



## GEP312: BIOGEOGRAPHY – DECEMBER 2016

## SECTION A: COMPULSORY

## QUESTION 1

- a) Using the data in Table 1 below calculate the following:
- Species richness in quadrats 2 and 7. (4 marks)
  - Species equitability in quadrat 6. (5 marks)
  - Frequency of species for *Grewia bicolor* and *Galpinii*. (2 marks)
  - Coefficient of association between *Delagoensis* and *Maytenus*. (4 marks)
- b) Describe how you would measure soil texture using particle-size analysis method. (15 marks)
- c) Using examples, explain four types of conservation used in biogeography. (10 marks)
- (40 Marks)**

Table 1: Distribution of selected species along Mlumati River

Name of species	Number of individuals of a species							
	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Quadrat 6	Quadrat 7	Quadrat 8
1. Umsenge ( <i>Cussonia</i> )	11	8	9	0	0	0	0	7
2. Mahlanganisa ( <i>Delagoensis</i> )	68	74	59	33	0	0	28	14
3. Lulwimi lwenkhomo ( <i>Berkheya</i> )	48	33	32	47	26	0	0	171
4. Lusololo ( <i>Galpinii</i> )	64	102	41	42	24	0	48	27
5. Umlahlabantfu ( <i>Zizyphus</i> )	32	0	14	0	0	0	8	27
6. Sanhlangu ( <i>Maytenus</i> )	2	20	14	24	18	0	20	0
7. Sihubhulu ( <i>Bridelia Micrantha</i> )	11	29	14	24	21	33	20	14
8. Umnsinsi ( <i>Erythrina</i> )	2	0	0	0	29	0	0	0
9. Umganu ( <i>Sclerocarya</i> )	0	4	0	5	0	11	0	3
10. Umphahla ( <i>Brachylaena</i> )	0	4	5	0	0	0	0	0
11. Umtelemba ( <i>Annona</i> )	0	61	9	61	32	56	0	0
12. Sivangatane ( <i>Albizia</i> )	0	4	18	19	9	45	4	3
13. Umwane ( <i>Rotundifolia</i> )	0	4	32	28	12	30	0	0
14. Umsiphane ( <i>Grewia bicolor</i> )	0	4	49	5	0	0	0	0
15. Singa ( <i>Acacia karroo</i> )	0	0	5	5	21	37	8	0

Source: Singwane (2000)

**SECTION B: ANSWER ANY TWO QUESTIONS**

**QUESTION 2**

Using examples, discuss how species respond to climate change.

**(30 Marks)**

**QUESTION 3**

a) Outline the characteristics of an ecosystem.

(5 marks)

b) Discuss the most common features used to classify ecosystems.

(25 marks)

**(30 Marks)**

**QUESTION 4**

Using examples, discuss the role of models in biogeography.

**(30 Marks)**

**QUESTION 5**

a) Describe the life forms of terrestrial plants.

(10 marks)

b) Explain the merits and demerits of the theory of Island Biogeography.

(20 marks)

**(30 Marks)**