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Daffodil International University

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

**Course Code:** 0512-1205
**Level and Term:** L1, T2
**Time:** 2 Hours

**Course Title:** Animal Reproduction and Embryology
**Section: 261-A**
**Course Teacher Initials:** AR
**Total Marks:** 40

**Answer the Following Questions:**

| | | | | Marks |
|---|---|---|---|---|
| 1 | (a) | What are the indicators of puberty in male and female farm animals? Explain how factors such as age, nutrition, breed, and environment can affect the onset of puberty. | [CLO1, PLO1, C2] | 4.0 |
| | (b) | Explain the phases of the estrous cycle. Analyze why accurate estrus detection is important in an artificial breeding program. | [CLO1, PLO1, C4] | 4.0 |
| 2 | (a) | What is the breeding season? Discuss how hormones such as testosterone, estrogen, and progesterone influence sexual behavior in farm animals. | [CLO3, PLO2, C6] | 4.0 |
| | (b) | Identify the structure of sperm with a suitable figure. Analyze the major differences between estrous and menstrual cycles. | [CLO1, PLO1, C3] | 4.0 |
| 3 | (a) | What is fertilization? Elaborate on the major events that occur when a sperm fuses with an ovum to form a zygote. | [CLO3, PLO1, C6] | 4.0 |
| | (b) | Analyze how polyspermy is prevented in animals and explain why this mechanism is essential for normal embryonic development. | [CLO3, PLO2, C4] | 4.0 |
| 4 | (a) | What is reproductive disease? Describe the causes, signs, transmission, and prevention of Leptospirosis and Brucellosis in farm animals. | [CLO3, PLO1, C1] | 4.0 |
| | (b) | What is reproductive failure? Evaluate the recommended practices that can be adopted to improve fertility in the herd. | [CLO3, PLO2, C5] | 4.0 |
| 5 | (a) | What is reproductive efficiency? Explain how reproductive efficiency can be measured using important reproductive parameters in farm animals. | [CLO2, PLO2, C2] | 4.0 |
| | (b) | Analyze the factors responsible for efficient reproduction and evaluate the economic importance of reproductive efficiency. | [CLO2, PLO2, C5] | 4.0 |