



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

Course Code: 0512-2105

Course Title: Animal Breeding

Level and Term: L-2, T-1
Time: 02 Hours

Section: 251 (A+B)

Course Teacher Initials: KMH & SBN
Total Marks: 40

Marks

1. (a) List the different methods of selection in farm animals. [CLO4, PLO2, C1] 4.0
Briefly discuss Mass Selection and Pedigree Selection.
- (b) Define Embryo Transfer (ET) and describe its advantages. [CLO6, PLO2, C1] 4.0
Illustrate the ET process in dairy cattle with a properly labelled diagram.
2. (a) Explain the concept of *in vitro* fertilization (IVF) and [CLO2, PLO2, C5] 5.0
outline its major steps. Illustrate the overall IVF process in mammals with a properly labelled diagram.
- (b) Define Artificial Insemination (AI) and critically discuss its [CLO2, PLO1, C1] 3.0
significance in modern animal breeding systems.
3. (a) List the methods and principles of semen collection in bulls [CLO2, PLO2, C4] 4.0
using an Artificial Vagina (AV), and describe the step-by-step procedure for semen collection with an appropriate labelled diagram.
- (b) Provide an overview of bull semen processing, including [CLO3, PLO2, C6] 4.0
semen evaluation, dilution, and preservation.
4. (a) What is cloning, and what are its types? Diagrammatically [CLO1, PLO2, C1] 4.0
illustrate the steps involved in the cloning of a lamb (Dolly).
- (b) Enlist the methods of pregnancy diagnosis. [CLO1, PLO2, C4] 4.0
Diagrammatically present the per-rectal palpation method used for pregnancy diagnosis in cattle.
5. (a) Illustrate the multifactorial nature of fertility in farm [CLO3, PLO1, C2] 3.0
animals.
- (b) Write short notes on (i). Nutrition and reproduction [CLO1, PLO2, C3] 5.0
(ii). Tandem selection