UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF GEOGRAPHY
MAIN EXAMINATION: JUNE 2014
COURSE & CODE: BIOGEOGRAPHY & CLIMATE CHANGE, ENVS 314W

This paper consists of ONE page

DURATION: 3 HOURS **TOTAL MARKS: 300**

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Answer all questions from Section 1, and two essay-type questions from Section 2.

SECTION 1

Answer all questions. Each question carries 25 marks.

1. What are the three key processes that can result in species number variations on an island? Explain. (25)

2. Briefly explain how pollination differs from seed dispersal. Which one can result in geographic range expansion, and why? (25)

3. How do the slopes of island and mainland log-log species-area curves compare? Why? (25)

4. Define anagenesis and cladogenesis. Provide examples. Can anagenesis have a geographic component? (25)

SECTION 2

Answer two of the three questions. Each question carries 100 marks.

4. Discuss the radiation of the Cape Flora indicating diversity levels, timing, relevant plant traits, environmental factors responsible for the attainment of diversity, the lineages involved, and their relationships. (100)

5. Describe the latitudinal gradient in species richness and discuss the latitudinal and regional concordance of biodiversity hotspots in various groups of organisms. Is this concordance due to direct relationships between the diversity values across groups, or indirect ones, involving historical or environmental factors? Justify. (100)

6. How does climate change affect the dynamics of biogeographical refugia? Give examples relevant to long-term climate variations, such as glacials and interglacials, as well as short-term dymanics examples involving the manipulation of fire frequency in ways similar to climate-induced ones. (100)