

P-242
B. Sc. (Biotechnology) Part-III Examination, 2016
Paper : X
PLANT BIOTECHNOLOGY

[Maximum Marks : 75]

Time : Three Hours]

Note : Attempt *all* questions from *Section – A*, *seven* questions from *Section – B* and *two* questions from *Section – C*.

SECTION – A

1. The term totipotency means :
 - (a) Differentiation of cells
 - (b) Regeneration of cells
 - (c) Potential to develop the whole plant from a single cell
 - (b) Cytodifferentiation potential
2. Ri plasmid is :
 - (a) Rho factor
 - (b) Retro vector
 - (c) Rhizogenic
 - (d) Tumorigenic
3. Name the first genetically modified food, approved by the US Food and Drug Administration which was not an economic success and is no longer available.
4. Cytoplasmic hybrids are known as
5. Write down the names of *two* main methods of recombination in plants.
6. Name *two* fusigenic agents.
7. Somatic embryogenesis was first reported by :
 - (a) Guha and Maheshwari
 - (b) Nawaschin
 - (c) Nageli
 - (d) Steward
8. Name the potentially hazardous sterilant used in plant tissue culture.
9. Write the name of promoter used in barnase barstar plant genetic system.

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10. Pharming in biotech refers to :
- Recombination
 - Callus culture
 - Production of phytopharmaceuticals after recombination
 - Production of agricultural transgenics in vitro

SECTION – B

- Describe embryo culture technique.
- Discuss methods of avoiding contamination during tissue culture.
- Write down the process of in vitro pollination and fertilization.
- Discuss, why do callus cultures become brown and necrotic if they are left too long on the same medium.
- What do you understand by suspension culture ?
- What are somaclonal variations ?
- Write down the process of embryo rescue technique.
- Discuss the status of tissue culture technology in India.
- What do you understand by haploid production ?
- How will you test the viability of isolated protoplasts ?

SECTION – C

- Describe the tissue culture techniques to overcome the pre-fertilization and post-fertilization barriers during wide hybridization.
- Describe the various methods of protoplast fusion.
- Describe the various methods of gene transfer in plants.
- Describe the role of transgenic plants play in human life and future crop improvement programmes.