



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2022/2023

THIRD YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE AND BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION AND BACHELOR OF EDUCATION SCIENCE

AAA 3351: PLANT BREEDING

DATE: APRIL 2023

TIME: 2 HOURS

INSTRUCTIONS: Answer question **one** and any other **two** questions

QUESTION ONE (30 MARKS)

- a) Describe the advantages of mass selection method of crop improvement (6 marks)
- b) Describe the advantage of apomixis means of crop plant production (4 marks)
- c) Explain the application of polypoidy in crop production (6 marks)
- d) Explain the concerns regarding adoption of genetically maize crops (6 marks)
- e) Outline the uses of male sterility in plant breeding (4 marks)
- f) Explain the purpose of plant introduction as a method of crop improvement (4 marks)

QUESTION TWO (20 MARKS)

- a) Describe the procedure of producing genetically modified plants (10 marks)
- b) Explain three mechanisms of disease resistance in crop plants (10 marks)

QUESTION THREE (20 MARKS)

- a) Explain the cytoplasmic genetic male sterility (5 marks)
- b) Discuss the mechanisms that promote self-pollination (15 marks)

QUESTION FOUR (20 MARKS)

- a) Explain four methods of plant hybridization (8 marks)
- b) Explain causes of self-incompatibility in plants (8 marks)
- c) Differentiate between vertical and horizontal resistance in plant (4 marks)