

國立中央大學八十九學年度碩士班研究生入學試題卷

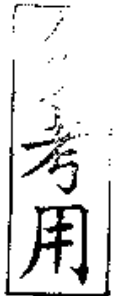
72 所別： 生命科學系 不分組 科目： 環境科學 共 2 頁 第 1 頁

請使用學校所提供之試紙作答，並註明題號，不得使用其他紙張作答。

I. Match the following terms with the descriptions below (Caution and Note: 2 points each for a correctly answer, but 3 points will be subtracted from each of wrong match. 30 points for subtotal)

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|-------------------------|-------------------------|-----------------|---------------|---------------|--------------------|
| A. biological diversity | B. biome | C. biosphere | D. carcinogen | E. carnivores | F. predator |
| G. omnivores | H. conservation | I. convection | J. demography | K. pedology | L. denitrification |
| M. hazardous waste | N. dioxin | O. ecosystem | P. El nino | Q. fission | R. sustainability |
| S. environmental risk | T. environmental ethics | U. incineration | V. leachate | W. monitoring | |

- () 1. An organic compound known to be extremely toxic to mammals.
- () 2. Natural perturbation of the physical earth system that effects global climate.
- () 3. Used in discussions of endangered species and mean variation in the environment.
- () 4. A concept that is emerging in the environmental science with respect to resources, it involves management.
- () 5. Used loosely to mean the variety of life on the earth.
- () 6. The study of populations, especially their patterns in space and time.
- () 7. In a programmatic sense the term means adjusting our needs to minimize the use of particular resource.
- () 8. Combustion of waste at high temperature and leaving only ash and noncombustibles to dispose of in a landfill.
- () 9. A school or theory, in philosophy that deal with the rights of nonhuman objects and systems in the environment.
- () 10. The splitting of an atom into smaller fragments with the release of energy.
- () 11. The part of a planet where life exists.
- () 12. An important step in the nitrogen cycle found in soil.
- () 13. Process of collecting environmental data on a regular basis at specific site.
- () 14. Nonxious, mineralized liquid capable of transporting bacterial pollutants.
- () 15. The transfer of heat involving the movement of particles.



II. Reading the following paragraph, then answer questions 16 through 23. (3 points each, 24 points for subtotal)

A team of researchers was studying the ecology of a roadside ditch that was partly filled with water. There were cattails and grass rooted in the ditch and green algae on the surface. The researchers examined water samples with a microscope and found three different one-celled organisms. Several mosquito larvae were also discovered in the water

- () 16. biotic part of the ditch ecosystem would include: (A). the cattails. (B). the water in the ditch (C). the minerals in the water (D). both B. and C.
- () 17. Which of the following would be the best description of the ditch community? (A). all the living organisms in the ditch (B). all the living organisms and all the water. (C). all the living organisms, all the water, and all the substances in the water. (D). none of the these
- () 18. The function of the bacteria in the ditch ecosystem is to: (A). capture light energy from the sun. (B). break down dead organisms and provide nutrients for living organisms. (C). serve as food for green plants. (D). none of these.
- () 19. Which of the following observations would indicate the interdependence of the biotic and the abiotic factors in the ditch? (A). the amount of dissolved oxygen in the water changes (B). the amount of algae in the water increases as the nutrients increase (C). frog eats the mosquito larvae (D). all of these.
- () 20. Which of the following is an example of a population in this ecosystem? (A) one of the cattails (B). all the living organisms in the ditch (C). all the ditch (D). the living organisms in the ditch and the nonliving factors that affect them
- () 21. Which of the following levels of organization in this ecosystem includes the other two? (A). community. (B). population (C). individual (D). none of these

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73

所別: 生命科學系 不分組 科目: 環境科學 共 2 頁 第 2 頁

- () 22. The water was found to contain nitrogen and phosphorus. These substances are: (A). biotic factors. (B). abiotic factors. (C). decomposers. (D). oxygen producers
- () 23. The algae in the eater: (A). are decomposers. (B). feed on fish (C). are affected by the environment (D). should not be considered part of the ecosystem

III. Multiple Choice [Question number 24 through 32 (3 points each 27 points for subtotal)]:

- () 24. Which sequence correctly illustrates a food chain? (A) Algae—insect larvae—fish—man (B). Algae—fish—insect larvae—man (C). Insect larvae—algae—fish—man (D). Fish—insect larvae—algae—man
- () 25. Which of these opposes the greenhouse effect of CO₂? (A). Water pollution. (B). Mercury in fish. (C). Smog particles (D). Breathing deeply
- () 26. A natural unit of living and nonliving parts that produces a stable system (i.e., self-sustaining) is called (A). a nitrogen cycle. (B). a water cycle. (C). an energy cycle. (D). an ecosystem.
- () 27. In the biosphere, which of the following is not constantly recycled? (A). Carbon (B). Nitrogen. (C). Water (D). Energy
- () 28. Which potential crisis would have no effect on animal land life as we know it? (A). Death of the oceans. (B). Death of green land plants. (C). Overpopulation of earth by man (D). None: all would affect animal life
- () 29. The biosphere is composed of (A). stratospheres. (B). lithospheres. (C). Ecosystems. (D). tropospheres
- () 30. One of the drawbacks to the use of chemical pesticides is (A). other organisms besides the target organisms may be poisoned (B). they take a long time to act (C). they all require a long time for decomposition (D). they are difficult to administer (E). they are expensive.
- () 31. Radioactive wastes are a threat to life because (A). they are chemicals (B). they can cause cancer (C) they are a potential energy source (D). they are difficult to store (E). b and d of the above
- () 32. Suppose you analyzed the contents of a bottle of air. The substance present in the largest amount would be (A). oxygen (B). carbon dioxide. (C). phosphorus. (D). nitrogen. (E). hydrogen

參考用

IV. Short Answer of following problems (19 points for subtotal):

33. Does nuclear power have a future in Taiwan? List your reasons on both sides of the issue (6 points).
34. Ozone depletion is a potentially serious global environmental problem. Are natural or human-made chemicals causing the ozone hole? What options are available to minimize ozone depletion? (6 points)
35. How can we set priorities for dealing with environmental problems in Taiwan? (7 points)