

108 年度全國科學班聯合學科資格考英文科試題卷

— 作答注意事項 —

考試時間：120 分鐘

題型題數：第壹部分--單選題共56題 第貳部分--非選擇題共二

大題作答方式：

- 選擇題用2B 鉛筆在「答案卡」上作答；更正時，應以橡皮擦擦拭，切勿使用修正液（帶）。未依規定畫記答案卡，致機器讀卡無法辨識答案，其後果由考生自行承擔。
- 非選擇題用筆尖較粗之黑色墨水的筆在「答案卷」上作答；更正時，可以使用修正液（帶）。
- 答案卷每人一張，不得要求增補。

第壹部分：單選題（占72分）

一、詞彙題（每題1分，共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。

1. People attended a demonstration in central Paris to protest against cuts proposed in the budget on _____ and welfare benefits.
(A) tyrants (B) badges (C) fractures (D) pensions
2. Students are encouraged to participate in extracurricular activities as a(an) _____ way to explore their interests and possible future career paths.
(A) disposable (B) magnificent (C) identical (D) feasible
3. Once the laws are passed, repeated _____ will be fined heavily and might even be jailed depending on the severity of the case.
(A) applicants (B) recipients (C) contenders (D) offenders

4. The lawyer questioned whether there was enough evidence to _____ his client on conspiracy to commit murder.
(A) irritate.....(B) nominate (C) convict (D) impose
5. The executive team has control over _____ everything, from maintenance of the building to the hiring of administrative staff.
(A) largely(B) virtually (C) mutually (D) superficially
6. Located at a beautiful bay and boasting commanding view of the Pacific Ocean, the newly-opened luxury hotel can _____ 2,000 guests.
(A) accommodate(B) compromise (C) accumulate (D) contaminate
7. Since modern Western medicine cannot cure James of his medical condition, he decides to seek _____ therapies.
(A) conservative(B) aboriginal (C) superstitious (D) alternative
8. Many activists have been campaigning _____ for environmental protection, and their nonstop effort has successfully inspired more and more people to join them.
(A) relentlessly (B) inherently (C) hesitantly (D) ambiguously
9. In the bank robbery, the robber's father was guilty of being an _____ since he helped collect information about the bank and planned the escape route.
(A) opportunist (B) inhabitant (C) entrepreneur (D) accessory
10. The _____ of wealth is uneven not only between the developed and developing nations but also within each of these nations and regions, both industrial and unindustrialized.
(A) illumination.....(B) distribution (C) emigration (D) accumulation
11. Because of the trust people give us, we will refuse to _____ our principles.
(A) compromise (B) oppress (C) swipe (D) tumble
12. Far from being popular, Hugh has _____ had a lot of enemies.
(A) recklessly(B) painstakingly (C) sloppily (D) evidently
13. The student spent much of her time trying to _____ her brother's achievements.
(A) retaliate (B) notify (C) outdo (D) revolt

14. _____ plan is a method of paying for something in which the buyer pays part of the cost immediately and then makes small regular payments until the debt is completely paid.
 (A) Evaluation (B) Estimation (C) Installation (D) Installment
15. A study on the link between the aging population and decline in jobs was conducted in the small town, but we can't be sure that the result is truly _____ of the whole population nationwide.
 (A) representative (B) professional (C) relative (D) technical

二、綜合測驗（每題 1 分，共 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 至20 題為題組

For Japan and elsewhere in the world, it will be innovation that unquestionably will resolve the issues we face in the future. Japan is ___16___ to being the very first country to prove that it is possible to grow through innovation even when its population declines. Japan is rapidly moving toward “Society 5.0”, ___17___ a fifth chapter to the four major stages of human development: hunter-gatherer, agrarian, industrial and information. In this new ultra-smart society, all things will be connected through IoT technology and all technologies will be ___18___, dramatically improving the quality of life. ___19___ this new era, the government of Japan is doing everything it can to encourage various players, including start-ups and “hidden gems” among small- and medium-sized enterprises, to ___20___ brand-new and innovative ideas, to provide the world with solutions.

16. (A)determined (B)resolved (C) committed (D) concerned
 17. (A)being added (B) adding (C) adds (D) add
 18. (A)accessed (B)preserved (C) enlightened (D) integrated
 19. (A)Being realized (B)Realize (C) Realized (D) To realize
 20. (A)come up with (B)make up (C) resort to (D) do away with

第 21 至 25 題為題組

There's no escaping demographic forces. Singapore and China, which had ___21___ successful birth control programs, are now trying to move from population control in the opposite direction. China, South Korea, Japan, and even Thailand are ageing fast. This demographic ___22___ will affect their respective economies.

Japan, for example, where the population is shrinking and the average age is 47, is being forced to revise its immigration policies if its xenophobic society wants to maintain its standard of living. ___23___ misgivings from the Japanese public, Prime Minister Abe recently liberalized its immigration policy, allowing for legal immigration and issuance of working visas in certain industries. Furthermore, Japanese agriculture is also ___24___ because the average age of Japanese farmers is 67. Japanese agricultural policy will have to change ___25___ it has in “socialist” China, which has allowed land consolidation to solve the aging of its farming population. Japan has made adjustments to tackle the problem of population ageing.

21. (A) averted (B) commemorated (C) required (D) implemented
 22. (A) theory (B) decline (C) criterion (D) segmentation
 23. (A) Despite (B) Without (C) Regarding (D) Except
 24. (A) managing (B) hesitating (C) suffering (D) interfering
 25. (A) if (B) as (C) until (D) while

第 26 至 30 題為題組

We've been experiencing heartbreak for millennia and yet most of us still use the same coping and recovery mechanisms we did thousands of years ago: time, social support, and ___26___, substances (e.g., alcohol, drugs, food). ___27___ recent advances in our scientific understanding of how we are impacted by heartbreak, little has changed in how we go about recovering from this emotionally devastating experience. As I describe in my book *How to Fix a Broken Heart*, the biggest mistake we make is ___28___ we go on “autopilot” and assume the only thing we can do to recover is give it time. Yes, time helps, ___29___ social support does, but new studies are verifying that there are all kinds of other steps we can and should take to ___30___ the emotional pain we feel and expedite our recovery.

26. (A) accidentally (B) luckily (C) unfortunately (D) evidently
 27. (A) Because of (B) Though (C) In spite of (D) Regardless
 28. (A) because (B) that (C) which (D) what

29. (A) as (B) so (C) like (D) such
30. (A) modify (B) oblige (C) differentiate (D) soothe

三、文意選填（每題 1 分，共 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（BC）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。

With easy access to the Internet, people receive vast amounts of information every day and rumors spread like wildfire before they are 31. “Is this news story you are reading true or fake?” The Poynter Institute, a journalism education nonprofit, wants students to learn how to answer this question themselves. It thinks teaching others is the best way to 32 false stories online and fake social media content.

Now, Poynter has launched a program called MediaWise. It will provide free classes to middle schools and high schools throughout the US to teach students effective fact-checking skills. The program has been 33 with requests from schools for the free course, which is being designed by Stanford History Education Group, or SHEG. The group of education experts designed the course based on its research showing how students struggle with online news 34 and fact-checking. The material will be available in the fall of 2019.

The effort is also getting a(n) 35 from a high-profile journalist, network news anchor Lester Holt, host of “NBC Nightly News.” Holt agreed to become the program's first official 36 and spoke to students at high schools in person to promote the MediaWise campaign. “This is a chance to stand up and really address these issues about truth and accuracy in a very 37 way,” Holt said in an interview. The program aims to reach 1 million teenagers by 2020.

The 38 that MediaWise is teaching to students is the same one that journalists use: Don't trust everything you read online unless it is verified. “We find that a lot of students are 39, not really knowing what sources to trust online.” To tackle the problem, MediaWise teaches them to ask three questions: Who is behind the information, what is their evidence and what do other sources say? One tip based on SHEG research is the importance of “lateral reading.” The method involves seeking out 40 sources to authenticate the information. It is important to examine source validity and who might benefit from this information.

- (A)skeptical (B)judgment (C)combat (D)alternative (E)ambassador
(AB) principle (AC)inundated (AD)constructive (AE)boost (BC)confirmed

四、閱讀測驗（每題 2 分，共 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 至 44 題為題組

While music has long been recognized as an effective form of therapy to provide an outlet for emotions, the notion of using song, sound frequencies and rhythm to treat physical ailments is a relatively new domain, says psychologist Daniel J. Levitin, PhD. who studies the neuroscience of music at McGill University in Montreal. A wealth of new studies is touting the benefits of music on mental and physical health. For example, in a meta-analysis of 400 studies, Levitin found that music improves the body's immune system function and reduces stress. Listening to music was also found to be more effective than prescription drugs in reducing anxiety before surgery.

“We've found compelling evidence that music interventions can play a health-care role in settings ranging from operating rooms to family clinics,” says Levitin. The analysis also points to just how music influences health. The researchers found that listening to and playing music increase the body's production of the antibody immunoglobulin A and natural killer cells---the cells that attack invading viruses and boost the immune system's effectiveness. Music also reduces levels of the stress hormone cortisol.

“This is one reason why music is associated with relaxation,” Levitin says.

One recent study on the link between music and stress found that music can help soothe pediatric emergency room patients. In the trial with 42 children ages 3 to 11, University of Alberta researchers found that patients who listened to relaxing music while getting an IV inserted reported significantly less pain and some demonstrated significantly less distress, compared with patients who did not listen to music.

Music can help adult patients, too. Researchers at Khoo Teck Hospital in Singapore found that patients in palliative care who took part in live music therapy sessions reported

relief from persistent pain. “Active music engagement, such as singing, instrument playing, lyric discussion and even song writing, allowed the patients to reconnect with the healthy parts of themselves, even in the face of a **debilitating** condition or disease-related suffering,” says music therapist Melanie Kwan, co-author of the study and president of the Association for Music Therapy, Singapore.

41. What might be the best title for this passage?

- (A) Music as Medicine
- (B) The History of Music
- (C) No Music, No Life
- (D) Music-- the Best Companion

42. Based on this passage, which of the following statements is **not true**?

- (A) Music benefits both our mental and physical health.
- (B) Listening to music can be a good way for someone to feel less nervous.
- (C) Music therapy works more effectively on adults than on children.
- (D) Antibody immunoglobulin A is something that our body can produce itself.

43. According to this passage, which of the following statements is **true**?

- (A) The effect of using music therapy to reduce physical pain has long been recognized.
- (B) Music is played in hospitals to create a more relaxing atmosphere mainly for the staff there.
- (C) Patients in palliative care especially need active music engagement to relieve their pain.
- (D) Researchers have found solid evidence to prove that music can play a health-care role.

44. What does the word “**debilitating**” in the last paragraph most likely mean?

- (A) inspiring
- (B) exhausting
- (C) tempting
- (D) promising

第 45 至 48 題為題組

In 1969, biologist Burney Le Boeuf published an article in *Science* reporting the first evidence of dialects in mammals other than humans. Le Boeuf studied the northern elephant seal calls in the 1960s, when the population of seals was about one third of what it is today.

He traveled to Año Nuevo, San Miguel Island, San Nicolas Island and Isla de Guadalupe, where he captured and analyzed the threat calls of hundreds of male northern elephant seals. Vocalizations are important for male northern elephant seals. They are used to drive off would-be rivals, thus conserving energy for breeding and avoiding injury from a fight.

Le Boeuf found that since the male population at each spot was small, not only were their calls simple but they were very similar to other male seals at the same site. In his 1969 paper, Le Boeuf predicted that as populations grew, the geographic dialects would disappear.

Almost 50 years later, Ph.D. candidate Caroline Casey read Le Boeuf’s studies and wanted to see if his prediction was correct. Casey and her co-advisor Colleen Reichmuth set off to the four sites Le Boeuf had examined. They spent two years recording elephant seals at each of these sites during the winter breeding season. Then they re-analyzed Le Boeuf’s data using more modern techniques and compared it to the calls of the 171 males they had recorded.

Casey and Reichmuth found that as the northern elephant seal population grew and moved between breeding sites over the years, instead of sounding similar to other males at their colony, individuals began producing calls that were really different from their neighbors. These differences between individual calls were good because they enable individual recognition of familiar rivals during the breeding season. Over four generations, the calls became individualized and more complex and the geographic dialects vanished.

Casey and Reichmuth’s finding showed that animal communication didn’t remain static but shifted over time in response to changing environmental and social conditions. It also demonstrated that scientists may need more than a single snapshot of animal behavior to understand how creatures communicate and live.

45. What are the purpose of male northern elephant seals’ calls?

- (A) Attracting females.
- (B) Scaring enemies away.
- (C) Greeting friends and family.
- (D) Warning others about outsiders.

46. Which of the following is **true** about Le Boeuf’s study in 1969?

- (A) It proves that marine mammals display dialect differences like humans.
- (B) It shows that elephant seals are the only marine mammals that have dialects.

- (C) It investigates how northern elephant seals change their dialects within fifty years.
- (D) It studies how marine mammals use different dialects according to social conditions.

47. What is found about elephant seals in Casey and Reichmuth's study?
- (A) Elephant seals at different sites developed their geographic dialects.
 - (B) They learned to communicate in a set of simple sounds.
 - (C) They developed their individual characteristic calls.
 - (D) Elephant seals in the same family sounded similar.
48. What does the author mean by the last sentence of the passage?
- (A) Scientists should compare multiple species to find universal communication behavior.
 - (B) Scientists need to conduct follow-up studies to know animals' change in communication.
 - (C) Scientists should investigate animals' various behavior to find patterns of communication.
 - (D) Scientists need to analyze their data with more than one approach to confirm how animals communicate.

第 49 至 52 題為題組

A new study sponsored by Apple company suggests the Apple Watch was able to identify **abnormal** heart rates that could be linked to a serious heart condition. Atrial fibrillation, also called "a-fib," is the most common form of irregular heartbeat, resulting from the abnormal firing of electrical signals in the upper chambers of the heart. People with untreated a-fib are about five times more likely to suffer a stroke.

More than 400,000 volunteered for the study. They wore the Apple Watch for extended periods to identify changes that might show an irregular heartbeat. The devices contain an app using the watch's light sensor technology to measure blood flow and continuously gathering information without users having to do anything. Out of those taking part, about 2,000 subjects received a warning from the device that they might have a problem. Those individuals were then asked to contact a doctor, who decided whether they should receive a patch that use electrocardiography, or ECG technology, to more closely watch for a possible irregular heartbeat.

The study found that about 84 percent of those who received warnings of irregular heartbeat activity were found to be experiencing a-fib. Of those who received warnings and followed up by using an ECG patch, one third were found later to have a-fib. Overall, about 57 percent of those taking part in the study sought some kind of medical attention, researchers said.

Lloyd Minor, head of Stanford's School of Medicine, said the results show great promise in using technology to create "more predictive and preventive health care," and that a-fib is just one example of a condition devices can help identify in the future. "This study opens the door to further research into wearable technologies and how they might be used to prevent disease before it strikes," he said.

But some health researchers warned against making any general judgments based on the Apple-financed study. They have called for much more research to measure the effectiveness of wearable devices to identify signs of disease. Other experts agreed that more studies are needed before similar device-based health observation systems are widely recommended.

49. What causes atrial fibrillation?
- (A) A misfiring of electrical signals in the brain.
 - (B) A quick rise in blood pressure.
 - (C) When a person's heart completely stops beating.
 - (D) A misfiring of electrical signals in the heart.
50. What was the patch used for in the study?
- (A) To closely observe changes in the skin,
 - (B) To measure electrical signals in the heart.
 - (C) To more closely observe for a possible irregular heartbeat.
 - (D) To give heart medicine to subjects in the study.
51. According to the passage, which of the following statements is **true**?
- (A) One out of three who received warnings and thereby used an ECG patch was found to have a-fib.
 - (B) Eighty-four percent of those participating in the study were found to experience a-fib.

- (C) Those who wore the device had to exercise vigorously in order to provide accurate information.
- (D) Fifty-seven percent of those who received warnings of irregular heartbeat used ECG patches.

52. The passage concludes that_____

- (A) The Apple Watch is well recommended for predictive and preventive health care.
- (B) More research is needed before wearable technology is used to identify disease.
- (C) A-fib is the only example in which wearable devices can be used to prevent a disease before it strikes..
- (D) Most researchers recommend using wearable devices in health observation systems.

第 53 至 56 題為題組

“Green” products made in Taiwan, or M.I.T, are gaining popularity worldwide. One such product comes from a daily material that everyone uses – newspaper. Bothered by piles of magazines and newspaper around her home and workplace, Colin Lin, a 50-year-old Taiwanese fashion designer, decided to turn these environment burdens into green fashion items. Her signature design includes newspaper shoes, tote bags, and other accessories made of recycled newspaper.

Contrary to what one might think, Lin’s newspaper shoes are sturdy, durable, and best of all, waterproof. To achieve this seemingly impossible task, Lin first attaches a cotton lining to the back of newspaper strips, and adds a plastic coating to ensure a shiny, waterproof look. She then assembles the woven newspaper strips with a plastic cap-toe in the front and a rubber sole at the bottom. This time-consuming process takes hours or days, but it makes Lin’s products stand out in the fashion industry. As Asian items become popular worldwide, shoes and bags lined with Chinese characters and colorful advertisement photos from Taiwanese newspapers are becoming a leading trend.

The firm has sold about 4,000 pairs of shoes made of recycled paper since its launch last year, proving Lin is on the right track with her environmentally friendly approach to business. The soft-spoken Lin, who has been in the shoemaking business for 26 years, publicly encourages her business rivals to follow her lead and think creatively about the connection between the environment and manufacturing.

Lin is very generous in sharing her innovative ideas. “I only contribute very little to recycling all the newspapers dumped every day around the world,” she said. “But other footwear and bag manufacturers may want to copy my idea and so contribute their own share to dealing with the problem.”

53. This passage is most likely taken from a _____.

- (A) research paper
- (B) biology textbook
- (C) newspaper report
- (D) travel brochure

54. How does Colin Lin make her recycled newspaper shoes durable?

- (A) Plastic strips are woven with newspaper strips.
- (B) She dips the newspaper strips in glue.
- (C) She attaches a cotton lining to the newspaper strips.
- (D) She decorates the shoes with leather.

55. What makes Colin Lin’s shoes distinctive from other shoes?

- (A) They are fashionable and waterproof.
- (B) They are lined with words and photos from Taiwanese newspapers.
- (C) They are cheap and comfortable.
- (D) The manufacturing process only takes a short time.

56. What can we infer from Colin Lin’s comment in the last paragraph?

- (A) Many bag manufacturers have signed contracts with her.
- (B) She doesn’t mind if others copy her creative ideas.
- (C) She is planning to establish a fund for environmental protection.
- (D) She is satisfied with her contribution to recycling.

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（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，並將答案寫在「答案卷」上。
2.請依序作答，並標明子題號。每題4分，共8分。

1. 雖然台灣已經現代化，但我們台灣人仍歡慶豐富的文化和傳統遺產，也崇敬祖先。
2. 這些儀式提醒我們從何來，讓我們知道我們成為怎樣的人，以及我們多麼獨特。

二、英文作文（每題 20 分，共 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120個單詞（words）。

提示：

近年來許多學子於高中畢業或大學畢業後紛紛選擇出國留學之路，在國內掀起了一陣出國留學的風潮。你認為引發這項風潮的原因為何？若在國外學校提供全額獎學金的情況下，你會選擇出國念書或是續留台灣求學？文分兩段，每段需針對上述兩個問題分別提出至少兩項原因，並給予適當說明。

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