

NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF AGRICULTURE

B.Sc. AGRICULTURE EXAMINATION

CPS: 317 PRINCIPLES AND METHODS OF PLANT BREEDING

DECEMBER 2019

MARKS: 100

TIME: 3HRS

INSTRUCTIONS: ANSWER ALL THE QUESTIONS

QUESTION 1 [20 marks]

Compare and contrast the following;

- a) Protogyny and protandry
- b) Heterostyly and homostyly
- c) Cleistogamy and chasmogamy
- d) Allogamy and autogamy
- e) Heterogeneous and homogeneous population
- f) Dominant and additive gene effects
- g) Heritability in the narrow and broad sense
- h) Induced and spontaneous mutation
- i) Allelic and non-allelic interactions
- j) Homozygous and heterozygous genes

[2 marks each]

QUESTION 2 [30 marks]

With an aid of a diagram explain the following;

- a) Mode of reproduction in crop plants (12)
- b) Different types of allelic interactions (4)
- c) Development of crop hybridization (12)

QUESTION 3 [30 marks]

Explain the following breeding methods in self-pollinated crops;

- a) Pedigree (10)
- b) Single seed descent (10)
- c) Bulk population (10)

QUESTION 4 [20 marks]

Write short notes on the following;

- a) Recurrent selection (6)
- b) Pollination behavior in crops (4)
- c) Features promoting cross-pollination (7)
- d) Types of selection methods (3)