



MAASAI MARA UNIVERSITY

**SCHOOL OF NATURAL RESOURCES AND ANIMAL SCIENCES
DEPARTMENT OF ENVIRONMENTAL STUDIES, GEOGRAPHY AND
AGRICULTURE**

UNIVERSITY EXAMINATIONS 2020/2021

**THIRD YEAR SECOND SEMESTER SPECIAL EXAMINATION FOR THE
DEGREE OF BACHELOR OF ENVIRONMENTAL STUDIES (BIOLOGY AND
HEALTH)**

**COURSE CODE: EBH 3223
COURSE TITLE: RESEARCH METHODS IN BIOLOGICAL AND HEALTH
SCIENCES**

**DATE: 6TH OCTOBER, 2021
1630HRS**

TIME: 1430 –

**ATTEMPT ALL QUESTIONS IN SECTION A AND ANY OTHER THREE
IN SECTION B**

SECTION A (ATTEMPT ALL QUESTIONS - 25 MARKS)

1. Explain the difference between: (4 Marks)
 - i. Descriptive and inferential statistics
 - ii. Systematic sampling and simple random sampling
 - iii. Structured and Unstructured questionnaire
 - iv. Data validity and Data reliability

2. You have come across the following publication during your literature review:



Journal of Fish Biology (2016)
doi:10.1111/jfb.13150, available online at wileyonlinelibrary.com

High genetic diversity and population differentiation in *Clarias gariepinus* of Yala Swamp: evidence from mitochondrial DNA sequences

J. E. BARASA*†, R. ABILA‡, J. P. GROBLER§, M. AGABA||¶, E. J. CHEMOIWA**
AND B. KAUNDA-ARARA*

**Department of Fisheries and Aquatic Sciences, University of Eldoret, P. O. Box 1125-30100, Eldoret, Kenya, †Department of Environmental Studies, Forestry and Agriculture, Maasai Mara University, P. O. Box 861-20500, Narok, Kenya, §Department of Genetics, University of the Free State, P. O. Box 399, Bloemfontein 9300, South Africa, ||Department of Genetics and Genomics, Nelson Mandela African Institute of Science and Technology, P. O. Box 447, Arusha, Tanzania, ¶Biosciences eastern and central Africa-International Livestock Research Institute (BeCA-ILRI Hub), P. O. Box 30709, Nairobi 00100, Kenya and **Department of Biological Sciences, University of Eldoret, P. O. Box 1125-30100, Eldoret, Kenya*

- i. How would the above publication be cited in the text (2 Marks)
 - ii. How would the publication be cited in the references section (2 Marks)
 - iii. State 2 possible objectives of the study (2 Mark)
-
3. i. What is a research hypothesis? (2 marks)

ii. Why is it important to have a research hypothesis? (**2 marks**)

iii. State one statistical tool of testing hypothesis (**1 Mark**)

4. State 4 non probability sampling methods (**4 marks**).

5. State 2 merits and 2 limitations of focus group discuss as a research instrument (**4 Marks**).

6. State 2 sources of primary data and 2 sources of secondary data in academic research (**2 Marks**).

SECTION B. ATTEMPT ANY THREE QUESTIONS (45 MARKS)

7. i. By giving examples, differentiate between quantitative and qualitative research approaches (**7 Marks**)

ii. Describe a research in your area of expertise where you would employ each of the two techniques to collect data (**8 Marks**).

8. You have been given responsibility to lead a research project on effects of COVID19 pandemic on environmental conservation, health and livelihoods in Narok County. Write a summary of the proposed project detailing:-

i. Statement of the research problem (**5 Marks**)

ii. Research objectives and research questions (**5 Marks**)

iii. Justification of the research (**5 Marks**).

9. i. Explain and illustrate a research experiment where you would employ the Completely Randomized Block Design (CRBD) as the experimental design (**10 Marks**).

ii. State the statistical technique you would employ to analyse data obtained from this experimental design (**2 Marks**)

iii. Explain the demerits of the CRBD (**3 Marks**)

10. Discuss 3 probability sampling methods and illustrate study cases where each of the methods would be employed. (**15 Marks**).

&&&&&&&& END OF EXAMINATION QUESTIONS &&&&&&&