

Chapter – 10 | Biotechnology and Its Applications

QUIZ
PART-01

1. Tissue culture involves growing a part of a plant under:
- A. Natural soil conditions
 - B. Specific nutrient and sterile conditions
 - C. High temperature conditions
 - D. Dry environmental conditions (B)

Explanation : Tissue culture is the growth of a plant part in a test tube under specific nutrient and sterile conditions.

2. The ability of a single cell or tissue to regenerate into a complete plant is called:
- A. Hybridisation
 - B. Totipotency
 - C. Mutation
 - D. Transformation (B)

Explanation : Totipotency is the ability of a single plant cell or tissue to develop into a complete plant.

3. The part of the plant used for tissue culture is known as:
- A. Vector
 - B. Explant
 - C. Clone
 - D. Somaclone (B)

Explanation : An explant is the part of a plant from which a complete plant can be grown under sterile conditions.

4. The nutrient medium used in tissue culture contains:
- A. Only water and minerals
 - B. Carbon source, inorganic salts, vitamins, amino acids and growth regulators
 - C. Only proteins
 - D. Only hormones (B)

Explanation : The nutrient medium contains sucrose as a carbon source, inorganic salts, vitamins, amino acids and growth regulators like auxins and cytokinins.

5. Which of the following are growth regulators used in tissue culture?
- A. Auxins and cytokinins
 - B. Insulin and glucagon
 - C. Testosterone and estrogen
 - D. Thyroxine and adrenaline (A)

Explanation : Auxins and cytokinins are plant growth regulators that help in tissue culture development.

6. Micropropagation is a method of:
- A. Producing thousands of plants in a short period
 - B. Destroying plant viruses
 - C. Producing seeds only
 - D. Increasing soil fertility (A)

Explanation : Micropropagation produces thousands of plants rapidly through tissue culture.

7. Plants produced through tissue culture that are genetically identical to the parent plant are called:
- A. Hybrids
 - B. Somaclones
 - C. Mutants
 - D. Transgenic plants (B)

Explanation : Somaclones are genetically identical plants produced through tissue culture methods.

8. Disease-free plants can be produced by isolating:
- A. Root cells
 - B. Leaf cells
 - C. Meristematic tissues
 - D. Mature fruits (C)

Explanation : Meristematic tissues are usually unaffected by viruses, so they are isolated and cultured to produce virus-free plants.

9. Commercial production of disease-free plants using meristem culture has been successful in:
- A. Banana, sugarcane and potato
 - B. Wheat, rice and maize only
 - C. Mango and coconut only
 - D. Cotton and jute only (A)

Explanation : Meristem culture has been successfully used for producing disease-free banana, sugarcane and potato plants.

10. Large-scale production of food plants like tomatoes, bananas and apples is possible through:
- A. Mutation breeding
 - B. Micropropagation
 - C. Traditional breeding only
 - D. Natural selection (B)

Explanation : Micropropagation allows large-scale production of food plants through tissue culture.