



UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN ANIMAL SCIENCE

SECOND SEMESTER 2024/2025

[JANUARY – APRIL, 2025]

ANSC 342: BIOTECHNOLOGY IN ANIMAL BREEDING

STREAM: Y3 S2

TIME: 2 HOURS

DAY: MONDAY, 12:00 - 2:00 P.M.

DATE: 14/04/2025

INSTRUCTIONS:

- 1. Do not write anything on this question paper.***
- 2. Answer ALL questions in section A and any TWO in section B.***

SECTION A: (30 MARKS)

1. Explain the following terms as used in animal breeding and genetics. (4 marks)
 - a) biotechnology
 - b) population genetics
2. What is the main objective of animal breeding? (2 marks)
3. Outline the causes of variation in a population (4 marks)
4. Explain the following terms (2marks each) (6 marks)
 - a. Dominance
 - b. Over dominance
 - c. Pleiotropy
5. What do you understand by the following concepts: (4 marks)
 - a. Replication
 - b. Translation
6.
 - a. Describe four criteria for selecting useful DNA fingerprinting markers. (6 marks)
 - b. State the components of a DNA fingerprinting system (4 marks)

SECTION B. (40 MARKS)

7. Explain how the following technologies are applied in animal breeding and genetics
 - i) Markers assisted selection (6 marks)
 - ii) Embryo transfer (8 marks)

- iii) Sex control (6 marks)
8. a. Chromosomes constitute key component in the life organisms, discuss. (10 marks)
- b. How does mitosis differ from meiosis? (10 marks)
9. a. During protein synthesis, transcription forms one of the critical segments of the process. Discuss the stages of transcription (10marks)
- b. Modern technology sometimes comes with un-anticipated challenges/problems, one such biotechnology is transgenesis. Discuss. (10 marks)