



FACULTY	Agriculture, Engineering and Natural Sciences		
DEPARTMENT	Environmental Science		
SUBJECT	Entomology		
SUBJECT CODE	EBL3822		
DATE	November 2021		
DURATION	2 hours	MARKS	90

SUPPLEMENTARY/SPECIAL EXAMINATION

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Moderator: Prof C. T. Downs (University of KwaZulu-Natal)

This examination paper consists of **Three (3)** pages including the front page.

Instructions.

Answer **ALL** questions in Section A.

Answer **ONLY ONE** question in Section B.

UNIVERSITY OF NAMIBIA EXAMINATIONS

SECTION A

Answer ALL the questions in Section A.

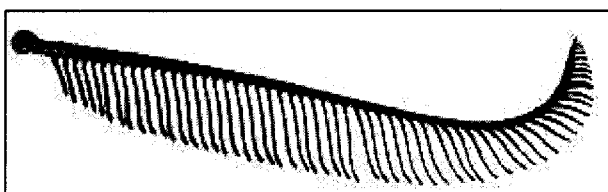
Question 1

a) Where would you find the following structures, and b) what is the principal function of each?

- | | | |
|------|-------------|-----|
| 1.1. | Haltere | 4 |
| 1.2. | Hypopharynx | 4 |
| | | /8/ |

Question 2

- | | | |
|------|---|----|
| 2.1. | Draw and label a neat diagram of a typical insect head. | 14 |
| 2.2. | Refer to the figure below: | |



- | | | |
|------|--|------|
| a) | What is the insect antenna type depicted above called? | 1 |
| b) | Which insect orders use this type of antenna? | 3 |
| 2.3. | Construct a life table for a hypothetical insect that has four nymphal instars. Start with a cohort of 100 eggs. Assume 36% of the eggs are infertile and 50% of the nymphs die from predation during each instar. How many will survive to be adults and (assume 1:1 sex ratio) what is the replacement rate ("R") for this population? | 6 |
| | | /24/ |

Question 3

- | | | |
|------|--|-----------|
| 3.1. | Differentiate between the following terms: Dorsal ocelli and Lateral ocelli | 5 |
| 3.2. | How do the wings of a beetle differ from those of a grasshopper? | 5 |
| 3.3. | Provide names of the major groups within Order Hymenoptera, Suborder Apocrita. | 3 |
| 3.4. | Using a table, compare and contrast insects and arachnids. | 15 |
| | | /28/ |
| | Total Section A | 60 |

SECTION B

Answer any **ONE (1)** question from Section B.

Question 1

Describe the West Nile Virus (WNV) and elaborate on the seasonal cycle of the disease in North America. 30

/30/

Question 2

Discuss the chemical nature of Class I and Class II defensive compounds synthesised by insects. 30

/30/

Total Section B 30

Grand Total /90/