

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY** **OF AGRICULTURE AND TECHNOLOGY**

# UNIVERSITY EXAMINATIONS 2015/2016

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN MICROBIOLOGY, BIOTECHNOLOGY, GENOMICS AND FISHERIES AND AQUACULTURE**

**SBT 2175: INTRODUCTION TO GENETICS**

**DATE: APRIL 2016 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER**

**TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

a) Using examples, differentiate between

(i) Codominance and incomplete dominance. [2 mark]

(ii) Gene and Genome. [2 mark]

b) Briefly describe the genetic organization in bacteria. [4 marks]

c) Illustrate the different types of chromosomers based on the position

of the centromere. [3 marks]

d) Discuss sex determination in man. [3 marks]

e) Using an example, explain mendels law of segregation. [6 marks]

f) Explain the process of transcription during protein synthesis. [6 marks]

g) i) What is a mutation. [1 mark]

ii) Briefly explain how mutagens induce mutations. [3 marks]

**QUESTION TWO**

Discuss the lac operon. [20 marks]

**QUESTION THREE**

Discuss DNA replication. [20 marks]

**QUESTION FOUR**

Discuss exceptions to Mendel’s rules. [20 marks]