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 3223

COURSE TITLE: Principles of Genetics

EXAM VENUE:LR 3   **STREAM: BSc (Horticulture)**

DATE:11/12/14   **EXAM SESSION: 9.00 – 11.00 AM**

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. Define the following terminologies

    (a) Allele.   [2marks]
    (b) Trait.   [2marks]
    (c) Homozygous.   [2marks]
    (d) Mutation.   [2marks]
    (e) Test cross.   [2marks]

2. In Mendel's experiment he crossed plants that were different in two seed
   characteristics i.e. seed shape and seed colour:

   (a) Round, Green seeds; and
   (b) Wrinkled yellow seeds. Construct the Punnet square and determine the genetic
   outcome of the F2 progeny.   [10marks]

3. Discuss Epistasis explaining different modes of gene action it involves.   [10marks]

SECTION B   [40 MARKS]

4. Discuss mitosis and the phases it involves.   [20 marks]
5. Discuss Mendel's laws of segregation and independent assortment.   [20 marks]
6. Hardy-Weinberg equilibrium is very important in population genetics.
   State it, the equation involved and its important assumptions.   [20 marks]