

UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

(BSC) IN ENVIRONMENTAL HEALTH

SECOND SEMESTER FINAL EXAMINATION PAPER 2011

TITLE OF PAPER : ENVIRONMENTAL ECOLOGYII

COURSE CODE : EHS 556

DURATION : TWO HOURS

MARKS : 100

INSTRUCTIONS : ANSWER ONLY FOUR QUESTIONS

: EACH QUESTION CARRIES 25 MARKS

: QUESTIONS ONE AND TWO ARE COMPULSARY

: NO QUESTION 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**

SECTION A

QUESTION ONE (25 MARKS) (COMPULSORY)

1. 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. $(\text{births} + \text{emigration}) - (\text{deaths} + \text{immigration})$
2. Which of the following would contribute the greatest number to total population size in one year?
 - a. A country of 1.5 million people with a growth rate of 3%
 - b. A country of 5 million people with a growth rate of 2.5%
 - c. A country of 100 million people with a growth rate of 2%
 - d. A country of 500 million people with a growth rate of 1.5%
3. Which of the following would decrease the likelihood of a couple having a child?
 - a. The child is part of the family labor pool
 - b. Contraceptives are not available
 - c. They have no public or private pension
 - d. Women have many opportunities to participate in the work force
4. Of the following forms of birth control, the most effective is
 - a. Total abstinence
 - b. Condom (good brand)
 - c. Hormonal implant
 - d. Diaphragm plus spermicide
5. Two useful indicators of the 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 infant mortality rate
 - d. Life expectancy and death rate
6. Economic rewards and penalties in population control strategies work best if they
 - a. Push rather than nudge people to have fewer children
 - b. Are retroactive
 - c. Reinforce existing customs and trends
 - d. Decrease a poor family's income or land
7. Which of the following leads to a increase in biodiversity?
 - a. Habitat degradation
 - b. Phosphate pollution of streams
 - c. Elimination of exotic vegetation
 - d. Acid deposition

8. An ecologist is most likely to say that the passenger pigeon is
 - a. Endangered
 - b. Locally extinct
 - c. Ecologically extinct
 - d. Biologically extinct
9. An endangered species is any species that can
 - a. Undergo alteration of its genetic traits
 - b. Become rare within the next century
 - c. Soon become extinct in all or part of its range
 - d. Eventually become threatened or rare
10. All of the following characteristics would make a species more prone to extinction except
 - a. Low population density
 - b. Small body size
 - c. Specialized niche
 - d. Low reproductive rate
11. Fruit-eating bats on many tropical islands are
 - a. Keystone species
 - b. Alien species
 - c. Indicator species
 - d. Foundation species
12. When we visited Hlane Game reserve, the tourist guide told us that a single male Lion living to the age of 7 years is worth E520,000 as a
 - a. Sporting trophy
 - b. Tourist attraction
 - c. Functioning component of the ecosystem
 - d. Specimen to be sold alive to a zoo in South Africa
13. People in Swaziland regard wildflowers as beautiful, and this is evidence that wildflowers have ----- importance
 - a. Economic
 - b. Aesthetic
 - c. Medical
 - d. Ecological
14. An environmentalist is least likely to go on an ecotour which
 - a. Takes precautions to reduce the tour's impact on the local ecosystem
 - b. Contributes a high percentage of the tour company's profits to local environmental projects
 - c. Hires naturalists and local people

- d. Provides lodging in internationally owned lodging
15. People who believe that wild species have an inherent right to exist generally believe that species have
- a. Economic value
 - b. Extrinsic value
 - c. Intrinsic value
 - d. Utilitarian value
16. You are an environmentalist studying species diversity in some islands in the Indian Ocean. Which island would you expect to have the most number of species?
- a. A large island near the main land
 - b. A large island far removed from other sites
 - c. A medium-sized island in the middle of an island chain
 - d. A small island far removed from other islands
17. In the course of the semester, we said that as a result of the global ban on elephant ivory sales, the elephant population increased in Zimbabwe and elsewhere in Africa and elephants started encroaching to people's farms and even threatening or killing the people. Which of the following ecological principles best describes this event?
- a. We lose quantity of energy every time an energy transformation takes place
 - b. Public resources will be overused by a few
 - c. We can never do just one thing
 - d. Habitat loss most severely effects the top predators
18. The introduction of nonnative species often results in unforeseen consequences. This experience indicates that when introducing nonnative species, we would be well-advised to apply the
- a. First law of thermodynamics
 - b. Law of common property
 - c. Precautionary principle
 - d. Law of supply and demand
19. You are tasked with managing and sustaining a forest resource in Swaziland. You decide to use the "even-aged management strategy". What would be your goal in using this strategy?
- a. Sustenance of maximum biological diversity
 - b. High-quality timber production
 - c. A long-term, ecologically oriented approach
 - d. Production of maximum return on a short-term basis

20. If you were to select the “selective cutting management strategy” in question 19 above, what would be your goal?
- Encouraging crowding of trees
 - Encouraging growth of more mature trees
 - Maintaining an uneven-aged stand of trees of different species, ages, and sizes
 - Requiring a special seed-distribution plan.
21. Transporting of live or dead wild animal across borders without permit is prohibited by
- CITIES
 - The CBD
 - The endangered species Act
 - The fauna Act
22. During the class educational tour to Maputo Mozambique, we learnt that the major causes of species loss in marine ecosystems are ----- except
- Overfishing
 - Habitat destruction
 - Pollution
 - Cruise ships
23. When fish populations are temporarily reduced due to overfishing, they are said to be
- Locally extinct
 - Commercially extinct
 - Economically extinct
 - Biologically extinct
24. During the class educational tour to Maputo Mozambique, we learnt that, “mitigation banking” can accomplish one of the following -----
- Provides layers fees in lawsuits over wetlands development
 - Allows wetland areas to be traded for forest areas development
 - Requires all wetlands to be protected from development
 - Allows wetlands to be developed as long as an equal area of wetland is created or restored
25. You have just been appointed by the Matsapha Town Board as an environmental manager. Your assignment is to control land use in the town of Matsapha. Which one of the following strategy would you apply?
- Not requiring building permits
 - Zoning
 - Providing unlimited services
 - Encouraging development around the Lushuswana River, Sgodvweni, Eteni, the Logoba and any other open areas in the town’s jurisdiction.

QUESTION TWO (COMPULSORY)

- a. In a tabular form, make a difference between
 - i. A city and a village (4 marks)
 - ii. A rural area and an urban area (4 marks)
- b. Describe the difference between slums and shantytowns (4 marks)
- c. Based on the concepts learned in this course, describe some ways that Manzini city could be redesigned to be more ecologically sound, socially just, and culturally amenable (13 marks)

TOTAL 25 MARKS

SECTION B

Answer any two questions

QUESTION THREE

- a. Define the following environmental management terms
 - i. Restoration (2 mark)
 - ii. Rehabilitation (2 mark)
 - iii. Remediation (2 mark)
 - iv. Reclamation (2 mark)
 - v. Ecological recreation (2 mark)
- b. Describe some ecological and economic values of wetlands and elaborate on how they are threatened by human activities (15 marks)

TOTAL 25 MARKS

QUESTION FOUR

- a. Evaluate the pressures for and against family planning in traditional and modern societies (15 marks)
- b. Compare modern birth control methods and prepare a personal family planning agenda (10 marks)

TOTAL 25 MARKS

QUESTION FIVE

- a. What does the acronym HIPPO stand for? (5 marks)
- b. Explain what HIPPO in (a) above means for biodiversity conservation (20 marks)

TOTAL 25 MARKS