

**UNIVERSITY OF KWAZULU- NATAL
HOWARD COLLEGE CAMPUS
EXAMINATION : NOVEMBER 2011**

**SCHOOL : ENVIRONMENTAL SCIENCES
LEVEL : 1
MODULE : ENVIRONMENTAL SYSTEMS
CODE : ENVS120 H2**

DURATION : 3 HOURS

TOTAL MARKS : 150

**INTERNAL EXAMINERS: Prof S Proches, Dr S Pillay and Mr J Lutchmiah
INTERNAL MODERATOR : Prof O Mutanga**

INSTRUCTIONS:

- 1) Answer three questions.
 - 2) Answer one question from Section A, one from Section B and one from section C.
 - 3) Answer each section in a separate answer book
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SECTION A : Atmospheric and Hydrospheric Processes (50 MARKS)

ANSWER ONE QUESTION (50 marks)

- 1 Explain global water budget with reference to the Hydrological cycle and types of precipitation. (50)
- 2 Discuss the three broad categories of atmospheric gases. (50)
- 3 Discuss the various causes and consequences of global warming. (50)
- 4 Explain, with the aid of a diagram, the vertical layered structure of the atmosphere. (50)

SECTION B : Biospheric Processes (50 MARKS)

ANSWER ONE QUESTION (50 marks)

- 5 Discuss the main types of marine environments mentioning the depth at which they occur, global distribution, and the dominant types of organisms living there. (50)
- 6 Write an essay on the plant species included in the human diet. Approximately how many plant species do humans eat as major crops and in total? Geographically, where do our food plants come from? List the main global regions where major plant crops originate, and at least one plant originating in each. What do these areas represent in a historical perspective? (50)
- 7 Compare world's zoogeographical regions and floral kingdoms. What criteria are used in delimiting these regions? What are the similarities between the two? What regions of the world are differently classified in the two cases? (50)

SECTION C : Lithospheric Processes (50 MARKS)

ANSWER ONE QUESTION (50 marks)

- 8 Discuss the pedogenic regimes characteristic of tropical soils, water-logged soils, arid region soils and cold climate soils under coniferous forests. (50)
- 9 Write an essay on the physical and chemical properties of soils highlighting the value of each for soil fertility. (50)
- 10 Critically evaluate the evidence in support of the Plate Tectonic Theory. (50)

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SECTION A : Atmospheric and Hydrospheric Processes (50 MARKS)

ANSWER ONE QUESTION (50 marks)

- 1 Discuss the various types of floods with particular reference to magnitude, climate and environmental impacts. (50)
- 2 The occurrence of a particular type of precipitation is subject to the prevalence of certain conditions. Explain the conditions that influence the different types of precipitation. (50)
- 3 Discuss the use of surface and ground water for agricultural, industrial and domestic/municipal activities. (50)
- 4 Discuss the various causes and consequences of global warming. (50)

SECTION B : Biospheric Processes (50 MARKS)

ANSWER ONE QUESTION (50 marks)

- 5 Discuss the main types of freshwater environments mentioning the areas in which they occur, threats to their functioning, and the dominant types of organisms living there. (50)
- 6 Write an essay on the animal species included in the human diet. Which species are dominant in meat diets worldwide? What other species are included in notable amounts? What animal species are used for other purposes, such as clothing, safety, company? How do these numbers compare with animal diversity globally? (50)
- 7 Compare world's zoogeographical regions and floral kingdoms. What criteria are used in delimiting these regions? What are the similarities between the two? What regions of the world are differently classified in the two cases? (50)

SECTION C : Lithospheric Processes (50 MARKS)

ANSWER ONE QUESTION (50 marks)

- 8 The formation of soil is influenced by several factors. Write an essay on the role of five known factors that contribute to this process. (50)
- 9 Discuss the role of the asthenosphere in driving the plate tectonic processes and explain the interactions occurring at the main plate boundaries. (50)
- 10 Write an essay on the main soil components and explain the importance of each component for soil fertility. (50)