

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATIONS FOR THE AWARD OF DIPLOMA
IN ANIMAL HEALTH PRODUCTION**

BOTA 0111: GENETICS

STREAMS: DIP. (ANHE)

TIME: 2 HOURS

DAY/DATE: TUESDAY 9/12/2014

2.30 P.M – 4.30 P.M.

Instructions: Answer ALL question in section A and any TWO in section B. Use illustrations where appropriate to enhance your answers.

SECTION A (30 MARKS)

- Q1. (a) A breeder crossed two garden pea plants, both heterozygous for the gene determining height and seed colour. Show the genotypes of the offspring obtained from this cross. [5 marks]
- (b) A farmer had a creeper cock mated with a creeper hen.
- (i) Show the genotypes of the chicken hatched after incubation. [3 marks]
- (ii) Explain why the phenotypic ratio was different from the expected Mendelian ratio from such a cross. [2 marks]
- Q2. In chicken, when a Wyandotte is mated with a Brahma,
- (i) Give the phenotype of the F1 progeny. [1 mark]
- (ii) Predict the expected F2 phenotypes and their ratios [3 marks]
- (iii) Explain briefly the gene interaction involved above. [3 marks]

- Q3. (a) Define the terms
- (i) allele
 - (ii) zygote
 - (iii) gamete
 - (iv) locus
 - (v) genotype
 - (vi) testcross [3 marks]
- (b) Explain briefly why genetic diseases such as haemophilia affect a larger population of males than females. [5 marks]
4. (a) State the most important thing you would ensure about an organism that you intend to use for a genetic cross. [2 marks]
- (b) Explain how alleles of genes are assigned symbols [3 marks]

SECTION B (40 MARKS)

- Q5. Describe the process of the female gamete formation in human beings. [20 marks]
- Q6. Write an essay on the structure of the genetic material in eukaryotes. [20 marks]
- Q7. Giving examples, show that the alleles of a gene are not always such that one is dominant and the other recessive. [20 marks]
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