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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2019/2020 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATIONS

**FOR THE DEGREE OF BACHELOR OF SCIENCE (BIOLOGY) AND
BACHELOR OF EDUCATION SCIENCE**

COURSE CODE: SBT 204

COURSE TITLE: PRINCIPLES OF GENETICS AND
CYTOGENETICS

DATE: Monday 1st February, 2021 **TIME:** 2:00 – 4:00 p.m.

INSTRUCTIONS TO CANDIDATES

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

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QUESTION 1:

- (a) Explain how the structure of the endoplasmic reticulum (ER), mitochondria, and Golgi apparatus assist their respective functions (5 Marks).
- (b) Relate structure with function of any two plastids found in plant cells (5 Marks)
- (c) Describe briefly the structure, functions and distribution of cell lysosomes (5 Marks).
- (d) Explain clearly how aneuploids and euploids arise in organisms (5 Marks)
- (e) Explain Mendel's First and Second Laws of Inheritance using the process of meiosis (5 marks)

QUESTION 2:

Using a diagram, briefly describe the structure of a prokaryotic cell (20 Marks).

QUESTION 3:

Describe the various macromolecules found in cells (20 Marks)

QUESTION 4:

Compare and contrast mitosis and meiosis and explain the relevance of each process in heredity (20 Marks)

QUESTION 5:

Define chromosomal aberrations? Diagrammatically explain Deletion, Duplication, Inversion and Translocation with suitable examples (20 Marks).