



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS**

**2023/2024 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER**

**SCHOOL OF NATURAL RESOURCES, TOURISM  
AND HOSPITALITY**

**BACHELOR OF SCIENCE IN ANIMAL HEALTH  
AND PRODUCTION**

**COURSE CODE: AHP 1208-1**

**COURSE TITLE: PRINCIPLE OF GENETICS**

**DATE: 16/5/2024**

**TIME: 1430-1630 HRS**

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**INSTRUCTIONS TO CANDIDATES**

Answer ALL questions.

*This paper consists of 2 printed pages exclusive of this cover page.*

*Please turn over*

## **PRINCIPLES OF GENETICS**

**[120 Marks]**

- 1 a) Discuss meiosis and mitosis stages of cell division (7 Marks)  
b) Discuss the steps involved in DNA replication process (10 Marks)  
c) Explain types of DNA replications (3 Marks)
- 2 a) Define the term Genetic Code (3 Marks)  
b) Explain the causes of genetic change in a population (7 Marks)  
c) State five characteristics of a genetic code (5 Marks)  
d) State traits of economic importance in the livestock industry (5 Marks)
- 3 a) Discuss five (5) types of chromosomal mutations that occur in genetics (10 Marks)  
b) State the challenges experienced in animal breeding (5 Marks)  
c) Discuss the benefits of genetics in the society and livestock industry (5 Marks)
- 4 a) State the three mendelian principles that govern transmission of genetic traits from one generation to the next (7 Marks)  
b) State three consequences of inbreeding (3 Marks)  
c) Discuss the benefits of genetic engineering in crops and livestock (10 Marks)
- 5 a) Define the Hardy-Weinberg equilibrium law (3 Marks)  
b) State the assumptions for Hardy-Weinberg equilibrium (5 Marks)  
c) Differentiate between a dominant gene and a recessive gene (2 Marks)  
d) Discuss the value of crossbreeding in animal genetics (10 Marks)
- 6 a) Describe the following processes of gene expression  
i) Transcription (10 Marks)  
ii) Translation (10 Marks)

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