

UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF GEOGRAPHY
SUPPLEMENTARY EXAMINATION: JUNE 2013
BIOGEOGRAPHY AND CLIMATIC CHANGE ENV5314W1

DURATION: 3 HOURS

TOTAL MARKS: 300

INTERNAL EXAMINER: Prof S Proches

EXTERNAL EXAMINER: Prof S Grab

**INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND TWO
ESSAY-TYPE QUESTIONS FROM SECTION B**

**NOTE: THIS PAPER CONSISTS OF 2 (TWO) PAGES, PLEASE SEE THAT YOU HAVE
THEM BOTH.**

SECTION A

ANSWER ALL QUESTIONS (100 MARKS)

1. Define stepping-stone dispersal and provide examples. (25)
2. Explain the difference between anagenesis and cladogenesis. (25)
3. What are the three processes resulting in species number variations on an island? Explain. (25)
4. Compare the refugial dynamics of grassland and forest in the Durban area. (25)

SECTION B

**ANSWER TWO QUESTIONS FROM THIS SECTION. EACH QUESTION CARRIES 100
MARKS.**

5. What are the forces driving the positive relationship between plant and insect diversity across ecosystems and geographic regions? Write an essay providing arguments in favour of a direct relationship, whereby plant diversity drives insect diversity, and in favour of an indirect one, specifying what other factors could drive both insect and plant diversity. (100)
6. How do we get new species? Write an essay critically discussing the models of speciation and provide examples. (100)

7. Biogeographical regions and provinces were originally delimited intuitively, and only tested analytically later in the development of the discipline. Using regions of your choice as an example, explain the process of analytical regionalization, from the definition of the units of analysis and the type of data used, to the calculations involved and the ways in which the results can be interpreted. **(100)**

8. Write an essay detailing how climate change may result in both increases and decreases in species diversity. Provide arguments in both cases, and use these to conclude what the overall effect of climate change may be on biodiversity. **(100)**