SPECIAL/ RESIT UNIVERSITY

EXAMINATIONS THE AWARD OF

DIPLOMA IN ANIMAL HEALTH

AND PRODUCTION

ANSC 0241/0141: 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. [4 Marks]

i) Trait

ii) Genotype

iii) Epistasis

iv) Selection

b) The term breading value is a very important measure in determining the genetic superiority of individuals, define the term giving its important

[2Marks]

c) Define Response to selection giving its formula [4Marks]

QUESTION TWO

a) Differentiate the following concepts as used in animal selection [4 Marks]

i. Selection intensity

ii. Heritability

b) Outline the partitioning of genotypic variance giving their mathematical [6 Marks]

QUESTION THREE

a) List any **THREE** qualitative traits and quantitative traits on farm animals [6 Marks]

b) Outline the difference between Additive genetic relationship and Dominance relationship [4

Marks]

SECTION B: (40 MARKS)

QUESTION FOUR

Consider a population with 1000 individuals for which we want to calculate the allele frequencies for a single locus that show incomplete dominance. 700 individuals have genotype AA, 100 individuals have genotype Aa and 200 individuals have genotype aa. Calculate the following

a) The genetic constitution of a population is fully described by the gene and genotype frequencies of that particular population. Differentiate the two terms. [4 Marks]
b) Outline Factors that change gene frequencies in populations [6 Marks]
c) The genotypic frequencies. [5 Marks]
d) The allele frequencies. [5 Marks]

QUESTION FOUR

a) Describe briefly **SIX** values of cross-breeding [12 Marks]
b) Explain consequences of inbreeding [4Marks]
c) Explain **TWO** mating systems in livestock [4Marks]

QUESTION SIX

a) State the Mendel's first law (law of segregation). [2 Marks]
b) What will be the appearance of (a) F1 and (b) F2 progenies when a pure (homozygous) tall pea plant is crossed with a pure (homozygous) dwarf pea plant? Tallness (T) gene is dominant over dwarfness (t) gene [18 Marks]