」上，並標明大題號（一、二）。作答務必使用筆尖較粗之黑色墨水的筆書寫，且不得使用鉛筆。

一、 中譯英(占 8 分)

說明：1. 請將以下中文句子 譯成正確、通順、達意的英文，並將答案寫在「答案卷上」。  
2. 請依序作答，並標明子題號（1、2）。每題 4 分，共 8 分。

1. 隨著科技快速進步，人工智慧將在不久的將來造成我們生活巨大的轉變。
2. 有些人認為機器人會增加效率，有些人則關切這個發展所帶來社會和經濟問題。

二、 英文作文(占 20 分)

說明：1. 依提示在「答案卷」上寫一篇英文作文。  
2. 文長至少 150 個單詞(words)。

請以 “If I were a high school freshman again, I would…” 開始，寫一篇通順、達意的英文作文，文長至少 150 個單詞。

**試 題 結 束**