



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF SCIENCE
AND TECHNOLOGY**

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

SECOND SEMESTER MAIN EXAMINATION

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

COURSE CODE: AGR 202

**COURSE TITLE: INTRODUCTION TO AGRICULTURAL
BIOTECHNOLOGY AND CROP IMPROVEMENT**

DATE: 9.04.2024

TIME: 3-5PM

INSTRUCTIONS TO CANDIDATES

Question ONE (30 marks) is COMPULSORY

Choose any other TWO questions (20 marks, each)

Question ONE (30 marks)

- (a) Describe any six applications of Biotechnology in crop improvement (6 marks)
- (b) Illustrate the process of DNA replication, indicating the essential enzymes involved (10 marks)
- (c) Differentiate between RNA and DNA (6 marks)
- (d) Discuss the concept of the gene and genome (5 marks)
- (e) Give the advantages and disadvantages of the BT-technology (5 marks)
- (f) List any four types Biotechnology (4 marks)

Question TWO (20 marks)

- (a) Give five applications and three limitations of Biotechnology in crop production (12 marks)
- (b) Using examples, discuss the role of Agricultural biotechnology in food security (8 marks)

Question THREE (20 marks)

- (a) List the different types of RNAs and their functions (10 marks)
- (b) Describe the process of transcription and translation (10 marks)

Question FOUR (20 marks)

- Discuss any five major ways in which biotechnology has improved crop production (20 marks)