

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING
FINAL EXAMINATION, DECEMBER 2008
B.A., BASS, B.Ed

TITLE OF PAPER: BIOGEOGRAPHY

COURSE NUMBER: GEP 312

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS:

- 1. ANSWER THREE QUESTIONS**
- 2. QUESTION ONE (1) IS COMPULSORY**
- 3. ILLUSTRATE YOUR ANSWERS WITH EXAMPLES AND CLEARLY DRAWN DIAGRAMS WHERE APPROPRIATE**

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

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BY THE INVIGILATOR

GEP 312: BIOGEOGRAPHY – DECEMBER 2008

SECTION A: COMPULSORY

QUESTION 1

a) Define the following terms.

- i) Compensation point (2 marks)
- ii) Effective precipitation (2 marks)
- iii) Allopathic species (2 marks)
- iv) Photosynthetically active radiation (2 marks)
- v) Species diversity (2 marks)

b) Using the hypothetical information in table 1 below:

- i) Calculate species richness and equitability in the Highveld and Middleveld. (15 marks)
 - ii) Comment on the relationship between species richness and equitability. (5 marks)
 - iii) Calculate the co-efficient of association between the species in the Lowveld and Lubombo. (8 marks)
 - iv) What can you conclude about the compatibility of the two species? (2 marks)
- (40 marks)**

Table 1: Number of tree species in four physiographic regions of Swaziland.

Quadrat number	Approximate number of tree species			
	Highveld	Middleveld	Lowveld	Lubombo
1	90	81	67	49
2	78	59	43	33
3	46	38	29	17
4	0	15	0	0
5	31	0	22	11
6	25	36	53	38
7	0	0	29	0
8	18	16	13	19
9	0	0	0	0
10	0	26	9	7

Source: Hypothetical

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

Using examples from the SADC region, discuss how soil moisture content affects ecosystem characteristics and development. **(30 marks)**

QUESTION 3

Discuss the processes of soil formation and classification. **(30 marks)**

QUESTION 4

Using the phosphorus and nitrogen cycles as examples, discuss the effects of anthropogenic activities on plant distribution in any ecosystem. **(30 marks)**

QUESTION 5

Discuss how industrial development has affected management of ecosystems in Southern Africa. **(30 marks)**