UNIVERSITY OF FORT HARE

ZOO 511

DEGREE EXAMINATIONS

JUNE
2017

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Time: 3 HOURS

Subject: ZOO 511

Marks: 120

This paper consists of 3 pages including the cover page

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INSTRUCTIONS

Answer any THREE (3) questions from Section A

AND

Answer any TWO (2) questions from Section B.

Number your answers correctly using the same numbers as on the question paper.

SECTION A

(Answer any THREE (3) questions)

Question 1 (DO)
Discuss how biodiversity is essential to global food security and nutrition to feed the world with regards to natural predators, industrial-scale agriculture, and 'ecoagriculture'. **(30 MARKS)**

Question 2 (MS)
Discuss the consequences and responses of insect species, populations, and communities to temporal and spatial changes in landscape structure. **(30 MARKS)**

Question 3 (DF)
3a) Discuss African climate-faunal evolution hypotheses. **(15 MARKS)**

3b) Plio-Pleistocene records fundamental changes in hominid morphology and behaviour, which can be evaluated within the broader context of other faunal paleoenvironmental changes. Describe the preferred habitats of hominid species with regards to evolution. **(15 MARKS)**

Question 4 (GT)

> Convention on Biological Diversity (CBD) 1992 describes biodiversity as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems".

4a) Outline the THREE objectives of CBD and give examples of any other TWO international biodiversity conventions and conservation organizations. **(5 MARKS)**

4b) Provide a brief discussion of biodiversity in terms of the THREE major levels generally accepted by researchers and describe any FIVE principal threats to biodiversity, demonstrating how each threat affect those levels. **(25 MARKS)**

SECTION B

(Answer any TWO (2) full questions)

Question 5

5a) What is the concept of 'doctor nature'? Using this concept demonstrate why protecting biodiversity is important. (DO) **(8 MARKS)**

5b) Biomonitoring can be defined as "a method of observing the impact of external factors on ecosystems and their development over a period, or of ascertaining differences between one location and another."

Animals and other organisms can be used in biomonitoring as bioindicators. Explain what a bioindicator **is** and provide at least FIVE characteristics that are considered ideal or suitable for an organism to be selected as a bioindicator. (GT) **(7 MARKS)**

Question 6

6a) Population growth and the increase in consumerism constitute the main contributing factors to change in land mosaics structure, composition, and function that are responsible for biodiversity loss. Outline at least FIVE human activities and describe how each influence the biodiversity in natural ecosystems. (MS) **(10 MARKS)**

6b) Fossil hominids are known to be the least diagnostic group for investigating past relationships between African climate and faunal change. Discuss some of these limitations. (DF) **(5 MARKS)**

Question 7

7a) Provide TWO examples each of sustainable and unsustainable fisheries occurring in the Western Indian Ocean (WIO), explaining why each represents one of the two categories. (DO) **(7 MARKS)**

7b) Animals and other organisms can be used in biomonitoring as bioindicators. Even though there are numerous benefits of bioindicators, they are not without limits; provide THREE examples of such limits. (GT) **(3 MARKS)**

7c) Explain what is meant by "edge effect" and describe how it contributes to biodiversity loss and ecosystem degradation. (GT) **(5 MARKS)**

Question 8

8a) Climate change during the Plio-Pleistocene was characterized by global cooling and increased aridity. Discuss the causes and effects of global cooling during this period. (DF) **(10 MARKS)**

8b) What is meant by the term "landscape fragmentation"? Describe the process of land fragmentation as described by Forman (1995). (MS) **(5 MARKS)**

END OF PAPER