

T-J.BSC
Sem VI

Subject: Biotechnology-Part VI
Plant Biotechnology and Biotech-IV.
Environmental Biotech.

Q.P. Code : 77197

(2 ½ Hours)

[Total Marks : 75]

- N.B. : (1) Attempt all Questions
(2) All questions carry equal marks.
(3) Draw neat labelled diagrams wherever necessary

1. (a) Give an example of any three: 3
- Solidifying agent in PTC medium
 - Abiotic elicitor
 - Instrument used for glassware sterilization
 - Primary metabolite in plants
 - Scientist who contributed in the field of PTC
 - Explant used to obtain virus free plant
- (b) Answer any two of the following: 12
- Describe the sterilization of explants to initiate culturing.
 - Give a brief account of callus culture.
 - Enlist the advantages and disadvantages of micropropagation.
 - What is synthetic seed? Describe any two methods to produce them.
2. (a) State the importance/ significance of (any three) 3
- COD
 - Total suspended solids
 - Phytoextraction
 - Biogas
 - Nonrenewable energy sources
 - Bioaugmentation
- (b) Answer the following (any two): 12
- Elaborate on the characteristics of Dairy industry waste and treatment strategies.
 - What are renewable energy sources? Explain any two in detail.
 - Discuss biofuels with respect to its production, advantage and limitations.
 - Describe the process of phytoextraction and state its limitations.

3.(a) Do as directed (any three):

- i. State an example of an ideal candidate for biofertilizer production.
- ii. Name the bacterium used for production of bioinsecticide.
- iii. Give an example of a carrier media in biofertilizer.
- iv. State one quality of a good carrier medium for *Rhizobium* species.
- v. Name a method for production of biological insecticides.
- vi. Name the medium use for cultivation of *Rhizobium*.

12

(b) Answer the following (any two):

- i. Schematically represent production of biofertilizer.
- ii. Discuss the advantage and limitations of bioinsecticides.
- iii. Explain in detail any two methods for bioinsecticide production.
- iv. Elaborate on the tests available for assessing the performance of an organism used to manufacture biofertilizer.

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4.(a) Explain the term (any one):

- i. Patent
- ii. Trade Secret

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(b) Give the full form of (any one):

- i. USPTO
- ii. IPR

12

(c) Discuss in detail (any two):

- i. Gene Patents and genetic resources patents
- ii. Patenting of Life forms
- iii. Two forms of protection of intellectual property
- iv. IPR and its management

15

5. Write short note on (any three):

- i. Hairy root culture
- ii. Biotransformation
- iii. Plant variety Protection
- iv. Brewery waste treatment
- v. H_2 gas production- Biological method
- vi. Advantages and limitations of Biofertilisers.