UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2015

TITLE OF PAPER : **INTRODUCTORY ZOOLOGY**

COURSE CODE : **B112**

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 QUESTION 4 (COMPULSORY) PLUS ANY OTHER QUESTION.**
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

SECTION A

QUESTION 1 (COMPULSORY) Write the answer only in your booklet

1. The simplest level of organization in living organisms is the _____ level.

2. In the absence of limiting factors, an organism is capable of occupying its _____ niche.

3. Individuals of the same species in the same habitat make up a _____

4. Organisms which are dependent on others for nutrition are known as _____

5. In taxonomy, the lowest and most exclusive taxon is the _____

6. Classification of Protozoans is based on their mode of _____

7. Members of the Class Vertebrata illustrate _____ symmetry.

8. The introduction of elements into the biotic environment requires _____

9. What is altruism? _____

10. Alternate forms of genes are known as _____

11. Sessile animals usually illustrate _____ symmetry.

12. Harmful ultra-violet rays are screened out by the _____

13. Name one feature observed in all Chordates. _____

14. _____ is the first step towards the formation of a new species

15. State one way by which we can get evidence of evolution _____

16. _____ results when individuals choose mates on the basis of phenotype

17. Which was the first fully terrestrial class of animals? _____

18. Name one adaptation for flight observed in birds. _____

19. All life on earth is contained within the _____

20. Terrestrial habitats covering large areas with identical climatic conditions are known as

_____

21. The use of chemicals by an organism to harm another organism is known as _____

22. Which type of egg is first observed in Class Reptilia? _____

23. What is meant by viviparous? _____

24. Name one non-genetic factor which may influence the expression of genes. _____

_____

25. Name one factor which may result in changes in gene frequency. _____

_____

[Total = 25 marks]

QUESTION 2

a. Define the following terms:

i.	Commensalism	(2)
ii.	Realised niche	(2)
iii.	Mutation	(2)
iv.	Ecosystem	(2)
v.	Direct competition	(2)
vi.	Endothermy	(2)
vii.	Altruism	(3)

[15]

b. Differentiate between the following:

i.	Incomplete dominance and codominance	(2)
ii.	Hydroskeleton and endoskeleton	(2)
iii.	Pre-zygotic and post-zygotic barriers	(3)
iv.	Genetic drift and gene flow	(3)

[10]

[Total = 25 marks]

QUESTION 3

a. In peaches, the homozygous genotype **OO** produces oval glands at the base of the leaf; while round glands are produced by the heterozygous genotype **Oo**, and the glands are absent in the homozygous recessive genotype **oo**. On a separate chromosome, a dominant allele for the gene **S** produces furry skin and the recessive **s** produces smooth (nectarine) skin. A variety heterozygous for glands (round) and homozygous for skin (smooth) is crossed with another variety heterozygous for both glands (round) and skin (furry).

i. What is the parents' genotype?

ii. What genotypic and phenotypic proportions are expected in the F_1? (15)

b. Define the following:

i. Test cross (3)

ii. Mutation (3)

iii. Reproductive isolation (4)

[Total = 25 marks]

SECTION B

QUESTION 4 (COMPULSORY) Write the <u>answer only</u> in your booklet

(a) What is an omnivore? _____

(b) _____ are the only group of mammals without oestrous.

(c) Where digestion occurs outside cells it is called _____ digestion.

(d) Bubble-like structure of alveoli is maintained by means of substances called _____.

(e) The tracheal system of insects opens to the outside through _____

(f) Give one (2) functions of blood _____ and _____

(g) What artery carries deoxygenated blood?_____

(h) The _____ has more than 5 hearts.

(i) Excretory organs have a role in _____ and _____

(j) How do spiders feed? _____

(k) Antennal glands are found in _____

(l) In the _____ of the nephron all the glucose, 2/3 water, salt (NaCl) are reabsorbed.

(m) Name two (2) organs that involved in the control of respiration in terrestrial vertebrates _____ and _____

(n) What is an osmoconformer? _____

(o) What is special about kangaroo rats? _____

(p) What three (3) parts do all neurons have in common? _____ _____ and _____

(q) _____ is the expulsion of semen from the penis through the urethra.

(r) The principal male reproductive hormone is _____

(s What is menopause? _____

(t) The vagina opens into the uterus at the _____

[Total Marks = 25]

QUESTION 5

Write notes on the following:

i)	Loop of Henle'	(8)
ii)	Functions of the liver	(8)
iii)	Coronary arteries	(5)
iv)	Hepatic portal vein	(4)

[Total Marks = 25]

QUESTION 6

Discuss fully, the following hormones:

(a)	Thyroxine	(15)
(b)	Insulin	(10)

[Total Marks = 25]