

第一大題 單選 (60%) ※ 注意：請於試卷內之「非選擇題作答區」標明題號依序作答。

Section I:

Photographic evidence suggests that liquid water once existed in great quantity on the surface of Mars. Two types of flow features are seen: runoff channels and outflow channels. Runoff channels are found in the southern highlands. These flow features are extensive systems—sometimes hundreds of kilometers in total length—of interconnecting, twisting channels that seem to merge into larger, wider channels. They bear a strong resemblance to river systems on Earth, and geologists think that they are dried-up beds of long-gone rivers that once carried rainfall on Mars from the mountains down into the valleys. Runoff channels on Mars speak of a time 4 billion years ago (the age of the Martian highlands), when the atmosphere was thicker, the surface warmer, and liquid water widespread.

Outflow channels are probably relics of catastrophic flooding on Mars long ago. They appear only in equatorial regions and generally do not form extensive interconnected networks. Instead, they are probably the paths taken by huge volumes of water draining from the southern highlands into the northern plains. The onrushing water arising from these flash floods likely also formed the odd teardrop-shaped “islands” (resembling the miniature versions seen in the wet sand of our beaches at low tide) that have been found on the plains close to the ends of the outflow channels. Judging from the width and depth of the channels, the flow rates must have been truly enormous—perhaps as much as a hundred times greater than the 105 tons per second carried by the great Amazon river. Flooding shaped the outflow channels approximately 3 billion years ago, about the same times as the northern volcanic plains formed.

1. In paragraph 1, the word merge in the passage is closest in meaning to
 - (1) expand
 - (2) separate
 - (3) combine
2. What does the discussion in paragraph 1 of runoff channels in the southern highlands suggest about Mars?
 - (1) The atmosphere of Mars was once thinner than it is today.
 - (2) Large amounts of rain once fell on parts of Mars.
 - (3) The river systems of Mars were once more extensive than Earth's.
3. In paragraph 2, The word relics in the passage is closest in meaning to
 - (1) remains
 - (2) sites
 - (3) requirements
4. In paragraph 2, The word miniature in the passage is closest in meaning to
 - (1) temporary
 - (2) small
 - (3) multiple
5. In paragraph 2, why does the author include the information that 105 tons of water flow through the Amazon River per second?
 - (1) To emphasize the great size of the volume of water that seems to have flowed through Mars' outflow channels
 - (2) To indicate data used by scientists to estimate how long ago Mars' outflow channels were formed
 - (3) To argue that flash floods on Mars may have been powerful enough to cause tear-shaped “islands” to form
6. According to paragraph 2, all of the following are true of the outflow channels on Mars EXCEPT:
 - (1) They formed at around the same time that volcanic activity was occurring on the northern plains.

見背面

- (2) They are found only on certain parts of the Martian surface.
- (3) They sometimes empty onto what appear to have once been the wet sands of tidal beaches.

Section II:

The city of Teotihuacán, which lay about 50 kilometers northeast of modern-Day Mexico City, began its growth by 200-100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. Clearly, much planning and central control was involved in the expansion and ordering of his great metropolis. Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico).

How did this tremendous development take place, and why did it happen in the Teotihuacán Valley? Among the main factors are Teotihuacán's geographic location on a natural trade route to the south and east of the Valley of Mexico, the obsidian resources in the Teotihuacán Valley itself, and the valley's potential for extensive irrigation. The exact role of other factors is much more difficult to pinpoint—for instance, Teotihuacán's religious significance as a shrine, the historical situation in and around the Valley of Mexico toward the end of the first millennium B.C., the ingenuity and foresightedness of Teotihuacán's elite, and, finally, the impact of natural disasters, such as the volcanic eruptions of the late first millennium B.C.

7. In paragraph 1, the word massive in the passage is closest in meaning to
- (1) ancient
 - (2) carefully
 - (3) very large
8. In paragraph 1, each of the following is mentioned as a feature of the city of Teotihuacán between A.D. 150 and 700 EXCEPT
- (1) regularly arranged streets
 - (2) several administrative centers spread across the city
 - (3) many manufacturing workshops
9. In paragraph 2, the word pinpoint in the passage is closest in meaning to
- (1) identify precisely
 - (2) make an argument for
 - (3) describe
10. In paragraph 2, the word ingenuity in the passage is closest in meaning to
- (1) ambition
 - (2) cleverness
 - (3) faith
11. Which of the following is NOT mentioned in paragraph 2 as a main factor in The development of Teotihuacán?
- (1) The presence of obsidian in the Teotihuacán Valley
 - (2) The potential for extensive irrigation of Teotihuacán Valley lands
 - (3) A long period of volcanic inactivity in the Teotihuacán Valley

Section III:

When the Hawaiian Islands emerged from the sea as volcanoes, starting about five million years ago, they were far removed from other landmasses. Then, as blazing sunshine alternated with drenching rains, the harsh, barren surfaces of the black rocks slowly began to soften. Winds brought a variety of life-forms.

題號： 469
科目： 專業英文(L)
節次： 5

國立臺灣大學 109 學年度碩士班招生考試試題

題號：469

共 3 頁之第 3 頁

Spores light enough to float on the breezes were carried thousands of miles from more ancient lands and deposited at random across the bare mountain flanks. A few of these spores found a toehold on the dark, forbidding rocks and grew and began to work their transformation upon the land. Lichens were probably the first successful flora. These are not single individual plants; each one is a symbiotic combination of an alga and a fungus. The algae capture the Sun's energy by photosynthesis and store it in organic molecules. The fungi absorb moisture and mineral salts from the rocks, passing these on in waste products that nourish algae. It is significant that the earliest living things that built communities on these islands are examples of symbiosis, a phenomenon that depends upon the close cooperation of two or more forms of life and a principle that is very important in island communities.

12. In paragraph 1, the phrase emerged from in the passage is closest in meaning to

- (1) appear
- (2) let it go
- (3) show off

13. In paragraph 2, the phrase at random in the passage is closest in meaning to

- (1) over a long period of time
- (2) successfully
- (3) without a definite pattern

14. It can be inferred from paragraph 2 that the fungi in lichens benefit from their symbiotic relationship with algae in what way?

- (1) The algae help the fungi meet some of their energy needs.
- (2) The algae protect the fungi from the Sun's radiation.
- (3) The algae provide the fungi with greater space for absorbing water.

15. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage?

- (1) Some of the earliest important examples of symbiosis—the close cooperation of two or more living things—occur in island communities.
- (2) Symbiosis—the close cooperation of pairs or small groups of living organisms—is especially important in these island environments.
- (3) The first organisms on these islands worked together closely in a relationship known as symbiosis, which is particularly important on islands.

第二大題 英翻中 (20%) ※ 注意：請於試卷內之「非選擇題作答區」作答，並應註明作答之題號。

請將閱讀第三題的兩段內容翻成中文

Please translate the paragraphs of section III in Chinese. (20%)

第三大題 中翻英 (20%) ※ 注意：請於試卷內之「非選擇題作答區」作答，並應註明作答之題號。

請將下段文字翻譯成英文

“漁業科學研究所的研究領域以水生生物為對象。研究內容涵蓋了營養生化、生殖生理、天然物化學、漁業生物學、資源管理、水產養殖疾病防治、生物化學、分子生物學與生態學等。本所主要研究著重於水生及漁業生物的基礎科學，配合現代生物技術的開發與病害防治，注重環境保育及資源管理，並考慮整體生態系的平衡，同時也將研究成果技術轉移至國內海洋生技產業，發展生物技術於水產增殖、品種改良與水生生物資源的永續利用。”

試題隨卷繳回