**Avinashilingam Institute for Home Science and Higher Education for Women**
Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

**Continuous Internal Assessment Test I – February 2026**
**VI Semester**

**Class : III UG** **Time: 2 hours**
**Major : Biochemistry and Biotechnology** **Maximum Marks: 60**

**23BBTC06 Plant and Animal Biotechnology**

**Course Outcomes:**
At the end of the course, students will:
CO1: Understand the basic concepts of plant physiology and the role of secondary metabolites and plant hormones.
CO2: Attain technical skills about different methods of tissue culture used in plants.
CO3: Gain skills about gene engineering used in animals.
CO4: Acquire knowledge about the applications of plant and animal biotechnology and the ethical issues involved.
CO5: Devise new methods of transformation in plants and animals to generate useful products.

**Part - A** **6 x 1 = 6**
**Choose the Correct Answer**

1. Which of the following best defines photosynthesis? CO1 K2
a. The breakdown of glucose to release energy
b. The process by which plants absorb minerals from soil
c. The process by which green plants use sunlight to synthesize food from carbon dioxide and water
d. The movement of water through xylem vessels
2.Abiotic stress and biotic stress are caused by CO1K2
a. Plants and animals b. Living and non-living factors c. Water and air d. Roots and shoots
3. What is totipotency? CO2K1
a. Ability of a cell to perform only one function b. Ability of a cell to divide continuously
c. Ability of a single cell to develop into a complete plant d. Ability of a cell to carry genetic information
4.Why is meristem culture used to get virus-free plants? CO2K3
a. No vessels b. More nutrients c. Big cells d. Field growth
5.Which method is commonly used for the commercial production of secondary metabolites? CO4K2
a. Seed germination b. Cell suspension culture c. Field cultivation only d. Vegetative propagation
6. Delayed fruit ripening in plants is mainly achieved by CO4K3
a. Increasing respiration rate b. Suppressing ethylene production
c. Increasing water content d. Enhancing photosynthesis

**Part - B** **3 x 6 = 18**
**Answer ALL Questions**
**Each answer should not exceed 400 words or two pages**

7. a. Describe the mechanisms involved in the loading and unloading of photoassimilates in plants CO1K2
(or)
7. b. Draw and describe the mechanisms of the light and dark reactions in photosynthesis. CO1K2

8. a. Compare and contrast embryogenesis and organogenesis in plants . CO2K1
(or)
8. b. Elaborate protoplast culture detailing the methods involved, their applications in plant biotechnology, and the associated limitations. CO2K2

9. a. Define artificial seeds. Explain their production process, components, and significance in plant propagation. CO4K1
(or)
9. b. Summarize the *ex situ* conservation of germplasm. CO4K1

**Part - C** **3 x 12 = 36**
**Answer ALL questions**
**Each answer should not exceed 800 words or four pages**

10. a. Explain the role of secondary metabolites in plants and how they help plants respond to biotic and abiotic stresses. Give suitable examples CO1K2
(or)
10. b. Discuss biosynthesis, storage, breakdown and transport of plant growth regulators, highlighting their roles in regulating plant growth and development CO1K2
11. a. Outline the components of plant tissue culture media, including macronutrients, micronutrients, and growth regulators, and their roles in supporting plant growth CO2K2
(or)
11. b. Describe the strategies used for precise gene targeting in plants CO2K3
12. a. Illustrate the Antisense RNA technology for delayed fruit ripening CO4K3
(or)
12. b. Elaborate on the Commercial production of plants secondary metabolites CO4K2

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