

**NATIONAL UNIVERSITY OF LESOTHO**

**FACULTY OF AGRICULTURE**

**B.Sc. AGRICULTURE EXAMINATION**

**CPS: 3503    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) Breeder and foundation seed
- e) Recurrent selection for general and specific ability
- f) Heritability in the narrow and broad sense
- g) Multi-line and isogenic lines
- h) Tandem, multiple selection index and independent culling selection
- i) Base, active and working collection [2 marks each]

**QUESTION 2 [27 marks]**

With an aid of a diagram explain the following and include the gene proportions;

- a) Two-way hybridization (6)
- b) Three-way hybridization (9)
- c) Four-way hybridization (12)

**QUESTION 3 [30 marks]**

- a) Compare and contrast micro-sporogenesis and mega-sporogenesis. Illustrate with diagrams.

**QUESTION 4 [23 marks]**

Explain the following;

- a) Evolutionary pattern in crops (10)
- b) Seed release (6)
- c) Seed certification (7)