

**Yashwantrao Chavan College of Science, Karad**  
**B.Sc. – III**  
**Plant Biotechnology Paper XIII**  
**Question Bank**

**Q 1) Answer the following questions choosing the correct alternatives given below them**

**1) Synthetic seeds are produced by the encapsulation of somatic embryos with\_\_\_\_\_.**

- (a) Sodium acetate
- (b) Sodium nitrate
- (c) Sodium chloride
- (d) Sodium alginate

**2) Which of the following is the main application of embryo culture?**

- (a) Clonal propagation
- (b) Production of embryoids
- (c) Induction of somaclonal variations
- (d) Overcoming hybridisation barriers

**3) Haploid plants can be obtained from\_\_\_\_\_.**

- (a) Anther culture
- (b) Bud culture
- (c) Leaf culture
- (d) Root culture

**4) In-plant tissue culture, the callus tissues are generated into a complete plantlet by altering the concentration\_\_\_\_\_.**

- (a) Sugars
- (b) Hormones
- (c) Amino Acids
- (d) Vitamins and minerals

**5) Which of the following vectors is used in crop improvement and crop management?**

- (a) Agrobacterium
- (b) Plasmid
- (c) Cosmid
- (d) Phasmid

**6) Which of the following chemicals are most widely used for protoplast fusion?**

- (a) Mannitol
- (b) Polyethylene glycol
- (c) Sorbitol
- (d) Mannol

**7) Which of the following plant cells shows totipotency?**

- (a) Cork cells
- (b) Meristem
- (c) Sieve tube
- (d) Xylem vessels

**8) Plant tissue culture is technique of?**

- a) in vivo growing cells
- b) in vitro maintaining and growing cells
- c) growing plants in a greenhouse
- d) cutting plants

**9) Tissue culture technique was first practised by \_\_\_\_?**

- a) White
- b) Haberlandt
- c) Halperin
- d) Skoog

**10) What is an explant?**

- a) It's a part of plant under soil
- b) It's a part of plant or plant grown in a test tube
- c) Leaves grew under test tube
- d) NOTA

**11) Essential requirement for explant regeneration in an artificial medium is:**

- a) It must have a sulphur source
- b) It must have very low carbon concentration
- c) It should provide a carbon source
- d) It should provide a nitrogen donor

**12) What are somaclones?**

- a) Plants which are chemically identical to the source plant
- b) Plants which are morphologically similar to the original plant
- c) Plants which are anatomically identical to the original plant
- d) Plants which are genetically identical to the source plant

**13) Which of the following plant parts is free from the attack of the virus?**

- a) Stem
- b) Root
- c) Meristem
- d) Leaves

**14) What is protoplast?**

- a) Cell wall + Plasma membrane
- b) Plant cell – cell wall
- c) Cytoplasm + cell wall
- d) Plasma membrane – cytoplasm

**15) Which of the following helps in increasing the width and the girth of the plants?**

- a) Apical meristem
- b) Intercalary
- c) Lateral meristem
- d) Permanent tissue

**16) In plant tissue culture, what is the term ORGANOGENESIS mean ?**

- a) formation of callus culture
- b) formation of root and shoot from callus culture
- c) genesis of plants
- d) none of the above is architectural domain structural protein database

**17) who is the father of plant tissue culture \_\_\_\_\_**

- a) Alexander Fleming
- b) Gottlieb Haberlandt
- c) Kary Mullis
- d) Leeuwenhoek

**18) Laminar airflow is used for the following reasons except:**

- a) Preparing media
- b) Transferring explants
- c) Aseptic transfer
- d) For culture growth

**19) Selection of culture media depends on \_\_\_\_\_**

- a) Type of plant species used
- b) Time for preparation of culture media
- c) Cost for preparation
- d) Maintenance of culture media

**20) \_\_\_\_\_ is the type of Cell culture**

- a) Organ culture
- b) Protoplast culture
- c) Callus culture
- d) Explant culture

**Q 2) Long Answer**

- 1) Define tissue culture and describe tissue culture media
- 2) Describe principle and protocol of somatic embryogenesis
- 3) Write in detail protoplast culture
- 4) Describe micro propagation stages
- 5) Write note on embryo culture

**Q 3) Short notes**

- 1) Write Application of callus culture
- 2) Write note on methods of artificial seeds
- 3) Write advantages of pollen culture
- 4) Write note on protoplast fusion techniques
- 5) Write different types of suspension culture
- 6) Write principle and protocol Organogenesis
- 7) Write a note of hybrid production
- 8) Importance of Protoplast culture
- 9) Write methods of Protoplast culture
- 10) Application of Callus cultures