(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
20117/2018 ACADEMIC YEAR

SECOND YEAR 2ND SEMESTER
MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE AGRICULTURE AND BIOTECHNOLOGY

COURSE CODE: **SBT 224:**

COURSE TITLE: **INTRODUCTION TO MOLECULAR BIOLOGY**

DATE: FRIDAY 27TH July, 2018. **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

Question 1

a) What is the importance of nucleic acids and how are they distributed in a cell? (4 Marks)

b) Briefly describe the role of Nucleic acids in carbohydrates and lipid synthesis (4 Marks)

c) Differentiate between transformation and transduction (4 Marks)

d) Write about the contribution of the following molecular biologists regarding the identification of the genetic material:
   (i) F. Griffth; (3 Marks)
   (ii) A.D. Hershey and M.J. Chase; (3 Marks)
   (iii) Fraenkel and Conrat. (3 Marks)

e) Give the following nucleic acid sequence:
   3'ggtgtcagggctgggcccatggatcgctgttggcccctaactcggcaccaaagtggctga 5'
   (i) What is the sequence of RNA transcript? (3 Marks)
   (ii) What would be the sequence of the complementary strand? (3 Marks)
   (iii) How many codons does the sequence have? (3 Marks)

Question 2

Describe the direct evidences that support the concept that DNA or RNA is the genetic material of most organisms. (20 Marks)

Question 3

A basic concept of molecular biology is the collinearity of gene, DNA, RNA and protein. Discuss the various lines of evidence supporting this concept. (20 Marks)

Question 4

Describe the two classical experiments which demonstrated the semi conservative mode of DNA replication. (20 Marks)

Question 5

Describe the historical growth of molecular biology. (20 Marks)