UNIVERSITY OF KWAZULU-NATAL
PIETERMARITZBURG CAMPUS
School of Agricultural, Earth and Environmental Sciences
Discipline of Geography
November 2014 Examinations
ENVS120: Environmental Systems

DURATION: 3 HOURS  TOTAL MARKS: 150 Marks

Internal Examiners:  Prof. T. Hill
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Moderator: H. Beckedahl

PLEASE NOTE THERE ARE SEPARATE INSTRUCTIONS FOR EACH SECTION
This paper consists of 23 pages.

SECTION A (MCQ) – 75 marks
75 MCQ questions carrying 1 mark each (25 questions per section (i) Biogeography (ii) Atmosphere (iii) Lithosphere & Hydrosphere)

5 possible answers per question
Negative marking does not apply
Answered on the MCQ sheet provided

SECTION B (BIOGEOGRAPHY) – 25 marks
Short question/s and mini essay

SECTION C (ATMOSPHERE) – 25 marks
Short question/s and mini essay

SECTION D (LITHOSPHERE AND HYDROSPHERE) – 25 marks
Short question/s and mini essay
SECTION A: MQC [75 marks]

PLEASE ANSWER ON THE ANSWER SHEETS PROVIDED (On pages 18-20)

Choose one correct answer only. Negative marking does not apply. (75 x 1 mark = 75 marks)

1. Which of the following terms includes all of the others?
   a) genetic diversity
   b) species diversity
   c) biodiversity
   d) ecosystem diversity
   e) generic diversity

2. The latitudinal gradient in species richness is synonymous with:
   a) Species with depth in the ocean
   b) Species with altitude on mountains
   c) Species with distance from shore in the ocean
   d) Species with distance from shore on land
   e) Species with distance from forest in non-forest ecosystems

3. Which of the following best describes floral kingdoms?
   a) Areas across which we find plants influenced by the environment.
   b) Areas across which we find animals influenced by plants.
   c) Areas across which we find homogeneous assemblages of plants.
   d) Areas across which we find the same biomes.
   e) Areas where we find more plants than animals.

4. A species of animal or plant that is found in only one region or location and nowhere else in the world is referred to as:
   a) cosmopolitan
   b) endemic
   c) phylum
   d) indigenous
   e) diploid

5. Which of the following biomes has the least biodiversity?
   a) Tundra
   b) Boreal Forest
   c) Temperate Deciduous Forest
   d) Grasslands
   e) Savanna
6. Which of the following characterizes tropical rainforest?
   a) emergent trees
   b) seasonal shedding of leaves
   c) needle-shaped leaves
   d) numerous trees spaced far apart
   e) event driven system

7. Chaparral and Kwongan vegetation is associated with:
   a) tropical rainforest
   b) taiga
   c) deciduous forest
   d) mediterranean vegetation
   e) tundra

8. Which of the following statements best describes the interaction between fire and ecosystems?
   a) The chance of fire in a given ecosystem is highly predictable over the short term.
   b) Many kinds of plants and plant communities have adapted to frequent fires.
   c) The prevention of forest fires has allowed more productive and stable plant communities to develop.
   d) Fynbos communities have evolved to the extent that they rarely burn.
   e) Fire is unnatural in ecosystems and should be prevented.

9. Who was described as “Darwin’s bulldog:
   a) Wallace
   b) Hooker
   c) Sclater
   d) Von Humboldt
   e) Lyell

10. From the ground up, the layers of a tropical rainforest are:
    a) ground layer, emergents, understory, canopy
    b) ground layer, canopy, understory, emergents
    c) understory, ground layer, emergent, canopy
    d) understory, ground layer, canopy, emergents
    e) ground layer, understory, canopy, emergents
11. Wildfires are most beneficial to the savanna biome in that they can:
   a) reduce the number of herbivores.
   b) reduce the shade because only the trees burn.
   c) reduce the number of carnivores.
   d) kill the harmful decomposers.
   e) reduce dead vegetation and add soil nutrients.

12. The diagram below is a good illustration of:

![Diagram of four different species of rabbits](image)

   a) Golger’s rule
   b) Allan’s rule
   c) Cope’s rule
   d) Bergmann’s rule
   e) Merriam’s rule

13. According to __________, the size of warm-blooded vertebrates tends to be larger in cooler climates.
   a) Golger’s rule
   b) Allan’s rule
   c) Cope’s rule
   d) Merriam’s life zones
   e) Bergman’s rule

14. The gradual spread of individuals outward from the margins of a species’ range is known as:
   a) Diffusion
   b) Recolonisation
   c) Jump dispersal
   d) Flow
   e) Sweepstakes