



*(Knowledge for Development)*

# **KIBABII UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2020/2021 ACADEMIC YEAR**

### **FOURTH YEAR SECOND SEMESTER SUPPLEMENTARY/SPECIAL EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY**

**COURSE CODE: SBT 420**

**COURSE TITLE: APPLIED MICROBIOLOGY AND  
BIOTECHNOLOGY**

**DATE: 19<sup>TH</sup> JANUARY 2022**

**TIME: 11.00 – 1.00 PM**

---

#### **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 ONE**

- a) Define the term Biotechnology. (4 Marks)
- b) Describe the microbial activities in Nitrification. (4 Marks)
- c) State three objectives of recombinant technology. (3 Marks)
- d) Describe three types of plasmids. (3 Marks)
- e) Name four micro-organisms and their roles in a bio-fertilizer. (4 Marks)
- f) Enumerate four characteristics of an ideal antimicrobial agent. (4 Marks)
- g) Describe the microbial activities in yoghurt production. (4 Marks)
- h) Briefly explain how biotechnology has improved livestock breeding. (4 Marks)

### **QUESTION TWO**

- a) Explain the procedures involved in making a recombinant DNA. (12 Marks)
- b) Describe two techniques of analysing cloned genes. (8 Marks)

### **QUESTION THREE**

- a) Describe the stages involved in Biogas Production. (12 Marks)
- b) Outline the main steps involved in Southern Blotting technique. (8 Marks)

### **QUESTION FOUR**

Discuss the application of Biotechnology in health and medicine. (20 Marks)

### **QUESTION FIVE**

- a) Explain the tools required in recombinant technology. (12 Marks)
- b) Write short notes on:-
  - i. Bioremediation (4 Marks)
  - ii. Genetic engineering (4 Marks)