MAASAI MARA UNIVERSITY

**UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
FOURTH YEAR SECOND SEMESTER**

SCHOOL OF TOURISM AND NATURAL RESOURCE MANAGEMENT

BACHELOR OF SCIENCE (ENVIRONMENTAL STUDIES)

COURSE CODE: EBH 411

COURSE TITLE: ECOLOGICAL TECHNIQUES

AND BIOMETRY

DATE: 29TH APRIL, 2019   **TIME:**
2:30PM – 4:30PM

INSTRUCTIONS TO CANDIDATES
ATTEMPT ALL QUESTIONS IN SECTION A AND ANY 3 IN SECTION B

Support your answers with relevant examples and illustrations and clearly show your calculations, where relevant.

SECTION A   (25 MARKS)

Attempt ALL questions in this section.

1. Explain the differences between;
   - **i.** Ecological survey and ecological monitoring
   - **ii.** CRBD and RBD
   - **iii.** Shannon – Weiver and Simpson Indices of species diversity
   - **iv.** One way and two way ANOVA
   - **v.** Beta diversity and Alpha diversity   **(5 MARKS).**

2. Clearly explain and give an example of a multifactorial study design

   (5 MARKS).

3. Explain the use of GIS in describing landscape patterns **(5 Marks)**

4. List 3 abiotic and 2 biotic parameters you would determine when undertaking a study on Maasai Mara University Botanical Garden Reservoirs
   (5 MARKS).

5.   Explain, with examples remote sensing and GIS requirements for habitat monitoring in the Masai Mara Game Reserve (MMGR)
   (5 MARKS).

SECTION B
Attempt ANY THREE questions.

6. i. Explain the mark – release – recapture technique in animal population estimation   **(5 MARKS).**
   ii. Describe how you would simulate this technique in the lab   **(5 MARKS).**

iii. Explain the assumptions made when using this technique in population size estimation**.**
     (5 MARKS).
7. Describe in detail the methodology you would employ to study community structure of a savanna woodland plant community
     (**15 MARKS**).
8. Using clear illustrations, discuss an ecological study where data obtained would be analysed using the following data analysis techniques: Linear regression AND Two - way ANOVA (**15 MARKS**).

9i. Discuss the emerging issues in the use of remote sensing in ecological studies
     (**10 MARKS**).
ii. Discuss 5 advantages of remote sensing over traditional methods of data collection
     (**5 MARKS**).

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