

CHUKA UNIVERSITY
RESIT/ SPECIAL EXAMINATION FOR THE AWARD OF
DIPLOMA IN ANIMAL HEALTH AND PRODUCTION
ANSC 0124: ANIMAL BREEDING

INSTRUCTIONS

- Attempt **ALL Questions in Section A and TWO Questions in Section B**
- Do not write on the question paper
- Use illustrations where necessary

SECTION A: (30 MARKS)

QUESTION ONE

- a) Define the following terminologies. [5 Marks]
- i) Hardy-Weinberg law
 - ii) genotypes
 - iii) Epistasis
 - iv) Selection
 - v) Law of segregation
- b) Outline the partitioning of phenotypic variance giving their mathematical representation [3Marks]
- c) The term breeding value is a very important measure in determining the genetic superiority of individuals, define the term giving its important [2Marks]

QUESTION TWO

- a) List **FIVE** factors that change gene frequencies in populations [5 Marks]
- b) Differentiate the following concepts as used in animal selection [5 Marks]
- i. Selection intensity
 - ii. Selection differential.

QUESTION THREE

- a) List any **FOUR** consequences of inbreeding [5 Marks]
- b) List any **THREE** qualitative traits and quantitative traits on farm animals [6 Marks]

SECTION B: (40 MARKS)

QUESTION FOUR

The table below presents data on weight gains (gm) for 10 mouse compared with the amount of feed intake (gm) observed after 30 days

Mouse No	1	2	3	4	5	6	7	8	9	10
weight	20	21	20	28	26	20	25	22	31	30
Feed intake	66	75	61	87	71	82	90	54	89	67

Use the above data to calculate

[20 Marks]

- (i) Mean
- (ii) Variance
- (iii) Standard deviation
- (iv) Coefficient of variance

QUESTION FIVE

Consider a population with 200 individuals for which we want to calculate the allele frequencies for a single locus that show incomplete dominance. 90 individuals have genotype AA, 40 individuals have genotype Aa and 70 individuals have genotype aa. Calculate the following

- i) The genotypic frequencies. [10 Marks]
- ii) The allele frequencies. [10Marks]

QUESTION SIX

Using punnet square describe systematic steps used when predicting the relative proportions of genotypes and phenotypes of the offspring using Tt and Tt as parental genotypes, giving phenotypic and genotypic ratios of the offspring. [20Marks]