

UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF GEOGRAPHY
EXAMINATION: JUNE 2013
MODULE NAME & CODE: BIOPHYSICAL ENVIRONMENTS OF SOUTHERN
AFRICA, ENVS210H1

DURATION: 3 HOURS

TOTAL MARKS: 150

INTERNAL EXAMINERS: DR N NGETAR AND MR T WIGGILL
INTERNAL MODERATOR: DR J ODINDI

INSTRUCTIONS: THIS PAPER CONSISTS OF TWO PAGES.
USE A SEPARATE ANSWER BOOK FOR EACH SECTION.
SECTION A : BIOGEOGRAPHY
CHOOSE ANY ONE QUESTION FROM 1-2
SECTION B : CLIMATOLOGY
CHOOSE ANY ONE QUESTION FROM 3-4
SECTION C : GEOMORPHOLOGY
CHOOSE ANY ONE QUESTION FROM 5-6

SECTION A : BIOGEOGRAPHY – ANSWER ONE QUESTION

1. Discuss the major climatic and ecological variables that shape the vegetation of the grassland biome in South Africa. (50)

OR

2. Estuaries are subject to unique environmental conditions. Discuss these conditions with reference to KwaZulu-Natal estuaries. Describe the anthropogenic and natural factors that negatively impact these estuarine ecosystems. (50)

SECTION B : CLIMATOLOGY – ANSWER ONE QUESTION

3. With the help of diagrams, differentiate and discuss between El Nino, La Nina and normal circulations, including their impacts. (50)

OR

4. Some experts deny that climate change is truly happening. Provide evidence supporting the contention that modern day climate change is a reality and discuss the likely impacts of projected climate change on agriculture, water resources and health. (50)

SECTION C: GEOMORPHOLOGY – ANSWER ONE QUESTION

5. With the aid of diagrams, differentiate between waves and ocean currents. Describe and explain four erosional landforms produced by wave action. (50)

OR

6. Define weathering. Provide a detailed discussion on **chemical weathering** processes and their products. (50)

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SECTION A : BIOGEOGRAPHY – ANSWER ONE QUESTION

1. Discuss the role of fire in determining biome distribution in South Africa. Include the ecological importance of fire for savanna and grasslands in your discussion. (50)

OR

- 2a. Define systematic conservation planning. In the South African context, which biomes (or ecosystems) should be a conservation priority and why? (25)

AND

- 2b. Define an estuary. Discuss the ecological role of estuaries and the challenges encountered by plants and animals in this environment. (25)

SECTION B : CLIMATOLOGY – ANSWER ONE QUESTION

3. With the use of a diagram, discuss the formation of tropical cyclones and their impacts. (50)
4. Weather predictions and forecast are based on weather observations. Explain, in detail, the various methods that are used in the observation process. (50)

SECTION C: GEOMORPHOLOGY – ANSWER ONE QUESTION

5. Explain the origin and types of tides. Discuss a complete tidal cycle in relation to phases of the moon and their effect on estuaries. (50)

OR

6. Fluvial processes are among some of the major geomorphological forces that have shaped the landscape. Provide a detailed discussion of depositional landforms of fluvial erosion. (50)