

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING
FINAL EXAMINATION, DECEMBER 2012
B.A., BASS, B. Ed. (FT/PT)

TITLE OF PAPER: BIOGEOGRAPHY

COURSE NUMBER: GEP 312

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: 1. ANSWER THREE QUESTIONS
2. QUESTION 1 IS COMPULSORY
3. ILLUSTRATE YOUR ANSWERS WITH
EXAMPLES AND CLEARLY DRAWN DIAGRAMS
WHERE APPROPRIATE

ALLOCATION OF MARKS: QUESTION 1 (COMPULSORY) CARRIES
40 MARKS WHILE THE REST CARRY 30
MARKS EACH

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION IS GRANTED BY
THE INVIGILATOR

GEP 312: BIOGEOGRAPHY – DECEMBER 2012

SECTION A: COMPULSORY

QUESTION 1

- a) Define the following terms:
- Ecology (2 marks)
 - Speciation (2 marks)
 - Taxonomy (2 marks)
 - Hygrochasy (2 marks)
 - Physiognomy (2 marks)
- b) Given the hypothetical data in Table 1 calculate the following:
- Co-efficient of association between *Combretum molle* and the following species: *Syzygium cordatum*, *Vangueria infausta*, *Adina*, and *Ilex mitis*. (12 marks)
 - Species richness in the four quadrats. (8 marks)
- c) Explain how you would prepare samples for testing soil pH. (10 marks)
(40 Marks)

Table 1: Number of individuals for each species within four quadrats in a hypothetical area

Name of species	Number of individuals			
	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
1. Imbondvo lemnyama (<i>Combretum molle</i>)	18	29	13	28
2. Imbondvo lemhlophe (<i>Combretum zeyheri</i>)	33	36	15	8
3. Incithamuzi (<i>Ilex mitis</i>)	33	44	0	36
4. Umntulu (<i>Vangueria infausta</i>)	4	13	11	14
5. Sihubhulu (<i>Bridelia Micrantha</i>)	13	0	0	25
6. Umbhungela	8	8	15	32
7. Umncenzi (<i>Syzygium cordatum</i>)	30	22	18	0
8. Umhlume (<i>Adina</i>)	25	9	0	0
9. Umkhamamamsi wemfula (<i>Tabernaemontana elegans</i>)	12	4	21	9
10. Umhonono wemfula (<i>Terminalia sambesiaca</i>)	0	9	19	24
11. Umkhiwa wemfula (<i>Ficus capensis</i>)	0	13	0	8

Source: Hypothetical

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

- a) Explain why biogeographical studies tend to pay special attention to the study of plants rather than animals. (15 marks)
 - b) Explain how you will measure the biomass of grass found within the fence of UNISWA Weather Station. (15 marks)
- (30 Marks)**

QUESTION 3

Using examples, discuss the effects of climate change on various levels of biological diversity. (30 Marks)

QUESTION 4

Using examples, discuss the applications of biogeography. (30 Marks)

QUESTION 5

- a) Analyse the following themes used to explain the development of biogeographical studies.
 - i. Distribution analysis (10 marks)
 - ii. Historical approach (10 marks)
 - b) With reference to a grazing food chain, explain the structure and functioning of an ecosystem. (10 marks)
- (30 Marks)**