EASTERN UNIVERSITY, SRI LANKA

SECOND YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE- 2006/2007

(APRIL-2014)

AGB 2102 PRINCIPLES OF GENETICS

EXTERNAL DEGREE (REPEAT)

Answer all questions
This paper should be answered in English **Time: Three hours**

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1. Explain the Mendelian principles with suitable examples.

2. Discuss;
   a. Process of crossing over
   b. Linkage of genes
   c. Interference and coincidence.

3. What do you understand by;
   a. Co-dominance
   b. Incomplete dominance
   c. Phenotype and genotype.

4. a) Define ''Hardy-Weinberg'' equilibrium.
   b) List out the requirements for a population to remain in genetic equilibrium.
   c) Consider a hypothetical case of two alleles 'A' and 'a' in a diploid organism. In a population of 300 individuals, suppose there are148 AA, 124 Aa and 28 aa individuals.
      i) Calculate the frequency of A and a alleles in the population.
      ii) If the population is undergoing random mating, calculate the frequency of AA, Aa and aa individuals in the next generation

5. Discuss the following;

   a. Tetraploidy
   b. Trisomics
   c. Polygenes

6. Write short notes on;

   a. Cell cycle
   b. Prophase I of meiosis
   c. Chromosomal translocation