NATIONAL OPEN UNIVESITY OF NIGERIA

Faculty of Agricultural Sciences

Department of Animal Science and Fisheries

September 2020_1 POP Examination

Course: ANP507: Animal Breeding And Livestock Improvement
Credit Unit: 2
Time Allowed: 2 hours.

INSTRUCTIONS: **Answer question one (Compulsory: 25 Marks) and any other THREE (15 marks each)**

QUESTION ONE

i. How would a research scientist determine associations between Genetic Markers and Quantitative Trait Locus (QTL).
ii. Enumerate five (5) main steps that exist for the association studies.
iii. What differences exist between the terms Linkage and Linkage Disequilibrium?
iv. Can you write a brief outline of factors that affect Linkage Disequilibrium (LD)?

25 marks

QUESTION TWO

i. Define the terms Microsatellites and Allele in relation to genetic markers
ii. Enumerate the five (5) main types of molecular markers
iii. List the family selection systems for Animal breeding? **15 marks**

QUESTION THREE

i. Explain the uses of likelihood ratio and information criterion of Akaike in test statistic
ii. Express in your own words the modes of inheritance tested in segregation analyses
iii. Highlight the two (2) main pedigrees used for segregation analysis
iv. List different methods for estimating segregation ratio **15 marks**

QUESTION FOUR

i. Define the concept of performance testing
ii. What is progeny testing?
iii. Itemize the factors that affect the usefulness of Progeny Testing and their implications
iv. What are the advantages and disadvantages of progeny testing? **15 marks**

QUESTION FIVE

i. Can you explain the molecular techniques for identifying different alleles resulting from DNA polymorphisms?

ii. Illustrate polymerase chain reaction process with the aid of a well-labeled diagram.

15 marks

QUESTION SIX

i. Define Quantitative Trait and Quantitative Trait Locus?

ii. Briefly explain the term Quantitative Trait Locus Mapping

iii. Highlight the goals of quantitative trait locus mapping

iv. What determines probability of success in quantitative trait locus mapping

15 marks