



(UNIVERSITY OF CHOICE)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND
TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR (REGULAR)
FIRST YEAR FIRST SEMESTER EXAMINATIONS

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

DIPLOMA IN GENERAL AGRICULTURE
AND DIPLOMA IN HORTICULTURE

COURSE CODE: DAG 072

COURSE TITLE: PRINCIPLES OF CROP IMPROVEMENT

DATE: 2.8.22
4PM

TIME:2-

INSTRUCTIONS TO STUDENTS

ANSWER ALL QUESTIONS IN SECTION A

ANSWER ANY TWO QUESTIONS IN SECTION B

MMUST OBSERVES ZERO TOLERANCE TO EXAMINATION CHEATING

SECTION A: Attempt all questions (40mks)

1. (a) Name **TWO** types of polyploidy as a factor affecting crop evolution (2mks)
(b) State **FOUR** mechanisms that discuss how crops acquire resistance to insect pest attack (4mks)
(c) State **FIVE** mechanisms that help promote self pollination in crop plants (5mks)
2. (a) Pure line selection is one of the methods used to breed self pollinated crops. State the advantages and disadvantages of this method of breeding (5mks)
(b) Name **THREE** methods used to breed self pollinated crops (3mks)
(c) State the basic steps used by plant breeders when performing crop hybridization (4mks)
3. (a) State **FIVE** practical applications of tissue culture as applied in crop improvement (5mks)
(b) Giving an example, list **THREE** forms in which asexually reproducing plants can be propagated through sub-aerial modification of stems (3mks)
(c). State **FIVE** advantages of sexual reproductive system in crop plants (5mks)
(d) State **FOUR** conditions necessary for seed propagation to be a successful form of reproduction (4mks)

SECTION B: Answer any TWO questions (30mks)

4. Discuss the methods and techniques used by plant breeders to undertake crop improvement (15mks)
5. (a) Discuss the main objectives of plant introduction and as a method and technique for crop improvement (8mks)
(b). Explain the basic steps used by plant breeders when performing crop hybridization (7mks)
6. (a) Discuss the role of the following genetic factors affecting evolution of crop plants (12mks)
 - (i) Polyploidy
 - (ii) Introgression
 - (iii) Mutation
(b) Highlight the **THREE** forms of evolution that led to domestication of crop plants (3mks)