



NATIONAL OPEN UNIVERSITY 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