

10
APB 812



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

**FIRST YEAR FIRST SEMESTER EXAMINATIONS
FOR THE DEGREE OF MSC. PLANT BREEDING
(MAIN EXAMINATIONS)**

COURSE CODE: APB 812

**COURSE TITLE: MOLECULAR BIOLOGY AND MICROBIAL
GENETICS**

DATE: 19.04.2023

TIME: 2-5PM

INSTRUCTION TO CANDIDATES

Answer any THREE (3) questions

TIME: 2 hours

MMUST observes ZERO tolerance to examination cheating

This paper consists of 2 printed pages. Please Turn Over

APB 812

- 1) Discuss
 - a) The concept of the gene **(10 Marks)**
 - b) Gene structure and architecture (give examples) **(10 Marks)**

- 2)
 - a) Discuss the following terms
 - i. Gene expression **(5 Marks)**
 - ii. Gene regulation **(5 Marks)**

 - b) Explain how gene expression occurs on
 - i. Prokaryotes **(5 Marks)**
 - ii. Eukaryotes **(5 Marks)**

- 3)
 - a) Discuss the major stages of a PCR **(10 Marks)**
 - b) Name and describe any four PCR-based technologies **(10 Marks)**

- 4) a. Discuss the concept of GMO and its role in improving livelihoods **(10 Marks)**
 - a) What the major concerns about GMO (consider the case of Kenya) **(10 Marks)**