



# **MAASAI MARA UNIVERSITY**

**UNIVERSITY MAIN EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**SECOND YEAR FIRSTSEMESTER EXAMINATIONS**

**FOR BACHELOR OF SCIENCE AND BACHELOR OF  
EDUCATION (SCIENCE)**

**SCHOOL OF PURE, APPLIED AND HEALTH SCIENCES**

**COURSE CODE: BOT 2106-1**

**COURSE TITLE: PRINCIPLES OF GENETICS**

**DATE: 5<sup>TH</sup> APRIL 2022**

**TIME: 1430-1630HRS**

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**ANSWER ANY TEN Questions (5 marks each).**

Illustrate your answers with well labeled diagrams where appropriate.

**ANSWER ANY TEN Questions (5 marks each).**

1. Outline five specialised enzymes and protein involved in DNA replication. **(5 marks)**
2. Discuss the structure of chromosomes. **(5 marks)**
3. Discuss the difference between prokaryotics and eukaryotic genome. **(5marks)**
4. Define the following terms.
  - a. Genome **(1mark)**
  - b. Homozygous **(1 mark)**
  - c. Aneuploidy **(1 mark)**
  - d. Plasmid **(1 mark)**
  - e. Recessive **(1 mark)**
5. Discuss the methods the methods used in measuring bacteria growth. **(5 marks)**
6. What are the phenotypic and genotypic ratios in a cross between tall and dwarf plants. **(5 marks)**
7. Discuss the different types of chromosomes. **(5 marks)**
8. Discuss the importance of gene regulation. **(5 marks)**
9. Explain the process of translation. **(5marks)**
10. Explain the functions of different types of RNA. **(5marks)**
11. Discuss the exception of Mendelian genetics. **(5marks)**
12. Differentiate meiosis from mitosis **(5marks)**
13. Differentiate the structural between RNA and DNA. **(5marks)**
14. Discuss structural aberations in chromosomes. **(5marks)**
15. An inbred line of snap dragon of yellow plant and wrinkled seeds were crossed with purelines of green plant with round seeds. Yellow plants and round seeds were dominant workout F1 and F2 generations. **(5 marks)**

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