BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

AGA221

Department of Animal Science

BSc Animal Science and Technology Part II Examination

BSc Animal Health and Production Extension Part II Examination

Animal Breeding (b)

3HOURS (100 Marks)

JUN 2023

INSTRUCTIONS: Answer any **FOUR** questions. Each question carries **25 marks**

1. Write short and concise notes on the following:
   a) Variable expressivity and penetrance   **[5 marks]**
   b) Forms of dominance   **[10 marks]**
   c) Pleiotropy   **[5 marks]**
   d) Epistasis   **[5 marks]**

2. a) Analyse the factors that are considered in choosing a crossbreeding system to use.
      [15 marks]

   b) Discuss the possible reasons why animal genetic improvement has not been successful in Zimbabwe.   **[10 marks]**

3. Discuss the advantages and disadvantages of the following methods of selection / selection criteria:
   a) Best Linear Unbiased Prediction   **[8 marks]**
   b) Tandem selection   **[5 marks]**
   c) Independent Culling Levels   **[5 marks]**
   d) Selection Index   **[7 marks]**

4. Describe the performance recording scheme of any animal species of your choice.
   [25 marks]

5. Describe how marker assisted selection is conducted and give reasons why it has not resulted in genetic progress as was initially expected.   **[25 marks]**

6. Explain how response to selection can be optimised.   **[25 marks]**

END OF PAPER