**UNIVERSITY OF KWAZULU- NATAL**
**EXAMINATION : JUNE 2011**

**SCHOOL : ENVIRONMENTAL SCIENCES**
**LEVEL : 2**
**MODULE : BIOPHYSICAL ENVIRONMENTS OF SOUTHERN AFRICA**
**CODE : ENVS210H1**
**DURATION : 3 HOURS** **TOTAL MARKS : 150**

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**INTERNAL EXAMINERS:** **Prof S Proches and Mr J Lutchmiah**
**EXTERNAL EXAMINER:** **Prof O Mutanga**

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**INSTRUCTIONS**
**USE A SEPARATE ANSWER BOOK FOR EACH SECTION**

***SECTION A : BIOGEOGRAPHY***
**CHOOSE ONE QUESTION FROM 1-3**

***SECTION B : CLIMATOLOGY***
**CHOOSE ONE QUESTION FROM 4-6**

***SECTION C : GEOMORPHOLOGY***
**CHOOSE ONE QUESTION FROM 7-9**

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***SECTION A - Answer one question from this section***

1 Discuss the role of fire in determining biome distribution in South Africa. Include the ecological importance of fire for Fynbos. (50)

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

3a Discuss how the Savanna biome can be divided up into vegetation subtypes. (25)

**AND**

3b Define an estuary and discuss the ecological processes that occur in estuaries and the challenges encountered by plants in this environment. (25)

***SECTION B- Answer one question in this section.***

4 Southern African weather is influenced by three major features of atmospheric circulation. Provide in-depth explanations of these three features in terms of time and space. (50)

5 South Africa is characterized by a diverse range of climatic zones which, inevitably, influence human activities. Discuss the role of temperature and rainfall in any five climatic zones. (50)

6 Weather observations influence weather forecasts. Describe and explain, in detail, the various methods of observing and forecasting weather. (50)

***SECTION C – Answer any one question in this section***

7 Landscapes, according to gradualist theory, are formed over geological time by the continued work of water. Explain, in detail, the development of landforms through the processes of erosion, transportation and deposition. (50)

8 Rock disintegration is a consequence of the combined action of various processes. Discuss, in detail, these processes and resultant landforms. (50)

9 Discuss the various components of slopes and the types of mass wasting that maybe found on a slope. (50)

**UNIVERSITY OF KWAZULU- NATAL**
**EXAMINATION : SUPPLEMENTARY 2011**

**SCHOOL : ENVIRONMENTAL SCIENCES**
**LEVEL : 2**
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**CODE : ENVS210H1**
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**INTERNAL EXAMINERS:** **Prof S Proches and Mr J Lutchmiah**
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**INSTRUCTIONS**
**USE A SEPARATE ANSWER BOOK FOR EACH SECTION**

***SECTION A : BIOGEOGRAPHY***
**CHOOSE ONE QUESTION FROM 1-3**

***SECTION B : CLIMATOLOGY***
**CHOOSE ONE QUESTION FROM 4-6**

***SECTION C : GEOMORPHOLOGY***
**CHOOSE ONE QUESTION FROM 7-9**

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***SECTION A - Answer one question from this section***

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

2 Discuss land use and conservation in the Grassland and Arid Biomes. (50)

3a Discuss conservation in South Africa from a historical perspective. What areas need to be protected according to systematic conservation planning and why are these important? (25)

**AND**

3b Discuss wetland transformation in South Africa and explain how alien species may change wetland ecosystem functioning. (25)

## *SECTION B - Answer one question from this section*

4 Methods of forecasting weather can be either short term or long range. Explain these methods with respect to the various uses of weather forecasts. (50)

5 An understanding of cloud types provides useful information on the type of weather expected on the earth's surface. Analyse this statement within the context of cloud types and altitude. (50)

6 Geographers, irrespective of their field of specialisation, should be equipped with a comprehensive knowledge of weather and climate. Provide an in-depth discussion on the need for a Geographer to study weather and climate within the context of environmental management. (50)

## *SECTION C - Answer one question from this section*

7 Using an annotated sketch, describe the components of slopes and discuss any two types of mass wasting that may occur on them (50)

8 Rock disintegration is a consequence of the combined action of various processes. Discuss, in detail, these processes and the resultant landforms associated with them. (50)

9 Explain variations in morphology as a consequence of the interaction between velocity, particle size and the availability of transportable material. (50)