



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR

SECOND YEAR 2ND SEMESTER
SPECIAL/SUPPLEMENTARY EXAMINATIONS

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

COURSE CODE: SBT 224

COURSE TITLE: INTRODUCTION TO MOLECULAR BIOLOGY

DATE: 10th October, 2018 **TIME: 8:00 -10:00 a.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

Question 1

- a) What is molecular biology? (2 Marks)
- b) What is meant by the terms primer and template? (4 Marks)
- c) What is the role of RNA in DNA replication? (4 Marks)
- d) Differentiate between transcription and translation (6 Marks)
- e) What genetic attributes does RNA share with DNA? (4 Marks)
- f) RNA is of three types in eukaryotes and bacteria. What are they? Where are they located in the cell? Where are they produced? What are their characteristics and functions? (10 Marks)

Question 2

List and briefly describe the various biological tools which are used to carry out manipulation of genetic materials. (20 Marks)

Question 3

Describe rolling circles and D-loops for DNA replication. (20 Marks)

Question 4

Briefly describe the chemical design of nucleic acids with emphasis on the differences between RNA and DNA. (20 Marks)

Question 5

Describe the post-transcriptional modification of heterogeneous nuclear RNA in eukaryotes. (20 Marks)