JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION 2012/2013

1ST YEAR 1ST SEMESTER EXAMINATION FOR THE DEGREE OF BED.(SCIENCE) AND BSC. (BIOLOGICAL SCIENCES) (REGULAR)

COURSE CODE: SZL 103/SBI 3113

TITLE: INTRODUCTION TO GENETICS AND EVOLUTION

DATE: 30/4/2013 **TIME: 14.00-16.00PM**

DURATION: 2 HOURS

INSTRUCTIONS

1. **Answer ALL questions in Section A**
2. **Answer ANY two Questions from Section B**
3. **Use illustrations where possible**

SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

1. Define the following terms (i) Heredity (ii) Variation (iii) Allele 3marks

2. Explain the term Genetics 3marks

3. With examples differentiate between genotype and phenotype. 3marks

4. Describe Mendel's First Law of Inheritance 3marks

5. Differentiate between Homozygotes and Heterozygotes. 3marks

6. State Mendel's conclusions from his experiments on monohybrid inheritance. 3marks

7. Describe the contribution of Augustin Weissmann to the understanding of heredity. 3marks

8. A man with type A blood marries a woman with type B blood. Their child has type O blood. (i) What are the genotypes of these individuals? (ii) What other genotypes and in what frequencies would you expect in offsprings from this marriage? 3marks

9. Explain the relevance of the concept of Modern Genetics. 3marks

10. State three types of chromosomes based on position of centromere. 3marks

SECTION B (40 MARKS): ANSWER ANY TWO QUESTIONS FROM THIS SECTION-

EACH QUESTION CARRIES 20 MARKS

11. Discuss the following ancient concepts of heredity(i) Preformation
    (ii) Epigenesis
    (iii) Pangenesis
    (iv) Germplasm 20marks

12. Using Mendel's law of segregation, explain the results of F2 generation, starting with true-breeding purple-flowered and true-breeding white-flowered garden pea plants. 20marks

13. Discuss the different types of gene interactions expressed in Mendelian inheritance of characteristics in organisms. 20marks

14. Discuss Charles Darwin's contribution to heredity and evolution. 20marks

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