

NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF AGRICULTURE

B.Sc. AGRICULTURE EXAMINATION

CPS: 317 PRINCIPLES AND METHODS OF PLANT BREEDING

DECEMBER 2015

MARKS: 100

TIME: 3HRS

INSTRUCTIONS: ANSWER ALL THE QUESTIONS

QUESTION 1 [20 marks]

Distinguish the following terms;

- a) Protogyny and protandry
- b) Heterostyly and homostyly
- c) Cleistogamy and chasmogamy
- d) Allogamy and autogamy
- e) Heterogeneous and homogeneous population
- f) Epistasis and additive gene effects
- g) Heritability in the narrow and broad sense
- h) Polygenic and pleiotropic gene action
- i) Repulsion and coupling in cross-over
- j) Nullisomic and monosomic chromosomes

[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 (3)
- c) Different types of cross-over(3)
- d) Development in hybridization (12)

QUESTION 3 [32 marks]

Compare and contrast pedigree, single seed descent and bulk population

QUESTION 4 [18 marks]

Explain the following;

- a) Different types of non-allelic interactions (7)
- b) Pollination behavior in crops (4)
- c) Features promoting cross-pollination (7)