NATIONAL OPEN UNIVESITY OF NIGERIA

Faculty of Agricultural Sciences

Department of Animal Science and Fisheries

2025_2 EXAMINATIONS

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

INSTRUCTIONS: Answer question one (Compulsory: 30 Marks) and any other TWO (20 marks each)

QUESTION 1

i. List two different methods for estimating segregation ratio (θ) 2 mark
ii. During a genetic clinical assessment, state what would a genetic counselor's responsibilities entail? 4 marks
iii. Enumerate seven (7) performance testing procedures you would recommend to young farmers as an Animal Scientist for use in his cattle breeding farm. 7 marks
iv. Enumerate eight (8) differences sampling scheme and random sampling of population 8 marks
v. Briefly explain the selection methods used by breeders to make long-term genetic changes in animals. 9 marks

QUESTION 2

i. Explain briefly linkage analysis, polymerase chain reaction and DNA sequencing techniques are used in the process of genetic testing? 10 marks
ii. Highlight the stepwise procedure of progeny testing for dairy cow bulls. 10 marks

QUESTION 3

i. Differentiate between the characteristics and utility of the following testing and screening
   a) Prenatal testing 5 marks
   b) Neonatal screening 3 marks
   c) Carrier screening 4 marks
   d) Diagnostic testing 4 marks
   e) Preimplantation testing 4 marks

QUESTION 4

i. Briefly state the goal quantitative trait locus mapping 2marks
ii. Explain the concept of Southern blot as used in molecular biology. 8 marks
iii. Can you explain Polymerase Chain Reaction (PCR) and Gel electrophoresis molecular techniques for identifying different alleles resulting from DNA polymorphisms?10 marks