



UNIVERSITY OF SWAZILAND

1ST SEM. 2016/2017

FINAL EXAMINATION PAPER

PROGRAMMES: BSc ANIMAL SCIENCE
BSc ANIMAL SCIENCE (DAIRY
OPTION)
BSc AGRONOMY
BSc HORTICULTURE
BSc AGRICULTURAL EDUCATION

COURSE CODE: AS 204/ASC205

TITLE OF PAPER: PRINCIPLES OF GENETICS

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION ONE (1) AND
ANY OTHER THREE (3)
QUESTIONS.

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR**

Question 1

Answer true or false

- (a) DNA is the genetic material transferred from parents to offspring
- (b) Gene is a segment of the DNA located in the chromosome
- (c) DNA is chromosome
- (d) DNA is found in the cytoplasm of the cell

Complete the sentences below by fill in the right word or group of words

- (e) Type of cell division in which a $2n$ parent cell produces 4 haploid daughter cells is called _____
- (f) The mixing up of maternal and paternal chromosomes during Anaphase I is called I _____ A _____
- (g) Reproductive cells (sperm and eggs) are called _____
- (h) Body cells can also be called S _____ cells.
- (i) Humans have two S _____ C _____ called X and Y.
- (j) Living organisms use _____ cell division for growth, repairing injuries, and replacing worn out cells. (25 Marks)

Question 2

Define and describe the following terms in not more than one paragraph:

- (a) Monogenic trait
- (b) Polygenic trait
- (c) Meiosis
- (d) Mitosis

(25 Marks).

Question 3

List the differences between the products of Mitosis and Meiosis

(25 Marks).

Question 4

Describe the benefit of Meiosis in the maintenance of genetic variation in organisms.

(25 Marks).

Question 5

List and discuss 5 benefits of the role of genetics in man's welfare.

(25 Marks).