



FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCE		
DEPARTMENT	ENVIRONMENTAL SCIENCE		
SUBJECT	BIOGEOGRAPHY		
SUBJECT CODE	EBL3851		
DATE	JUNE / JULY 2022		
DURATION	3 Hours	MARKS	120

SUPPLEMENTARY /SPECIAL EXAMINATION

Examiner: Prof. J.K.E. Mfunne (University of Namibia)

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

This Paper consists of **four** pages, including this cover page.

Section A- Compulsory Questions (60 marks)

Section B- Choice Questions (60 marks)

Instructions.

Answer ALL questions in Section A.

Answer ONLY TWO out of THREE questions in Section B.

UNIVERSITY OF NAMIBIA EXAMINATIONS

SECTION A: COMPULSORY QUESTIONS (TOTAL 60 MARKS)

Answer **ALL** questions in this section.

Question 1 (12 marks)

Briefly describe biogeographic consequences of the following: -

- (a) Waif dispersal. (3 marks)
- (b) Speciation. (3 marks)
- (c) Extinction. (3 marks)
- (d) Alien invasive species. (3 marks)

Question 2 (10 marks)

Briefly explain why you would view the present distribution of Marsupials as an example of disjunct biogeographic distribution.

Question 3 (10 marks)

The earth is unevenly heated.

- (a) State two factors that contribute to the uneven heating of the earth. (2 marks)
- (b) Distinguish between an equinox and a solstice. (4 marks)
- (c) Describe one important biogeographic consequence of the uneven heating of the earth on global patterns of biodiversity. (4 marks).

Question 4 (13 marks)

Plate tectonics has made an important contribution to our understanding of past and present biogeographic distributions of organisms.

- (a) State **three** biogeographic consequences of plate tectonics. (3 marks)
- (b) Briefly describe how the Mid-Atlantic Ridge formed. (5 marks)
- (c) What **five** pieces of evidence would you put forward to convince a sceptic who doubts the theory of plate? (5 marks)

Question 5 (10 marks)

Biological dispersal is a very important ecological and biogeographic process.

- (a) Explain why r-selected organisms are more likely to be better dispersers than k-selected organisms. (5 marks)
- (b) List important steps for the successful dispersal of organism's in general. (5 marks)

Question 6 (5 marks)

Argue why you would view geographic isolation as the central feature in allopatric speciation?

SECTION B: CHOICE QUESTIONS (TOTAL 60 MARKS)

Answer any **TWO** questions from this section.

Question 7 (30 marks)

Study Figure 1 that shows the biogeographic distribution of *Boscia albitrunca* in Namibia.

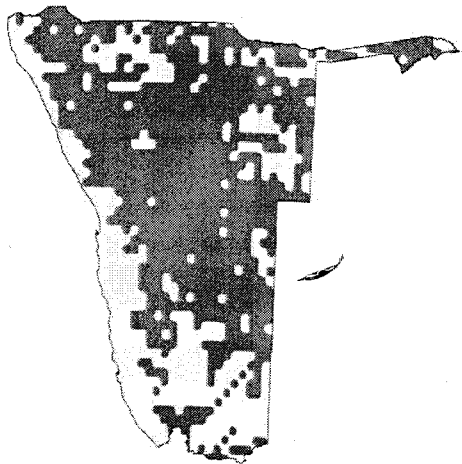


Figure 1. Biogeographic distribution of *Boscia albitrunca* in Namibia.

- (a) Define the concept of the biogeographic range of a taxon. (2 marks)
- (b) Briefly describe **two** factors that influence the boundaries of a geographic range of a species in general. (4 marks)
- (c) Describe the geographic range of *Boscia albitrunca* depicted in Figure 1. (4 marks)
- (d) You have been tasked to investigate whether dispersal is the limiting factor for the biogeographic distribution of an endemic species *E. damarana*; restricted to the northwestern part of Namibia. Using the Scientific method, briefly describe a study you would conduct to investigate this. Provide evidence that would support whether dispersal is or is not a limiting factor. (20 marks)

Question 8 (30 marks)

Discuss how abiotic factors affect the distribution of plants and animals in Namibia. In your essay, restrict your discussion to the influence of rainfall (precipitation) and some physical features, such as mountains, on the distribution of species of plants, birds, amphibians, scorpions, termites and mammals.

Question 9 (30 marks)

Write an essay on extinction and discuss the implications of extinctions to our understanding of biogeography. Your essay should address the following: - types of extinction, susceptibility to extinction, rates of extinction, examples of major mass extinctions, causes of extinctions and implications of extinction to our understanding of biogeography.

Total Marks for Examination = 120 marks

END OF EXAMINATION