EGERTON UNIVERSITY

UNIVERSITY EXAMINATIONS

REGULAR -NJORO CAMPUS

SECOND SEMESTER, 2022/2023 ACADEMIC YEAR

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN NATURAL RESOURCE MANAGEMENT

NARE 352: ECOLOGICAL SURVEYS AND TECHNIQUES

STREAM: BSc NARE, TOMH & ENSC (Y3S2) **TIME: 2 HRS**

EXAMINATION SESSION: APRIL **YEAR: 2023**

INSTRUCTIONS:

(i) Answer ALL questions in Section A and any two in Section B

(ii) Do not write on the question paper

SECTION A (40 MARKS)

Question One

a) Define the following terms commonly used in ecological surveys and techniques:

i). Sampling unit (1 Mark)
ii). Plant density (1 Mark)
iii). Remote sensing (1 Mark)

b) Distinguish between the following:

i). Histograms and bar graphs (4 Mark)
ii). Cluster sampling and multilevel sampling (4 Mark)

Question Two

Write short notes on the following:

i). Data sheets (6 Mark)
ii). Basics of database management. (6 Mark)

Question Three

a) Outline the importance of proper planning before an ecological survey. (4 Marks)

b) Briefly explain four principles to follow before commencing sampling. (6 Marks)

Question Four

A researcher marks and releases 100 impalas in an ecosystem. Two months later, the researcher recaptures 75 impalas, of which 40 have marks.

i). Using the formula Y= (M[n + 1])/(m+ 1), calculate the population size of impalas in this ecosystem. (3 Marks)

ii). Outline any four assumptions of the technique used above. (4 Marks)

SECTION B (30 MARKS)

Question Five

a) Describe point transect method and cutline its merits and demerits.

b) A researcher applies the above method across a study site and obtains the pin hit counts shown below:

	Transect1	Transect2	Transect3	Transect4	Transect5	Transect6	Transec7	Transect8	Transect9	Transect10
Species A	40	30	25	60	55	35	27	20	66	80
Species B	120	100	112	98	115	85	150	118	82	78
Barc hits	40	70	63	42	30	80	23	62	52	42

Using the above data, calculate the following across the study site:

i). Absolute cover of each species (4 Marks)

ii). Relative cover of each species. (4 Marks)

Question Six

Discuss the indirect methods of estimating vegetation biomass. (15 Marks)

Question Seven

a) Outline the information one should gather when counting wild animals. (6 Marks)

b) You intend to compare the abundance and species diversity of wild mammalian herbivores between two savanna habitats. Formulate your data collection protocol. (9 Marks)

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