

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 154652

Roll No.

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B.Tech.

(SEM. VI) THEORY EXAMINATION 2013-14

PLANT BIOTECHNOLOGY

Time : 3 Hours

Total Marks : 100

Note :- Attempt all questions.

1. Attempt any four parts of the following : (5×4=20)
 - (a) Describe the term dedifferentiation. How is it important ?
 - (b) Describe the various characteristics of callus. How do we define the types of calli ?
 - (c) Define various chemical agents used for sterilization of explants in plant tissue culture laboratory.
 - (d) Write down the important role of GA3 in invitro culture.
 - (e) Describe various methods to check viability of cells in culture condition.
 - (f) Briefly describe the types of culture media which are being used in plant tissue culture.
2. Attempt any four parts of the following : (5×4=20)
 - (a) Why do we need production of haploid ? Name various methods of haploid production.
 - (b) Describe various factors influencing embryo culture.
 - (c) What are the possible outcomes of protoplast fusion ? Explain with the help diagram.

- (d) Endogenous level of hormones is most important factor in micropropagation. Explain.
 - (e) Describe one tissue culture technique used for the production of virus free plants.
 - (f) Describe mechanical methods of protoplast isolation from plant cells.
3. Attempt any two parts of the following : (10×2=20)
- (a) Differentiate between induced and spontaneous mutation with reference to somaclonal variation. What is its significance ?
 - (b) Describe the role of hairy roots in production of secondary metabolites.
 - (c) Narrate the application of tissue culture for crop improvement with the help of suitable examples.
4. Attempt any two parts of the following : (10×2=20)
- (a) What are transgenic plants ? Name atleast 5 transgenic plants and explain any one with the help of suitable diagram.
 - (b) Differentiate between Octopine type plasmid and Nopaline type plasmid with the help of diagram.
 - (c) Why do we prefer *Agrobacterium tumefaciens* as most preferred gene transfer vector than other mechanical transformation methods ? Describe the method with the help of suitable diagram.
5. Attempt any two parts of the following : (10×2=20)
- (a) What are edible vaccines ? Define the concept with the help of suitable examples.
 - (b) Describe Bt-Cotton technology with the help of suitable examples and diagram.
 - (c) What is cell suspension culture ? How does it help in understanding the method of cell differentiation ?