

**DR PANJABRAO DESHMUKH KRUSHI VIDYAPEETH, AKOLA**  
**SEMESTER END EXAMINATION**  
**B. Sc. (Hons) Horticulture**

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<b>Semester</b>	: III (NEW)	<b>Term</b>	: II	<b>Academic Year</b>	: 2021-22
<b>Course No</b>	: H/BIOT 231	<b>Title</b>	: Elementary Plant Biotechnology		
<b>Credits</b>	: (1+1)				
<b>Day &amp; Date</b>	: Monday, 25/04/2022	<b>Time</b>	: 12.00 to 1.00	<b>Total Marks</b>	: 40

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Note: 1. Solve ANY FOUR questions from section "A".  
2. Solve ANY SIX questions from section "B".  
3. All questions from Section "C" are compulsory.

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**SECTION "A"**

(Write the answers in 4-5 sentences only. Each question carries 4 marks)

- Q.1** Enlist different methods of gene transfer.  
**Q.2** Enlist different types of molecular markers  
**Q.3** Give advantages of Pollen culture over Anther Culture  
**Q.4** Why meristem is free from virus?  
**Q.5** Discuss in brief various stages of micropropagation

**SECTION "B"**

(Write the answers in one sentence only. Each question carries 2 marks)

**Q.11 Answer in one sentence/Do as directed**

- a) Name any two methods used to eliminate viruses from plants
- b) Define transgene
- c) Give Scientific contribution of Laibach
- d) Give Scientific Contribution of Skoog & Miller
- e) Give Scientific contribution of Maheshwari and Guha
- f) Define Somatic hybridization
- g) What is rhizogenesis?
- h) What is cryopreservation?

**SECTION C**

**Q.12 Choose correct option. Each question carry 1 mark**

**1 Protoplast fusion can be achieved by which of the following agents?**

- a) Polyethylene glycol.
- b) Glycerol.
- c) Ethylene.
- d) Nitrogen.

**2 Preservation of germplasm in the frozen state is termed as \_\_\_\_\_.**

- a) cryoprotectant.
- b) cryopreservation.
- c) preservation.
- d) storage.

3. \_\_\_\_\_ is a plant cell without cell wall.
- a) tropoplast.
  - b) protoplast.
  - c) chloroplast.
  - d) chromoplast.
4. Virus free plants can be obtained through
- a) Antibiotic treatment
  - b) Root tip culture
  - c) Bordeaux mixture
  - d) Shoot tip culture
5. Who isolated protoplast enzymatically?
- a) Klercker.
  - b) Kuster.
  - c) Cocking.
  - d) Power.
6. A transgenic organism has \_\_\_\_\_.
- a) genes that other organisms do not.
  - b) genes from different species
  - c) a dominant phenotype
  - d) had its genome sequenced.
7. Caulogenesis is the formation of
- a) Roots
  - b) Leaves
  - c) Shoots
  - d) Flowers
8. ....were responsible to recognize the regulatory mechanism as a balance between auxin and cytokinin.
- a) Maheshwari and Guha
  - b) Skoog and Miller
  - c) Mxam and Gilbert
  - d) None of these
9. Small excised portion of the \_\_\_\_\_ is used to produce mass of cells.
- a) callus
  - b) Explant
  - c) single cell
  - d) fragments
10. \_\_\_\_\_ is required for root formation.
- a) Gibberrellin
  - b) Auxin.
  - c) Cytokinin.
  - d) Ethylene.
11. 2, 4-D is used for \_\_\_\_\_ culture.
- a) callus.
  - b) organ.
  - c) anther.
  - d) pollen
12. \_\_\_\_\_ culture is the *in vitro* culture of a generally shiny special dome-like structure.
- a) meristem
  - b) pollen
  - c) embryo
  - d) suspension

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