

APH 821



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER MAIN EXAMINATION

FOR THE DEGREE

OF

MASTER OF SCIENCE IN PLANT HEALTH MANAGEMENT

COURSE CODE: APH 821

COURSE TITLE: PLANT BREEDING FOR STRESS

RESISTANCE

DATE: 19.04.2023

TIME: 2-5PM

INSTRUCTIONS TO CANDIDATES

Answer ANY THREE questions (20 Marks)

MMUST OBSERVES ZERO TOLERANCE TO EXAM CHEATING

APH 821

1. a). Explain the following terminologies used in plant breeding process. **(10 marks)**
 - i. Inter-varietal and para-sexual hybridization.
 - ii. Cleistogamy.
 - iii. Crop sterility.
 - iv. Gibberellins.
 - v. Photoperiodism.
- b). Discuss mechanisms that promotes cross-pollination in higher plants. **(10 marks)**
2. a). Discuss crop hybridization as an objective in breeding plants. **(6 marks)**
- b). Outline four crops that had their origin in Africa. **(4 marks)**
- c). Discuss genetic engineering and its application in plant breeding. **(10 marks)**
3. a). Discuss emasculation in plant breeding **(10 marks)**
- b). Describe various plant hormones and their role. **(10 marks)**
4. a). Discuss flower as a plant reproductive organ. **(10 marks)**
- b). Write down the merits and demerits of mass selection as a method of plant improvement approaches in Africa. **(10 marks)**
5. a). Describe methods that can be considered by plant breeders in Kenya during crop improvement and design. **(10 marks)**
- b). Discuss conventional and non-conventional methods of plant breeding. **(10 Marks)**