COURSE CODE: B112 (M) 2009

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UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2009

TITLE OF PAPER:

INTRODUCTORY ZOOLOGY

COURSE CODE

B 112

TIME ALLOWED:

THREE HOURS

INSTRUCTIONS

- 1. THIS PAPER HAS TWO SECTIONS, A AND B
- 2. USE ONE (1) ANSWER BOOKLET 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. WHEREVER POSSIBLE ILLUSTRATE YOUR ANSWERS WITH LARGE CLEARLY LABELLED DIAGRAMS

SPECIAL REQUIREMENTS:

NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS

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SECTION A

QUESTION 1 (Compulso	ory) All questions = 1 mark, except * = 2 marks
1. Based on climate and the	e predominant vegetation in an area, the Earth is divided into
broad categories called	
2*. The areas named above	can be defined based on their annual
and annual average	
3. Define adaptation	
4. Why are fossils relatively	y scarce compared to the likely number of organisms that have
existed before?	
5. What are the selection fa	actors in the natural environment that reduce the number of
surviving offspring?	
6*. Explain the relationship	between genotype and phenotype.
7. Provide answers for a, b	and c.
Dominance type	How the alleles are expressed
a.	If present, one type of allele always prevails over the other.
b.	If the alleles are different, the resulting trait is a mixture of the two.
c.	If the alleles are different, both variations are fully expressed.
8*. Define genetic drift and	l cite an example.
9. What is the hazard of nor	n-random mating?
10. Why is sickle cell anaer	mia a disadvantageous trait?
11. What is the measure of	fitness for an organism?

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12*. Biologists report that the earth currently is experiencing a major extinction e	vent.
What is the cause?	
13. What is a community in biology?	
14. Why will producers always be at the bottom of a food chain?	· · · · · · · · · · · · · · · · · · ·
15*. Assume an initial P generation crosses is TT x tt, and offspring are crossed of	only
with each other, never with their parents. What generation would produce both Ti	t and tt?
Explain	<u> </u>
16. Provide answer a, b,c, and d.	
Mendel's concept	Modern term
One of two contrasting forms of expression for a trait. One form is dominant and one is recessive.	a.
An organism which carries paired forms of expression of the same kind, either both of them dominant or both recessive.	b.
An organism which carries paired forms of expression of different, contrasting kind, one dominant and one recessive.	c.
An organism which carries paired forms of expression of the same kind, either	d

[Total = 25 marks]

d.

QUESTION 2

a. Complete the following table.

both of them dominant or both recessive.

Microevolution Mechanisms	What changes the allele frequencies?			
Founder Effect				
Genetic Drift				
Bottleneck Effect				
Gene Flow	State subjects			
Mutation				
Non-Random Mating				

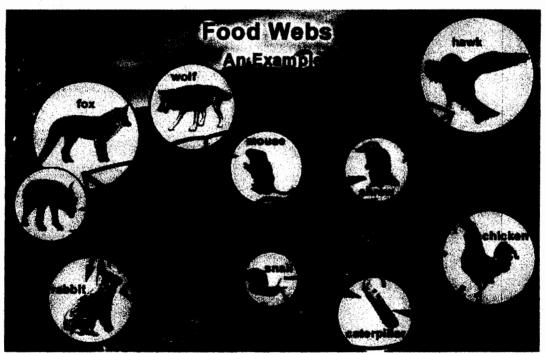
(6)

b. Cabbages, broccoli, brussel sprouts have a common ancestor, the Wild *Brassica* oleracea. The differences in their traits are the result of artificial selection or, selective breeding rather than natural selection. What do natural selection and artificial selection have in common and how are they different? (5)

c.) Define and explain the advantage of the following:

i.	Multicellularity		(3)
ii.	Coelom		(5)
iii.	Radial symmetry		(4)
iv.	Endothermy		(2)
	. •		(14)
			[Total = 25 marks]

OUESTION 3



a. If mice were removed from the food web above, which organisms would be *directly* affected? (3)

- b. If mice were removed from this food web, what is the likely effect on the population of caterpillars? Why do you think this would happen? (3)
- c. If mice were removed from this food web, what is the likely effect on the population of hawks? Why do you think this would happen? (5)
- d. Discuss in detail, the features which all members of the phylum Chordata have in common.

 (14)

 [Total = 25 marks]

SECTION B

QUESTION 4

Write notes on the following:

i) Gills (8 Marks)

ii) Functions of blood (8 Marks)

iii) Omnivores (5 Marks)

iii) Omnivores (5 Marks iv) Oestrogen (4 Marks)

[Total Marks = 25]

QUESTION 5

Make labelled sketches of the following:

(a)	A nephron	(8 Marks)
(b)	A nerve cell	(8 Marks)
(c)	The human male reproductive system	(9 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 mammals
- (ii) Enzyme of starch digestion in the human mouth
- (iii) Female hormone of pregnancy
- (iv) Product of fat digestion
- (v) Muscle controlling exit from the stomach
- (vi) Where ovum enters uterus
- (vii) Hormone involved in male puberty
- (viii) Connects one axon to another
- (ix) Number of chambers in a reptile heart
- (x) Feeds only on primary producers

[Total Marks = 25]