

## B.Sc. Sem.-6 (Rep) Examination

CC-308

Biotechnology

October-2025

Time : 2-30 Hours]

[Max. Marks : 70

Question 1: Explain in detail the techniques for collection of semen and the various parameters used to evaluate quality of semen. (14 Marks)

OR

Question 1(A): Explain pronuclear injection for production of transgenic animals. (7 Marks)

Question 1(B): Describe the importance of gene knockout in biotechnology and its process. (7 Marks)

Question 2: Elaborate the process and applications of Agrobacterium mediated gene transfer. (14 Marks)

OR

Question 2(A): Describe any two physical methods of gene transfer in plants. (7 Marks)

Question 2(B): Write a detailed note on Golden rice. (7 Marks)

Question 3: What is somatic embryogenesis and somaclonal variation? Describe its importance and applications. (14 Marks)

OR

Question 3(A): Explain the layout of a biotechnology laboratory used for PTC. (7 Marks)

Question 3(B): Describe the hormones used in plant tissue culture and their effects. (7 Marks)

Question 4: Write a detailed note on BT-cotton, describing the mode of action of the endotoxin. (14 Marks)

OR

Question 4(A): Describe the various types of biofertilizers and its advantages. (7 Marks)

Question 4(B): Explain the concept of probiotics and its importance. (7 Marks)

Question 5: Attempt any seven questions (2 Mark each) (14 Marks)

1. Which organism is used for apiculture?
2. Name one sanctuary for tigers in India.
3. Write full form of IVF.
4. Name a gene introduced into fish by transgenesis.
5. What is the importance of the Dicer gene?
6. Which protein is made by the CryI<sub>Ac</sub> gene?
7. In which plant was the first transgene introduced?
8. What is totipotency?
9. Name one chemical used for surface sterilization.
10. Define callus
11. Which enzyme is used for making plant protoplasts?
12. What is a prebiotic?
13. What is biological control?
14. Define seed bank.