

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

Department of Animal Science .

BSc. Hons. Animal Health and Production Extension

AGA201/AGA309/AGA428

Animal Biotechnology Examination

3 HOURS (100 Marks)

INSTRUCTIONS

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

JUN 2024

1. Discuss six disadvantages and six advantages of recombinant technology. [25 marks]
2. a) Define the following terms:
 - i) Xenotransplantation [2 marks]
 - ii) Clone [2 marks]
 - iii) Transgenic animal [2 marks]
 - iv) Recombinant DNA [2 marks]

b) Discuss the application of biotechnology in the following fields, giving **TWO** examples in each case:

 - i) Agriculture [4 marks]
 - ii) Medicine [4 marks]
 - iii) Pharmacology [4 marks]

c) Write notes on the following types of vectors

 - i) Plasmid [2 marks]
 - ii) Bacteriophage [3 marks]
3. Describe the following processes:
 - a) DNA Finger printing [16 marks]
 - b) Northern blot technique. [9 marks]
4. Describe the steps involved in the polymerase chain reaction (PCR) in amplification of selected DNA fragments. [25 marks]

5. a) Write notes on the preparation and mode of action of the following:
- i) Live whole virus vaccines. [6 marks]
 - ii) Killed whole virus vaccines. [6 marks]
- b) State and explain four areas where use of genetic markers is important in animal agriculture [13 marks]
6. a) Discuss the main steps involved in molecular cloning using recombinant technology. [25 marks]

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