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(請填入甄選證號)

臺北市立第一女子高級中學

110 學年度科學班甄選入學

語文能力檢定試題本

請不要翻到次頁！

讀完本頁的說明，聽從監試委員的指示才開始作答！

※請先確認你的答案卷、甄選證號與座位號碼是否一致無誤。

測驗說明：

這是北一女中科學班甄選入學語文能力檢定試題本，內容包含國文與英文，提供答案卷 2 份，請分科作答。測驗時間從 **15：30** 到 **17：10**，共 **100** 分鐘。作答開始與結束請聽從監試委員的指示。

注意事項：

1. 每節甄試說明時間內，提前翻閱題本、提前作答，經制止不從者，該節甄試科目不予計分。
2. 每節甄試正式開始後 15 分鐘起，遲到者不得入場。若強行入場，該節甄試科目不予計分。
3. 每節甄試正式開始 30 分鐘內，不得提早離場。若強行離場，不服糾正者，該節甄試科目不予計分。
4. 依試場規則規定，答案卷上不得書寫姓名座號，也不得作任何標記。故意汙損答案卷、損壞試題本，或在答案卷上、作答內容中顯示自己身分者，該節甄試科目不予計分。
5. 依試場規則規定，語文能力檢定作答時，務必使用藍、黑色墨水的筆，不得使用鉛筆。更正時，可以使用修正液（帶）。如有書寫不清或汙損等情事，致無法清晰呈現作答結果者，其責任由考生自負，不得提出異議。
6. 依試場規則規定，語文能力檢定作答時，不得要求增加答案卷作答。
7. 請於答案卷上作答，如需擬草稿，請使用試題本中之空白頁。

請聽到鐘（鈴）響起，於試題本右上角方格內填寫甄選證號，再翻頁作答

國文試題

閱讀以下文字，依序回答問題（一）、問題（二）。

創新源自創意，創意來自創造力。心理學家歸納出創造者的人格，發現他們多半敏感度高、有直覺的觀察力、求知慾旺盛、有毅力、自信心強、富幽默感等。相反的，一個人如果固執、容易衝動、盲從世俗，可能就比較缺乏創造力。

妨礙創意的第一個態度，可稱之為「血統主義」。血統主義者相信一切事物都應該依循既有的法則與規範，存在著一個「不可變」的正統，偏離了這個正統便是不可接受或不可思議的。譬如，有人試著發明一種「咖啡汽水」，血統主義者會說：「這根本不是汽水，從來沒有人這樣做汽水的。」血統主義者擅長發現自己與別人的不同，也堅持拒絕混同。他們最難理解「組合就是創意」這個概念。血統主義者經常說：「這是不可能的。」「我做這一行三十年了，從沒聽說這種事。」「你休想壞了我們的規矩。」

創意的第二種障礙，可稱為「直線主義」。血統主義是一種有違創意原則的態度，直線主義則是一種有害創意思考的觀念，以為新元素加入的變化都是循著直線走的——這就是直線主義名稱的由來。

例如《點砂成金》一書曾經提到一個故事：發明「微處理機」的工程師葛瑞·潘，早在一九七二年就有「把整套電腦裝入晶片」的構想。他的上司聽完這位胸懷大志的年輕工程師的構想後說：「年輕人，你難道不知道電腦已經愈做愈大了嗎？」問題是，回顧歷史，電腦一方面愈做愈大，一方面同時發展個人電腦，引起波瀾壯闊的產業重組——這個例子說明創意的發生並非直線前進，而是「聲東擊西」、忽左忽右的，所以尋找創意的人，應該記著：「旁跨一步，海闊天空」。創意人會把他眼前的路，視為立體空間中的座標，它有多重方向的可能途徑，進入「刺蝟式」的探索方向。

（改寫自詹宏志〈創意的絆腳石〉）

問題（一）：根據上文，列點歸納並說明有哪些因素會形成創意的絆腳石？文長至多6行。（占12分）

問題（二）：根據上文，你認為自己最具備哪一項「創造者人格」？請以「創意與我」為題，書寫一篇段落分明、首尾完整的文章，內容須包含你在生活中運用此一人格特質的具體經驗及所思所感。（占38分）

試題結束

英文試題

作答提示:

請根據題組內容，在答案卷上用英文寫出正確、完整的答案（英翻中除外）

題組一：16 分

Linus Pauling won a Nobel Prize in Chemistry in 1953 because he had pointed out that atoms are held together in molecules, which later helped people to understand DNA. In 1970, he published a book called *How To Live Longer and Feel Better*. In the book, the chemist argued that vitamin C, an antioxidant, can cure common cold, flu, AIDS, cardiovascular diseases, and even cancer. That is, antioxidants seem to help fight off disease and aging, which are believed to be a result of free radicals.

To see if **this idea** was correct, researchers began to conduct long-term clinical trials with people taking different nutrients, such as vitamins C and E, beta-carotene, folic acid, and so on. In 2012, a review of 27 such studies was published: seven found some benefits, ten found no benefits, while ten showed unwanted negative results. For example, a study in 2007 showed that men who took multivitamins were twice as likely to die from prostate cancer. Another study in 2010 showed that men who took selenium and vitamin E saw an increased prostate cancer by 17%. What's worse, one study in 2011 had to end earlier because after four years of taking vitamin A and beta-carotene, there was a 28% increase in lung cancer rates and a 17% increase of death rates.

Human biochemistry does not solely mean using antioxidants to neutralize free radicals, which break and kill cells. In fact, free radicals are not evil guys that shouldn't be found in the human body. Instead, they are needed when food and oxygen are turned into energy. Besides, they play an important role when cells grow, divide, and die. Also, they kill bacteria trapped by the immune system. Without them, the defense of human health cannot do its job well.

Are antioxidants all good and free radicals all bad? The answer is not just a yes or no. In a word, the human body is not as _____ as a beaker: When the solution is too acid, you just add some alkali to neutralize it. It just doesn't work that way.

atom 原子	molecule 分子	antioxidant 抗氧化物
cardiovascular 心血管的	clinical 臨床的	beta-carotene β胡蘿蔔素
folic acid 葉酸	prostate cancer 攝護腺癌	selenium 硒
neutralize 中和	bacteria 細菌	immune 免疫的
beaker 燒杯	solution 溶液	alkali 鹼

1. (T / F) Linus Pauling won a Nobel Prize because of his book that taught people how to have a longer lifespan.
2. What does “**this idea**” in the second paragraph refer to?
 - (A) Colds can be caused by lack of vitamin C.
 - (B) Antioxidants can help people stay healthy.
 - (C) Free radicals are harmful to human bodies.
 - (D) Atoms are held together in molecules.
 - (E) Antioxidants prevent AIDS and cancer.
3. Which of the following is most likely to be the missing word in the last paragraph ?
 - (A) useful
 - (B) different
 - (C) complex
 - (D) gentle
 - (E) simple
4. According to the review in 2012, how many studies did not support Pauling’s argument?
5. What was the reason that the 2011 study had to end earlier?
6. Why are free radicals good for human health? Name two reasons.

(For questions 5-6, please answer in complete sentences.)

題組二: 18 分

The Hubble Space Telescope (HST) came into operation in 1990. With this high-tech telescope, we are able to study outer space more closely. It is an important milestone in the field of astronomy, having solved many mysteries of the universe. The HST travels around the Earth, recording detailed images of objects such as colored clouds of gas and dust hidden in the shadows of black holes. The amazing pictures that have been taken by the HST are sharper than images taken by any other device.

The HST is particularly designed to detect and penetrate different kinds of light. The “eye” of the HST is made up by two curved mirrors, both of which are carefully produced to reach a very high level of quality. When rays of light are sent back by the mirrors, the HST’s computers develop images that show us exactly what Hubble’s eye is seeing. As the major parts of the HST, these two mirrors require careful maintenance. The technicians have to keep them highly clean and shiny all the time to keep off dust and moisture, which might lower the mirrors’ resolution.

The large amount of data the HST sends down from 569 km above the Earth has helped a lot with our understanding of astronomy. Unfortunately, the telescope is said to be nearing the end of its lifespan. Aging parts must be maintained and broken ones should be replaced, at great expense. Among the most important parts are the complex ones that enable the telescope’s eye to be pointed at target locations in space. **If the telescope’s eye can’t be aimed well, all of its hard work will be useless.** Some of these parts are no longer working. In the end, when too many parts fail and the cost of repairs becomes too great, the HST will most likely be allowed to fall and crash toward the Earth. Although some parts will burn up when they hit the atmosphere, some larger falling parts could still pose a risk to human safety. But without a doubt, the Hubble images have given us great understanding of the universe.

	telescope 望遠鏡	astronomy 天文學	instrument 儀器
	penetrate 穿透	curved 彎曲的	maintenance 維護
	moisture 濕氣	resolution 解析度	lifespan 壽命
	complex 複雜的	atmosphere 大氣層	

1. (T / F) The Hubble Space Telescope has stopped working due to the great expense of maintenance.

2. What is the purpose of the passage?
 - (A) To teach how to make a telescope.
 - (B) To explain a difficult scientific idea.
 - (C) To introduce a device in outer space.
 - (D) To point out a mystery of the universe.
 - (E) To inform about a new scientific tool.

3. What can we learn from this passage?
 - (A) The HST is able to clean the mirrors by itself.
 - (B) The HST will be made again in the near future.
 - (C) The curved mirrors of the HST can develop images right away.
 - (D) Not every part of the HST will come back to the Earth at last.
 - (E) The HST has traveled around the Earth for almost 10 years.

4. According to the passage, what are the two threats to the eye of the HST?

5. According to the passage, what images can the HST record in space?
Write down two objects.

6. When will the operation of the HST most likely be allowed to stop?

7. Please translate the sentence into Chinese: **“If the telescope’s eye can’t be aimed well, all of its hard work will be useless.”**

題組三: 16 分

Stomach ulcers are relatively common, troubling one in ten people. They are painful and can possibly cause death. It is said that the death of Napoleon is related to this type of illness. Many people think that ulcers are caused by stress or spicy food, yet it turns out that they are not caused by stress or lifestyle but by bacteria.

In the past, people thought that stress would change the direction of blood flow and lead it away from the stomach, **which** would decrease the production of its protective mucus lining. Over a long period of time, this would leave the tissue below weak and unsafe, and stomach acid would then lead to an ulcer as a result.

In the early 1980s, two Australian scientists, Barry Marshall and Robin Warren, noticed that a never-before-seen bacterium existed in the bottom part of the stomachs of people who suffered from ulcers. They grew it, gave a name (*Helicobacter pylori*), and began to run tests. They found that when the bacteria were killed, the ulcers were cured. **Their opinion—that stomach ulcers might actually be an infectious illness—was never heard of in modern medicine.**

Marshall decided to become his own experiment. He drank a dish full of the bacteria, and soon came down with a serious stomach disease. He tested himself for the bacteria—his stomach was full of them—and then successfully cured himself with a course of antibiotics. What people used to think about the cause of ulcers had been proved wrong.

In 2005, Marshall and Warren were rewarded for what they had found and their great work, winning the Nobel Prize for Medicine.

Helicobacter pylori is present in half the human population, and in almost everyone in developing countries. People may have this type of bacterium in early childhood and it can stay in their stomach for life. However, only ten to fifteen percent of those who have this type of bacterium would have stomach ulcers.

We still don't know why this should be, but we do know how to treat it.

 ulcer 潰瘍 mucus lining 黏膜 acid 酸 tissue (細胞的)組織 infectious 有傳染力的 course 療程 antibiotics 抗生素

1. (T / F) *Helicobacter pylori* was first discovered in the bottom part of the stomachs of ulcer patients.

2. What is the purpose of this passage?

- (A) To introduce two famous scientists.
- (B) To explain how to do a scientific test.
- (C) To tell readers the cause of an illness.
- (D) To teach us how to prevent a disease.
- (E) To show how a disease can affect us .



affect 影響

3. According to this passage, which of the following statements is **NOT** true?

- (A) One out of ten people is affected by ulcers and loses their life.
- (B) What Marshall and Warren thought about ulcers was proved right.
- (C) After Marshall drank a dish of *Helicobacter pylori*, he did fall sick.
- (D) Marshall and Warren were given the Nobel Prize for their discovery.
- (E) The bacterium *Helicobacter pylori* was not found until the early 1980s.

4. What does the word “**which**” in the second paragraph refer to?

5. What is the unsolved problem mentioned in the last paragraph?

6. Please translate the following sentence into Chinese: “**Their opinion—that stomach ulcers might actually be an infectious illness—was never heard of in modern medicine.**”

試題結束

