



JARAMOGI OGINGA ODINGA UNIVERSITY
OF SCIENCE & TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

2013/2014 FIRST SEMESTER EXAMINATIONS FOR THE DEGREE
OF BACHELOR OF SCIENCE IN FOOD SECURITY

COURSE: APT 3214 - PLANT GENETIC RESOURCES

DATE

TIME

Instructions

Answer **ALL** questions from **Section A** and **ANY TWO** questions from **Section B**.

SECTION A [30 MARKS]

1. Briefly explain the following terms, giving examples where necessary: [3 Marks]
 - a) Genetic resources
 - b) Genetic material
 - c) Biological resources

2. Differentiate between: [4 Marks]
 - a) In situ and ex situ conservation
 - b) Biotic and abiotic resources
 - c) Landraces and cultivars
 - d) Inventory and characterization of plant genetic resources

3. Give four (4) reasons why genebanks are considered to be an insurance policy for future agriculture. [4 Marks]

4. Explain why indigenous plant genetic resources are important to the attainment of food security in Africa. [5 Marks]

5. State any three (3) international centers involved in the management of plant genetic resources. [3 Marks]

6. State six (6) most common types of genebanks. [3 Marks]

7. Although the grain harvests have greatly increased over the last 60 years, this increase has been at the cost of substantial environmental damage. State and briefly explain any four forms of such environmental damages. [4 Marks]
8. Define the term conservation of plant genetic resources. [1 Mark]
9. Explain briefly the fundamental problem that conservation of genetic resources seeks to address. [2 Mark]
10. Why is genetic diversity important? [1 Mark]

SECTION B [40 MARKS]

11. To a greater extent than other parts of the world, Africa depends on biological resources, including plant genetic resources for its livelihoods. Discuss the importance of plant genetic resources in the socio-economic development of Africa. [20 Marks]
12. Schematically, present and discuss the global structure for the management of plant genetic resources for food and agriculture. [20 Marks]
13. Inventory, monitoring and characterization are of fundamental importance for sustainable use and development of national plant genetic resources. Discuss. [20 Marks]
14. Genebanks play a major role in the conservation of plant genetic resources. Discuss briefly the following genebank procedures: [20 Marks]
 - a) Collection
 - b) Registration
 - c) Sample processing
 - d) Seed drying
 - e) Seed packaging