(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY AND EDUCATION SCIENCE

COURSE CODE: SBT 123

COURSE TITLE: GENERAL GENETICS AND EVOLUTION

DATE: 11TH MAY 2022 **TIME: 9.00 – 11.00 AM**

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 3 printed pages. Please Turn Over

Question One

a. List the requirements for a polymerase chain reaction. (5 marks)

b. Explain the difference between divergent evolution and convergent evolution (6 marks)

c. Differentiate between:

i. Nucleotides and Nucleosides (4 marks)

ii. Purine and pyrimidine (4 marks)

iii. Autosomes and sex chromosomes (4 marks)

d. What is the central dogma of molecular biology (3 marks)

e. What is

i. Intron (2 marks)

ii. Exon (2 marks)

Question Two

i. What are mutations (2 marks)

ii. Using examples discuss the various types of mutations (18 marks)

Question Three

Most of the species existing today share a common ancestor. With the help of examples highlight the possible processes that led to the creation of species for any particular organism. (20 marks)

Question Four

Discuss the process of DNA replication. Use relevant diagrams where need be (20 marks)

Question Five

Write short notes on the various stages involved in:

i. DNA extraction (6 marks)

ii. Polymerase chain reaction (14 marks)