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科目： 專業英文(L)  
節次： 5

國立臺灣大學 114 學年度碩士班招生考試試題

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**第一大題 單選 (60%)** ※ 本大題請於試卷內之「選擇題作答區」依序作答。

**Section I**

**The Mysterious World of Deep-Sea Ecosystems**

The deep sea is one of the most mysterious and least explored regions of our planet. Characterized by perpetual darkness, freezing temperatures, and crushing pressures, the deep sea was once thought to be devoid of life. However, modern exploration has revealed a diverse array of species thriving in this extreme environment.

Deep-sea hydrothermal vents are among the most remarkable discoveries. These vents release mineral-rich fluids that can reach temperatures over 400°C. Despite the hostile conditions, they support complex ecosystems. Chemosynthetic bacteria form the base of these ecosystems, using the chemicals in vent fluids to produce energy—a process analogous to photosynthesis in plants.

Many deep-sea organisms exhibit extraordinary adaptations. For example, some fish possess bioluminescent organs to attract prey or communicate. Others have elongated, sharp teeth and extendable stomachs to maximize their feeding opportunities in a resource-scarce environment.

Human activities pose significant threats to these fragile ecosystems. Deep-sea mining and plastic pollution have reached even the most remote ocean depths, endangering the delicate balance of these habitats.

1. In paragraph 1, the word "crushing" in the passage is closest in meaning to:

- (1) overwhelming (2) destroying (3) heavy (4) intense

2. In paragraph 2, what does the word "analogous" most likely mean?

- (1) Similar (2) Opposite (3) Dependent (4) Unrelated

3. According to the passage, what is unique about hydrothermal vents?

- (1) They are devoid of life (2) They host ecosystems based on chemosynthesis  
(3) They are colder than the surrounding waters (4) They are located in shallow waters

4. Which of the following is NOT mentioned as an adaptation of deep-sea organisms?

- (1) Bioluminescence (2) Extendable stomachs (3) Thick protective shells (4) Sharp teeth

5. The word "fragile" in paragraph 4 is closest in meaning to:

- (1) Delicate (2) Strong (3) Unique (4) Complex

**Section II: Critical Thinking**

6. Why does the author emphasize the impact of human activities in the final paragraph?

- (1) To highlight the resilience of deep-sea ecosystems  
(2) To demonstrate the interconnectedness of ocean life  
(3) To stress the importance of protecting these ecosystems  
(4) To explain how mining benefits ocean research

7. According to the passage, why is exploring deep-sea ecosystems important for scientific research?

- (1) It proves that life can survive in extreme environments  
(2) It helps explain the effects of climate change  
(3) It reveals potential mineral resources in the deep sea  
(4) It shows the rapid evolution of deep-sea species

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## Section II

### The Fisheries of Taiwan

Taiwan, an island nation in East Asia, has long depended on its fishing industry as a crucial part of its economy and culture. Surrounded by the Pacific Ocean and located near abundant fishing grounds, Taiwan has access to diverse marine resources. The country's fisheries include coastal, offshore, and deep-sea fishing, with tuna being one of the most valuable catches in the international market.

The fishing industry in Taiwan is characterized by both traditional and modern practices. While small-scale fishers use traditional methods to catch local species, large commercial fleets employ advanced technologies to harvest fish in distant waters. Taiwan is one of the leading tuna exporters in the world, with markets stretching to Japan, the United States, and Europe.

Despite its economic importance, the fishing industry in Taiwan faces significant challenges. Overfishing, marine pollution, and climate change have led to declining fish stocks. In response, the government has implemented stricter regulations, including fishing quotas and closed seasons, to protect marine biodiversity and ensure the industry's sustainability. These measures have been accompanied by education campaigns to encourage sustainable practices among fishers.

Taiwan's commitment to sustainable fishing has also gained international recognition. Partnerships with organizations like the Marine Stewardship Council (MSC) have helped Taiwan adopt global best practices in fisheries management. However, balancing economic growth with ecological conservation remains a pressing issue.

8. In paragraph 1, the word "abundant" is closest in meaning to:

- (1) scarce (2) plentiful (3) expensive (4) specific

9. According to the passage, what is the main export of Taiwan's fishing industry?

- (1) Shrimp (2) Tuna (3) Salmon (4) Crab

10. The word "sustainability" in paragraph 3 refers to:

- (1) profitability of fishing companies (2) maintaining fish stocks for future generations  
(3) promoting technological advancement (4) increasing fish exports

11. Which of the following challenges to Taiwan's fishing industry is NOT mentioned in the passage?

- (1) Overfishing (2) Marine pollution (3) Lack of government support (4) Climate change

12. Why has Taiwan partnered with international organizations like the Marine Stewardship Council (MSC)?

- (1) To increase fish exports to international markets  
(2) To adopt global standards for sustainable fishing  
(3) To train small-scale fishers in modern fishing methods  
(4) To resolve conflicts over fishing territories

13. The passage suggests that balancing economic growth and ecological conservation is a:

- (1) minor concern for the Taiwanese government  
(2) challenge that has already been resolved  
(3) priority for the international fishing industry  
(4) continuing issue for Taiwan's fishing sector

14. Choose the sentence with correct grammar:

- (1) Taiwan, which is located in East Asia, are famous for its fishing industry

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- (2) Small-scale fishers uses traditional methods to catch fish
- (3) The government has implemented stricter regulations to protect marine biodiversity
- (4) Taiwan adopt global practices to improve fisheries management

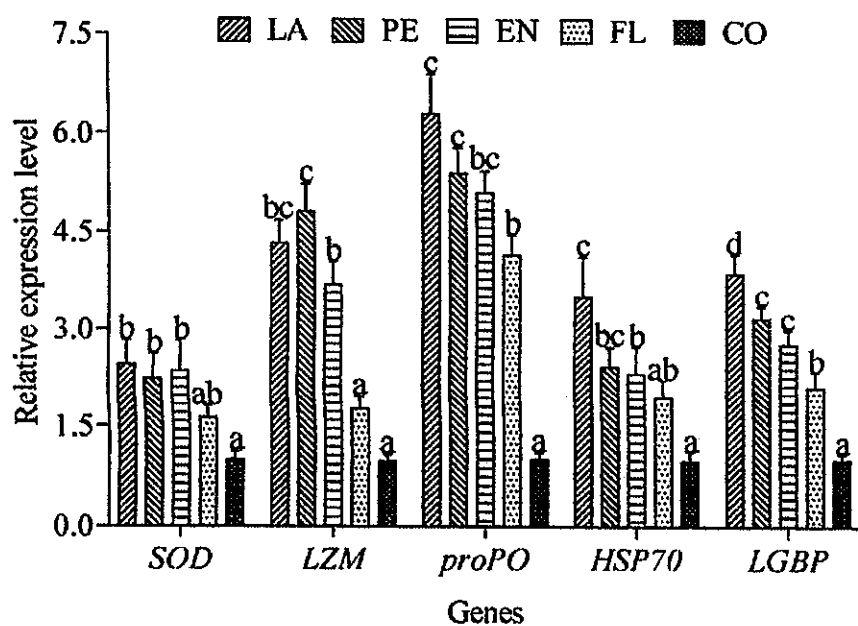
15. Complete the sentence with the correct verb form:

The government encourages fishers to \_\_\_\_\_ sustainable fishing methods.

- (1) adopting (2) adopt (3) adopted (4) adoption

第二大題 研究結果描述 (20%) ※ 本大題請於試卷內之「非選擇題作答區」標明題號依序作答。

下圖是比較餵食不同乳酸菌對太平洋白蝦 (*Penaeus vannamei*) 後，蝦肝胰腺中 SOD、LZM、proPO、HSP70 和 LGBP 等基因的表現結果。請根據此圖與圖說，用英文描述數據所呈現的意思。



The relative expression levels of SOD, LZM, proPO, HSP70 and LGBP genes in the hepatopancreas of shrimp. Data with different letters indicate significant difference with each other ( $P < 0.05$ ). Different groups are as follows: LA group, basal diet supplemented with live cells of *Lactobacillus plantarum* W2 at the dose of  $1 \times 10^{10}$  cfu  $\text{kg}^{-1}$  feed; PE group, basal diet supplemented with live cells of *Pediococcus acidilactici* Nj at the dose of  $1 \times 10^{10}$  cfu  $\text{kg}^{-1}$  feed; EN group, basal diet supplemented with live cells of *Enterococcus faecium* LYB at the dose of  $1 \times 10^{10}$  cfu  $\text{kg}^{-1}$  feed; FL group, basal diet supplemented with 15 mg  $\text{kg}^{-1}$  florfenicol for 7 d in a 14-day interval; CO group, basal diet without probiotics and florfenicol.

第三大題 作文 (20%) ※ 本大題請於試卷內之「非選擇題作答區」標明題號依序作答。  
根據下方問題，請用英文作答。

Is English important for graduate studies? Why or why not?