



(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER

SUPPLEMENTARY/SPECIAL EXAMINATION

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE
AND BIOTECHNOLOGY**

COURSE CODE: ABI 222

COURSE TITLE: MICROBIAL GENETICS

DATE: 26TH JULY 2022

TIME: 2 – 4 PM

INSTRUCTIONS TO CANDIDATES

Answer Question One and Any other TWO (2)

TIME: 2 Hours

This Paper Consists of 2 Printed Pages. Please Turn Over. 

KIBU observes ZERO tolerance to examination cheating

QUESTION ONE: (COMPULSORY)**(30 MKS)**

- a) List any THREE importance of Gel electrophoresis in gene cloning (3 MARKS)
- b) List TWO purines and TWO pyrimidines used in DNA structure build-up (4 MARKS)
- c) Define the term genetics (2 MARKS)
- d) Define a recombinant organism (2 MARKS)
- e) Differentiate between dominant and recessive allele (2 MARKS)
- f) State the mode of replication in E.coli (2 MARKS)
- g) The word homologous literally means same location. How does this relate to homologous chromosomes? (3 MARKS)
- h) Define the following terms as applied in genetics (2 MARKS)
 - i. Gene (3 MARKS)
 - ii. Transposons (3 MARKS)
 - iii. Semi-conservative replication (2 MARKS)
 - iv. Chromosome (2 MARKS)
 - v. Okazaki fragments (2 MARKS)

QUESTION TWO

Describe how bioinformatics has been applied in any FOUR of the fields of science. (20 MARKS)

QUESTION THREE

Whittaker (1969) suggested a five-kingdom classification for microorganisms. Giving examples in each case, describe these FIVE kingdoms. (20 MARKS)

QUESTION FOUR

- a) Outline the functions of FIVE enzymes that participate in the eukaryotic DNA replication process. (10 MARKS)
- b) Describe FIVE types of Vectors used in gene transfer methods (10 MARKS)

QUESTION FIVE

DNA in any cell can be altered by way of a number of factors. Discuss any FOUR factors that may cause these alterations. (20 MARKS)