



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

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

**MAIN EXAMINATIONS
MAIN CAMPUS**

THIRD YEAR SECOND SEMESTER EXAMINATIONS

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

COURSE CODE: SBT 321

**COURSE TITLE: PLANT BREEDING AND SEED
TECHNOLOGY**

DATE: THURSDAY, 21ST APRIL 2022

TIME: 3:00 – 5:00 P.M.

INSTRUCTIONS TO CANDIDATES

Answer ALL QUESTIONS in section A and ANY TWO selected from section B

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

SECTION A (SHORT ANSWER QUESTIONS, 40 MARKS)

1. Explain why it is easy to breed for monogenic traits unlike polygenic ones. (4 marks)
2. Calculate the homozygosity levels of a pureline at F10 stage of development. (4 marks)
3. Highlight using case examples the process of seed fortification and its significance in seed technology. (4 marks)
4. Explain the concept of “catching seed” in some plant species and reason why it succeeds. (4 marks)
5. Outline four techniques that can be utilized in inducing flower formation in some selected plant species. (4 marks)
6. Explain the technique of polyploidization in plant improvement highlighting the reason why the technique is not so useful in improving plants which we harvest seeds. (4 marks)
7. Inter species improvement has been made possible by protoplasm fusion. Validate this statement. (4 marks)
8. What is the role of KEPHIS and ministry of agriculture in plant breeding. (4 marks)
9. Distinguish between a single cross and three way cross hybrids developed by breeders. (4 marks)
10. Using illustrations explain the backcross technique of breeding. (4 marks)

SECTION B (ESSAY QUESTIONS, 30 MARKS)

11. Discuss any five techniques utilized in seed health testing and significance of such tests. (15 marks)
12. Discuss the emasculation techniques that can be utilized in plant breeding experiments. (15 marks)
13. Using case examples discuss any five factors that significantly influence the pureline breeding scheme. (15 marks)