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

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2019/2020**

**SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCE AND ENVIRONMENTAL SCIENCES**

**SBT 2201: CELL BIOLOGY GENETICS**

**DATE: OCTOBER, 2020 TIME: 2 HOURS**

INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

**QUESTION ONE: 30 MARKS**

a. State any six properties of chromosomes. (3 marks)

b. Illustrate the difference between a deoxyribose and ribose sugar. (3 marks)

c. Using a well labeled diagram, describe the structure of a nucleus. (3 marks)

d. Briefly describe the types of communication systems within cells. (4 marks)

e. Explain why a cell requires RNA intermediate during the transfer of genetic information. (3 marks)

f. Illustrate the phonotypic ratio of children from a normal female and a color-blind male. (3 marks)

g. Outline the process of preparation of an animal cell microscopic slide.

(4 marks)

hi) Using an appropriate illustration, describe Mendel’s First Law. (5 marks)

ii. Differentiate between a test and a back cross. (2 marks)

**QUESTION TWO: 20 MARKS**

Discuss DNA replication

**QUESTION THREE: 20 MARKS**

Citing an example, discuss gene regulation

**QUESTION FOUR: 20 MARKS**

Discuss the cytoskeleton