

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN PLANT
BREEDING AND MASTER OF SCIENCE IN CROP PROTECTION**

AGRI 824: BREEDING FOR PEST AND DISEASE RESISTANCE

AGRI 843: BREEDING FOR DROUGHT TOLERANCE

STREAMS: MSc. (Y1S2)

TIME:3 HOURS

DAY/DATE: THURSDAY 13/04/2023

2.30 P.M. –5. 30 P.M.

INSTRUCTIONS

Answer Questions **ONE** and any other **TWO** questions

Do not write anything on the question paper

QUESTION ONE (20 marks)

- a) Discuss the following secondly metabolites with respect to pest resistance:
- i. Phenolic. (5 marks)
 - ii. Terpenes. (5 marks)
- b) Describe the genetic basis of stay green. (10 marks)

QUESTION TWO (20 marks)

- a) Describe the evolution of R genes. (8 marks)
- b) Discuss the mechanism of drought tolerance in crop plants. (12 marks)

QUESTION THREE (20 marks)

- a) Discuss the consideration for breeding resistance to:
- i. Pathogens. (5 marks)
 - ii. Drought. (5 marks)
- b) Detail a scheme of genomic selection (GS) in a given breeding program, giving advantages of GS over marker assisted selection. (10 marks)

QUESTION FOUR (20 marks)

Describe how you can incorporate a resistant gene for a given trait that is controlled by a recessive gene. (20 marks)
