University of choice

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)
SCHOOL OF AGRICULTURE, VETERINARY SCIENCES AND TECHNOLOGY (SAVET)
MAIN CAMPUS

UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR
MAIN EXAM
OF
DIPLOMA IN GENERAL AGRICULTURE AND HORTICULTURE

COURSE CODE: DAG/DAH 069

COURSE TITLE: PRINCIPLES OF CROP IMPROVEMENT

DATE: 19.12.23 **TIME: 3-5PM**

INSTRUCTIONS TO CANDIDATES

This paper is divided into two sections, **A and B. Answer ALL Questions in SECTION A and any Two in SECTION B**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over

SECTINON A (30 marks)

1. Define the following terms as used in crop improvement (5marks)
   a. Crop improvement
   b. Pure-line
   c. Clone
   d. Heterosis
   e. Clonal selection
2. What is the role of genetics in crop improvement (2marks)
3. Name any three objectives of crop improvement (3marks)
4. Differentiate between mutation and polyploidy (2marks)
5. Draw and label **ALL** parts of a flower. In each give its function (6marks)
6. What is the advantage of clonal selection over mass and pure line selection (2marks)
7. Give any four characteristics of pure-lines (4marks)
8. Explain any three advantages of mutation breeding as used in crop improvement (6marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40MARKS)

9 (a) Describe briefly the role of the following branches of agriculture in crop improvement (10marks)

a. Cytogenetics and genetics

b. Morphology and taxonomy

c. Soil science

d. Agricultural engineering

e. Biotechnology

(b) Discuss breeding methods for self-pollinated crops (10 marks)

10 (a) explain different steps involved in hybridization procedure for production of a new variety (10marks)

(b) Give a comparison between mass selection and pure-line methods of self-pollinated crops (10marks

11 (a) Explain methods of breeding for insect resistance in plants (10 marks)

(b) Describe the procedure of mass selection as applied for maintaining the genetic purity of pure-line varieties (10marks)