

UNIVERSITY OF KABIANGA
UNIVERSITY EXAMINATIONS
2016/2017 ACADEMIC YEAR
SECOND YEAR FIRST SEMESTER EXAMINATIONS

FOR THE DEGREES OF BACHELOR OF SCIENCE
IN
AGRICULTURE AND HORTICULTURE

SST 242: PRINCIPLES OF SEED PRODUCTION

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES: Answer ANY FOUR Questions. ALL questions carry equal marks.

- Q1. (a) Explain the "Law of Homologous Series in Variation". (2 Marks)
- (b) Differentiate between *Ex-situ* and *In-situ* plant genetic conservations. (5 Marks)
- (c) Mature raw seeds are usually harvested, threshed and partially field-dried; however, they must further be processed by drying to optimum moisture content. What are the reasons for this latter practice? (5 Marks)
- (d) A seed-certification agency must be established under the statutory regulations of a particular country. Discuss the broad principles for the effective functioning of a seed-certification agency. (13 Marks)
- Q2. (a) What are plants whose flowering is promoted by day lengths shorter than a critical maximum known as? (1 Mark)
- (b) The development of major human civilizations had their basis in the culture of three cereal staple grains. Name the three (3) cereals. (3 Marks)
- (c) Describe any seven (7) main centres of origins of crops recognized as proposed by Vavilov and name any two (2) crops originated in each centre. (21 Marks)
- Q3. (a) Explain the formula: $P = G \times E$. (3 Marks)
- (b) Seeds can be separated into two basic types, the non-endospermic and endospermic. Briefly discuss each of the type. (4 Marks)
- (c) Define the following terms:
- (i) Nyctoperiod. (1 Mark)
- (ii) Self-pollination. (1 Mark)

- (iii) Micropropagation. (1½ Marks)
- (iv) Apomixis. (2 Marks)
- (v) Totipotency. (2½ Marks)

(d) Write short notes on the following:

- (i) Seed protection. (3 Marks)
- (ii) Seed disinfection. (3½ Marks)
- (iii) Seed disinfestation. (3½ Marks)

Q4. (a) In the OECD Scheme for vegetable seed, another category of class beyond certified seed 1st generation, known as standard seed has been introduced. Explain this class. (4 Marks)

(b) Discuss the sub-stages of the reproductive stage in angiosperms. (7 Marks)

(c) List the reasons for the use of vegetative propagation in crop production. (14 Marks)

Q5. (a) Feistritzer (1975) stated that there are major roles that seed technology plays in agriculture. Outline these roles. (5 Marks)

(b) Several factors can cause deterioration of the genetic purity or trueness to type of a crop variety during the production cycles. Discuss natural crossing in that context. (20 Marks)
