

Roll No.

Total No. of Pages : 02

Total No. of Questions : 08

**B.Sc. (Agriculture)/Honours (Agriculture) (Sem.-5)**

**PLANT TISSUES CULTURE AND GENETIC TRANSFORMATION**

**Subject Code : BSAG-502**

**M.Code : 74166**

**Date of Examination : 27-7-21**

**Time : 2 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

**1. Attempt any FIVE question(s), each question carries 12 marks.**

1. What is genetic engineering? List various methods of gene transfer in plants. Explain direct gene transfer method of gene transformation in plants.
2. What is protoplast culture? Elaborate the factors affecting yield and variability of protoplasts in culture. Cite some successful examples of protoplast culture.
3. What is somaclonal variation? Explain the factors governing the origin of somaclonal variation. What are the various mechanisms underlying somaclonal variation? List the applications of somaclones.
4. What are haploids? How these can be produced through distant hybridization? Discuss in detail by citing the commercially successful examples from different crops.
5.
  - a) What is Androgenesis? How the stage of pollen development affects the Androgenesis?
  - b) What is somatic embryogenesis? What are the various factors affecting the somatic embryogenesis?
6.
  - a) What are transgenic plants? What is the role of transgenic plants in disease and insect resistance breeding?
  - b) What is meristem culture? How and why we can produce disease free plants using this method of tissue culture?
7. **Differentiate between :**
  - a) Protoplast culture vs. Embryo culture
  - b) Somatic hybrid vs. cybrid
  - c) Electrophoresis vs. Microinjection
  - d) Selectable markers vs. Scorable markers

**8. Write short note on :**

- a) Cryo-protectants
- b) Selectable markers
- c) PEG and its functions
- d) Shoot bud differentiation

**Note: Any student found attempting answer sheet from any other person(s), using incriminating material or involved in any wrong activity reported by evaluator shall be treated under UMC provisions.**

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**Any student found making any change/addition/modification in contents of scanned copy of answer sheet and original answer sheet, shall be covered under UMC provisions.**