*(University of the choice)*

# MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

# (MMUST)

**MAIN CAMPUS**

**MAIN EXAMMINATION**

**UNIVERSITY EXAMMINATIONS**

**2017/2018 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE**

**OF**

**BACHELOR OF SCIENCE IN BIOLOGY/BIOTECHLONOGY/BIOCHEMISTRY/ENVIRONMENTAL SCIENCES/NATURAL RESOURCE MANAGEMENT/AGRICULTURE**

**COURSE CODE: SBL 122**

**COURSE TITLE: GENETICS**

**DATE: Wednesday, 1ST AUG, 2018 TIME: 4:00 – 6:00 P.M.**

**INSTRUCTIONS TO CANDIDATES**

Answer ALL questions in section A and ANY TWO selected from B

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This paper consists of 2 printed pages. Please turn over

## SECTION A (SHORT ANSWER QUESTIONS, 40 MARKS)

1) Give some information about Gregory Mendel's life and work. (5marks)

2) Briefly define the following terns

a) Allele (1mark)

b) Lethal allele (2marks)

c) Conditional lethal allele (2marks)

3) Describe a nucleotide and mention the difference to a nucleotide. (5marks)

4) State and explain any two genetic scenarios that go against Mendel laws of inheritance. (5marks)

5) List five (5) chromosome abnormalities. (5marks)

6) Explain the semi-conservatives replication model for DNA and compare it to the other theoretical possibilities. (5marks)

7) Identify any five (5) sex limited traits observed in animals. (5marks)

8) Explain two types of inheritance that lead to non-mendelian transfer of traits to offspring from their parents. (5marks)

## SECTION B (ESSAY QUESTIONS, 30 MARKS)

9) Using a Punnet square calculate the probality of getting a progeny with the following genotype combination involving two traits (YyBb) of seed colour and seed texture respectively , from crossing parents with the following genotypes YyBB and YYbb. (15marks)

10) a) Describe Griffiths transformation experiment and his conclusions (7marks)

b) Discuss how Griffith findings influenced the work of Avery, Macleod & McCarty by showing their experiment and conclusions. (8marks)

11) a) Discuss any Five (5) types of mutation (10marks)

b) Discuss the hazard of different mutagens (5marks)