

國立臺北科技大學 112 學年度碩士班招生考試

系所組別：3210、3220 環境工程與管理研究所甲、乙組

第二節 環境管理 試題

第 1 頁 共 1 頁

注意事項：

1. 本試題共 5 題，共 100 分。
2. 不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. 名詞解釋 (25% , each 5%)

Gaussian plume dispersion model	Climate change mitigation and adaption	Carlson's Trophic State Index
Biochemical oxygen demand	Endocrine disruptor	

2. (i) Rank the 6 Kyoto Protocol greenhouse gases according to their global warming potentials, from small to large. (ii) Many countries set the 2050 greenhouse gases reduction targets. Define and compare the following 3 types of targets: carbon neutral, net zero emission, zero carbon (or zero emission). (5%、15%)

3. Explain Carbon footprint, Water footprint, Nitrogen footprint. (18% , each 6%)

4. Mercury can affect organisms and ecosystems in many ways.

- (i) Describe how a persistent pollutant, such as mercury, can negatively affect an organism. (5%)
- (ii) Describe how a persistent pollutant, such as mercury, can negatively affect an ecosystem. (5%)
- (iii) Researchers measured methylmercury in a location downstream from the factory. Explain how methylmercury could be present in the stream. (5%)
- (iv) Researchers claimed that the soil nearest to the river has higher levels of mercury than the nearby field has, and those elevated levels have affected the ecosystem. Describe the possible measures to remediate the polluted area. (7%)

5. 單選題(15% , each 5%)

A tiny, tawny colored butterfly called the Carson Wandering Skipper was always known for its small and very localized populations. Typically, it was found along the western Nevada and eastern California high desert areas. It was always located close to hot springs and other wet areas that supported salt grass, the host plant it depended on.

Recently, the populations went into a steep decline, and a last hold-out area was threatened by imminent construction of a freeway bypass. Biologists became alarmed and began an intensive search for populations in locations other than the spot designated for the freeway bypass. They began their search by identifying all known locations of hot springs, in hopes of finding small populations of the Carson Wandering Skipper close by.

(i) The biologists' observations that the Carson Wandering Skipper populations had declined is an example of

- a. data analysis
- b. identifying a problem
- c. performing an experiment
- d. proposing a hypothesis
- e. making testable predictions

(ii) As they searched for previously unknown populations of the Carson Wandering Skipper, biologists wondered if hot springs were absolutely essential to its survival. This phase of the investigation is

- a. finding out what is known and asking a question
- b. analyzing data and asking a question
- c. Asking a question and testing predictions
- d. accepting their hypothesis and analyzing data
- e. accepting their hypothesis and asking a question

(iii) The scientists, with enough data,

- a. would be able to prove that there is a correlation between butterfly populations and hot springs
- b. would not be able to prove a correlation between the butterfly populations and hot springs, but could disprove it
- c. Would be able to prove or disprove a correlation, depending on the numbers
- d. would not be able to prove or disprove a correlation between the butterfly populations and hot springs
- e. would be able to prove that there is a correlation between the butterfly populations and hot springs, but would not be able to disprove it