



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
THIRD YEAR FIRST SEMESTER**

**SCHOOL OF TOURISM AND NATURAL
RESOURCE MANAGEMENT
BACHELOR OF SCIENCE IN WILDLIFE
MANAGEMENT**

**COURSE CODE: WRM 3110
COURSE TITLE: CONSERVATION GENETICS**

DATE: 10TH DECEMBER, 2018

TIME: 0830 - 1030 HRS

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions in section **A** and any other **THREE** in section **B**.

This paper consists of 2 printed pages. Please turn over

Section A: Answer all questions (25 marks)

Question 1

Define the following terms, using examples **(10 marks)**

- | | |
|-----------------------|---------------------------|
| i. Trait | vi. Phenotype |
| ii. Heredity | vii. Incomplete dominance |
| iii. Monohybrid cross | viii. Codominance |
| iv. Dihybrid cross | ix. Homozygous genotype |
| v. Genotype | x. Heterozygous genotype |

Question 2

Differentiate transcription and translation of genetic material **(4 marks)**

Question 3

On one of your routine patrols as a Wildlife Manager, you come across a sample of animal hair. You would like to identify the species using the PCR technique.

- i. What is PCR? **(2 marks)**
- ii. Briefly state the three steps in the process of PCR **(6 marks)**

Question 4

In the study of genetics, fruit flies and peas were preferred. Give reasons to support this over other species **(3 marks)**

Section 2. Answer any 3 questions (45 marks)

Question 5

As an aspiring BSc. Wildlife Manager, citing examples, how would you apply Conservation Genetics? **(15 marks)**

Question 6

- i. Define the Punnet square and **(3 marks)**
- ii. Using the Punnet square, exhibit the F1 and F2 generations of two alleles of monohybrid cross and dihybrid crosses. In each calculation, highlighting the genotypic and phenotypic ratios **(6 marks each - total 12 marks)**

Question 7

- i. Briefly explain the structure of the DNA **(5 marks)**
- ii. Using diagrams, demonstrate your understanding of 3 alternative models for DNA replication **(10 marks)**
 - a) Semiconservative replication
 - b) Conservative replication
 - c) Dispersive replication

Question 8

Using diagrams, highlight the steps of DNA replication, from start to stop. **(15 marks)**

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