JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

SECOND YEAR FIRST SEMESTER UNIVERSITY EXAMINATION

2017/2018 ACADEMIC YEAR

REGULAR

COURSE CODE: APT 3214

COURSE TITLE: PLANT GENETIC RESOURCES

EXAM VENUE:LR 2 **STREAMS**: Bsc. Food Security

DATE: 19/12/17 **EXAM SESSION: 2.00 – 4.00PM**

TIME: 2 HOURS

Instructions:

1. **Answer ALL questions in section A and ANY other 2 Questions in section B.**
2. **Candidates are advised not to write on question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A [30 MARKS]

Answer ALL questions from this Section.

1. Define plant genetic resources (2 marks)

2. What is the significance of Plant Genetic Resources in an ecosystem (4 marks)

3. Two differential approaches are used in the analysis of plant species distribution along environmental gradients

   (i) State the 2 differential approaches (2 marks)
   (ii) Describe the approaches named in 3 (i) above (4 marks)

4. Differentiate between species biodiversity and genetic biodiversity (4 marks)

5. Describe how plant germplasm is characterized using morphological markers (3 marks)

6. (i) State the reasons why neglected and underutilized crops are preferably used in genetic improvement of crops in agriculture (3 marks)

   (ii) Describe how the Kenyan legal framework has enhanced the protection of neglected and underutilized crops (4 marks)

7. Outline the main objectives for characterization of plant genetic resources before utilization by a plant breeder (4 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

8. Describe the significance of biodiversity in an ecosystem (20 marks)

9. (i) State and explain the benefits of germplasm collection in gene bank (10 marks)

   (ii) Describe in-situ and ex-situ methods of conservation of plant genetic resources (10 marks)

10. State and explain the techniques used in molecular characterization of plant germplasm (20 marks)