



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES
UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE
IN HORTICULTURE
SECOND YEAR SECOND SEMESTER 2013/2014 ACADEMIC YEAR
REGULAR

COURSE CODE: AHT 3224

COURSE TITLE: Principles of Plant Breeding

EXAM VENUE:LR 3

STREAM: BSc (Horticulture)

DATE:9/12/14

EXAM SESSION: 2.00 4.00 PM

TIME: 2.00 HOURS

Instructions:

- 1. Answer ALL question in Section A (compulsory) and ANY TWO questions in Section B.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A [30 MARKS]

1. Write short notes on the following;
 - (a) Critical phases in plant breeding. [5 marks]
 - (b) Approaches to plant breeding. [5 marks]
 - (c) Knowledge required to be a successful plant breeder. [5 marks]

2. You have been appointed to be the plant breeder of a research institute. Prepare a comprehensive document highlighting the following:
 - (a) Objective of the breeding programme. [5 marks]
 - (b) How you will generate the required genetic variability. [5 marks]
 - (c) The steps you will follow once the objectives have been defined. [5 marks]

SECTION B [40 MARKS]

Answer any TWO QUESTIONS in this Section.

3. (a) Define agamospermy and discuss three known forms of agamospermy. [10 marks]
(b) Discuss polyploidy and its role in plant improvement. [10 marks]

4. Discuss the role of tissue culture in plant breeding highlighting the major advantages and disadvantages offered by in vitro techniques. [20 marks]

5. (a) Discuss the role of replication, randomization and local control in agricultural experimentation. [10 marks]
(b) The type of design chosen for a variety evaluation will depend on the crop to be tested, the number of varieties and the degree of precision desired. Discuss common experimental designs in variety evaluation experiments. [10 marks]