

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION MAY 2010

TITLE OF PAPER: INTRODUCTION TO ZOOLOGY

COURSE CODE: B112

DURATION: 3 HOURS

- INSTRUCTIONS:
1. THIS PAPER IS DIVIDED INTO **TWO** SECTIONS, A AND B
 2. USE SEPARATE ANSWER BOOKLETS FOR EACH SECTION
 3. IN SECTION A, ANSWER QUESTION 1 (COMPULSORY) PLUS ANY OTHER QUESTION; IN SECTION B, ANSWER ANY TWO QUESTIONS
 4. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS
 5. WHEREEVER POSSIBLE, ILLUSTRATE YOUR ANSWERS WITH LARGE CLEARLY LABELLED DIAGRAMS.

SPECIAL REQUIREMENTS: NONE

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS.

SECTION A: Answer Question 1 and any other question in this section.

QUESTION 1 (Compulsory)

1.are basic structural units of life.
2. What is ecology?.....
3. What is a biome?.....
4. Name one component of the biosphere.....
5. Arthropoda.....
6. What is metamorphosis?.....
7. Name one feature characteristic of all members in the phylum chordata.....
8. Protists are classified on basis of their.....organelles.
9. Sexual reproduction in ciliates is known as
10. Name one factor characteristic of k-selected species.....
11. In classification, each category is called a
12. Carrying capacity of the environment means.....
13. Thedescribes the outward expression of an allele.
14. Individuals with non-identical alleles are said to be
15. Codominance means.....
16. Food chain illustrates.....
17. The interaction in which both partners or participants suffer is commonly known as
18. Heterotrophic nutrition by ingestion is known as
19. Animals with body cavity are generally said to be.....
20. Why are birds referred to as warm-blooded animals?.....
21. In vertebrates, the notochord is replaced by the
22. The first terrestrial vertebrates belong to the class
23. Name one function of the cytoskeleton.....
24. What is sexual dimorphism?.....
25. Using a named example, explain why the sporozoans are economically important in Swaziland.....

[Total = 25 Marks]

QUESTION 2

- (a) Explain the roles played by producers, consumers and decomposers in any natural ecosystem. (6 Marks)
- (b) Outline the essential features of the carbon cycle and include short notes on greenhouse effects and global warming. (9 Marks)
- (c) One gene locus has alleles *A* and *a*. Another has alleles *B* and *b*.
 - (i) For each genotype listed below, state the gametes that will be produced, assuming the principle of independent assortment.
 - 1) *AABB*, (1 Mark)
 - 2) *AaBB*, (1 Mark)
 - 3) *Aabb*, (1 Mark)
 - 4) *AaBb*. (1 Mark)
 - 5) *aaBB* (1 Mark)

(ii) State the genotypes of the offspring from the following mating and indicate their respective frequencies:

- 1) $AABB \times aaBB$, (2 ½ Marks)
2) $AaBB \times AAbb$. (2 ½ Marks)

[Total = 25 Marks]

QUESTION 3

- (a) What are the defining characteristics of an animal? (5 Marks)
- (b) With the aid of a diagram, briefly discuss the features which are common to all chordates. (10 Marks)
- (c) Using named examples, briefly discuss the similarities and differences among the *Monotremata*, *Marsupialia* and *Eutheria*. (10 marks)

[Total = 25 Marks]

SECTION B: Answer any two questions in this section.

QUESTION 4.

Write notes on the following:

- i) Capillaries (4 Marks)
ii) Four (4) functions of blood (8 Marks)
iii) Open circulatory system (5 Marks)
iv) Pulmonary artery (4 Marks)
v) 'Single circulation' circulatory system (4 Marks)

[Total Marks = 25]

QUESTION 5.

- (a) Make a fully labeled sketch of the digestive system found in hindgut fermentors. (10 Marks)
- (b) What role is played by each of the parts in digestion? (15 Marks)

[Total Marks = 25]

QUESTION 6.

Write one or two words that apply to EACH of the following: (2.5 marks each)

- (i) Organ of excretion in humans
(ii) Carries deoxygenated blood to lungs
(iii) Number of hearts in an octopus
(iv) Reclaims water from digested material in humans
(v) Hormone that lowers sugar concentration in blood
(vi) Female sex hormone
(vii) Feeds only on plant material
(viii) Where a nerve cell connects to another
(ix) Site for 'manufacture' of sperm
(x) Example of carnivore

[Total Marks = 25]