



FACULTY	Agriculture, Engineering and Natural Sciences		
DEPARTMENT	Environmental Science		
SUBJECT	Biosystematics II		
SUBJECT CODE	EBL3722		
DATE	December 2021		
DURATION	2 hours	MARKS	90

SUPPLEMENTARY/SPECIAL EXAMINATION

Examiner: Dr. S. J. Eiseb (University of Namibia)

Moderator: Prof. I. Mapaure (University of Namibia)

This examination paper consists of **2** pages including the front page.

Instructions.

Answer **ALL** questions in Section A.

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

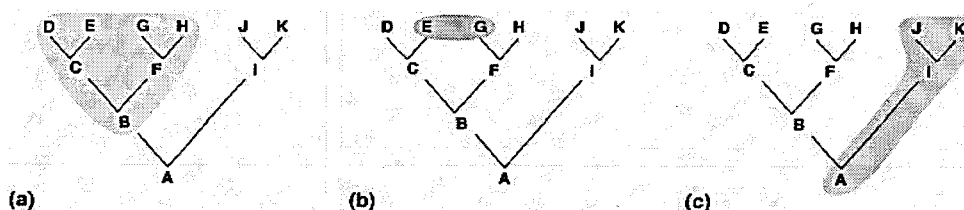
UNIVERSITY OF NAMIBIA EXAMINATIONS

Section A.

Answer **all** the questions in section A.

Question 1

- 1.1. Differentiate between Symplelesiomorphies and Synapomorphies. 5
 1.2. Indicate from the taxonomic groupings below which one represents: a polyphyletic grouping, monophyletic grouping, and paraphyletic grouping. 3



- 1.3. Define the term: Subspecies 4
 1.4. List the five major functions of the National Museum of Namibia. 5
 1.5. Briefly describe the importance of “universality” with regards to the names of taxa. 6

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Question 2

- 2.1. Can a photograph or holograph be a type specimen? Answer this question with reference to the provisions of the International Code of Zoological Nomenclature (ICZN). 14
 2.2. The following questions refer to the article:

Knowlton, N., Weigt, L. A., Solorzano, L. A., Mills, D. K. & Bermingham, E. (1993) Divergence in proteins, mitochondrial DNA, and reproductive compatibility across the Isthmus of Panama. *Science*, **260**(5114): 1629-1632.

- a) Briefly define the concept of vicariance and provide examples of vicariance events. 6
 b) What are the final conclusions drawn from this study? 7
 2.3. Briefly describe the Evolutionary Species Concept (ESC) with elaborations on the advantages and disadvantages of the ESC. 10

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Total Section A 60

Section B.

Answer only **one (1)** question from this section.

Question 1

- Discuss, with examples, the four major lineages of the arthropod phylogeny. 30
 /30/

Question 2

- 2.1. Describe the phenomenon of the Cambrian Explosion with reference to its contributing factors. 15
 2.2. Briefly discuss the major lineages of the Phylum Chordata. 15
 /30/

Total Section B 30

Grand Total /90/