



Department of Genetic Engineering and Biotechnology
Faculty of Health and Life Sciences
B. Sc. (Hons.) in Genetic Engineering and Biotechnology
Midterm Examination Summer 2026

Course Code: 0512-2105

Level and Term: L-2, T-1

Time: 1 Hour 30 Minutes

Section: 252 (A+B)

Course Title: Animal Breeding

Course Teacher's Initials: KMH, SBN

Total Marks: 25

Answer the following questions:

- | | | | Marks |
|---|-----|--|-------|
| 1 | (a) | Explain the major applications of animal breeding and genetics in livestock improvement. [CLO2, PLO1, C2] | 2.5 |
| | (b) | What is domestication and why it matters? Discuss the core functions of breed associations, highlighting their role in genetic improvement. [CLO1, PLO2, C1] | 2.5 |
| 2 | (a) | What is breed? Classify breeding methods of farm animals and briefly discuss them. [CLO2, PLO1, C2] | 3.0 |
| | (b) | Explain the terms gene editing (CRISPR-Cas9), machine learning & precision livestock farming and state their key applications. [CLO1, PLO1, C2] | 2.0 |
| 3 | (a) | Discuss the breed structure and its practical implications in farm animals. [CLO2, PLO1, C6] | 2.5 |
| | (b) | State the mating strategies used in farm animals and explain the methods for controlling inbreeding. [CLO2, PLO2, C5] | 2.5 |
| | (a) | What is sex determination? Elucidate the chromosomal mechanisms of sex determination in farm animals. [CLO3, PLO1, C2] | 2.0 |
| | (b) | Briefly discuss the concepts of free martin, intersexes and super-sexes in farm animals. [CLO3, PLO1, C6] | 3.0 |
| | (a) | Why are sex-linked traits important in animal genetics? Describe the sex-linked traits observed in farm animals. [CLO3, PLO1, C1] | 2.5 |
| | (b) | Discuss sex-influenced traits and sex-limited traits in farm animals. [CLO3, PLO1, C6] | 2.5 |