



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH

FINAL EXAMINATION PAPER 2007/2008

TITLE OF PAPER	:	ENVIRONMENTAL ECOLOGY II
COURSE CODE	:	EHS 556
DURATION	:	2 HOURS
MARKS	:	100
INSTRUCTIONS	:	READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
	:	ANSWER ANY FOUR QUESTIONS
	:	EACH QUESTION CARRIES 25 MARKS
	:	WRITE NEATLY & CLEARLY
	:	NO PAPER SHOULD BE BROUGHT INTO NOR OUT OF THE EXAMINATION ROOM
	:	BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

QUESTION ONE

1. The changes in population size, density, dispersion, and age structure are known as
 - a. succession
 - b. demography
 - c. population dynamics
 - d. biotic potential

2. the most common pattern of population dispersion found in nature is
 - a. random
 - b. uniform
 - c. clumped
 - d. dispersed

3. A population will increase if
 - a. natality decreases
 - b. mortality increases
 - c. the biotic potential increases
 - d. the environmental resistance increases

4. The ethical principle most important to conservation biology is
 - a. people should be held responsible for their own pollution
 - b. we should live lightly on the earth
 - c. do that which tends to maintain earth's life support systems for us and other species
 - d. no human culture should become extinct because of the actions of other humans

5. The population change in a particular year can be calculated by
 - a. $(\text{deaths} + \text{emigration}) - (\text{births} + \text{immigration})$
 - b. $(\text{births} + \text{immigration}) - (\text{deaths} + \text{emigration})$
 - c. $(\text{deaths} + \text{immigration}) - (\text{births} + \text{emigration})$
 - d. $(\text{births} + \text{emigration}) - (\text{deaths} + \text{immigration})$

6. The crude birth rate is the number of live births per --- persons in a given year
 - a. 100
 - b. 10,000
 - c. 100,000
 - d. 1,000

7. Two useful indicators of overall health in a country or region are
 - a. birth rate and death rate
 - b. replacement-level fertility rate and total fertility rate
 - c. life expectancy and death rate
 - d. life expectancy and infant mortality rate

8. The change that takes place in a demographic transition occurs when
 - a. either immigration or emigration changes the population growth pattern
 - b. one-third of the population is under 15 years of age
 - c. the birth rate drops below the death rate
 - d. the economic development of a country changes the population growth pattern

9. You are an ecologist studying alligators in the outback. you find that the population of alligators is so depleted that organisms that depend on alligator holes for their survival are also hurting. You would most likely label the alligators
 - a. threatened
 - b. endangered
 - c. locally extinct
 - d. ecologically extinct

10. An endangered species is any species that can
 - a. soon become extinct in all or part of its range
 - b. undergo alteration of its genetic traits
 - c. become rare within the next century
 - d. eventually become threatened or rare

11. Fruit-eating bats on many tropical islands are
 - a. keystone species
 - b. alien species
 - c. indicator species
 - d. generalists

12. People regard wildflowers as beautiful, and this is evident that wildflowers have --- importance
 - a. economic
 - b. aesthetic
 - c. medical
 - d. ecological

13. Partially open areas with plenty of edge habitat are required by
 - a. early-successional species
 - b. mid-successional species
 - c. late-successional species
 - d. wilderness

14. The most common use of trees in Swaziland is as
 - a. pulp in paper production
 - b. lumber for building
 - c. fuel wood
 - d. raw material in manufacture of various synthetics

15. An even managed strategy's goal is
- sustenance of maximum biological diversity
 - high-quality timber production
 - a long-term, ecologically oriented approach
 - production of maximum return on a short-term basis
16. Monoculture forestry in Swaziland is leading to all the following except
- suppression of ecologically important natural fires
 - increased biodiversity
 - draining of wetlands
 - loss of soil nutrients
17. Currently, the greatest danger to the Mlilwane game reserve is
- human activities in nearby areas
 - uncontrolled populations of prey because of the decline in predators
 - pollution by tourists
 - lack of funding
18. Which of the following do environmentalists know the least about?
- deep space
 - deep ocean basins
 - tropical rainforests
 - Antarctica
19. When fish populations are temporarily reduced due to overfishing, they are said to be
- locally extinct
 - economically extinct
 - commercially extinct
 - biologically extinct
20. The depletion of the Swaziland range lands is a classical example of
- unsustainable resource use
 - ecological destruction
 - failure of national policies
 - tragedy of the commons
21. Which approach to estimate aquatic fish populations is the most beneficial to fish populations?
- optimum sustained yield
 - maximum sustained yield
 - commercial sustained yield
 - potential sustained yield

22. What are the high seas?
- tidal waves generated by earthquakes
 - ocean areas beyond any country's legal jurisdiction
 - large storm-generated waves
 - ocean areas policed by international force (Greenpeace)
23. The squatter settlement populations¹ of most cities in developing countries
- have lower incomes than do the rural poor
 - are declining in number
 - consist of squatters living in makeshift shelters
 - get the same service as other residents
24. The urban growth occurring in Swaziland is
- caused by both migration and natural increase
 - generally well planned and orderly
 - generally offset by migration to rural areas
 - helping to eliminate urban poverty
25. Ecologically sound development can be discouraged by
- requiring environmental impact analysis for private and public projects
 - conservation easements
 - land trusts
 - taxing land on the basis of the economically highest potential use

Total 25 Marks

QUESTION TWO

- Draw and describe the four major types of survivorship patterns and explain what they show about the role of the species in an ecosystem (15 marks)
- Draw and explain a diagram showing gene flow between source and sink habitat in a meta-population (10 marks)

Total 25 Marks

QUESTION THREE

- Describe the difference between slums and shantytowns (10 marks)
- Describe some ways that Swaziland cities and suburbs could be redesigned to be more ecologically sound, socially just, and culturally amenable (15 marks)

Total 25 marks

QUESTION FOUR

- A. List five reasons why forests are commercially important and list five reasons why forests are ecologically important (10 marks)
- B. Distinguish among surface fires, crown fires, and ground fires (6 marks)
- C. Summarize threats to forests from fires (9 marks)

Total 25 Marks

QUESTION FIVE

- A. Discuss three problems associated with marine environmental protection (9 marks)
- B. Describe the ecological functions performed by wetlands (10 marks)
- C. Discuss the problems caused by human development of lake resources (6 marks)

Total 25 Marks

GOOD LUCK!!!!