



# Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)

Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B

Coimbatore - 641 043, Tamil Nadu, India

## Bachelor's Degree Examination – August 2020

### VI Semester

**Class : III UG**  
**Major : Botany**

**Time : 2 Hours**  
**Max. Marks : 50**

### 15BBOC22 Plant Biotechnology

#### Part A

**10 x 1 = 10**

#### Choose the Correct Answer

- In plant tissue culture, which of the following shows totipotency.
  - Meristem
  - Phloem
  - Xylem
  - Collenchyma
- A medium which is composed of chemically defined compound is called
  - natural
  - synthetic
  - artificial
  - none of the above
- Which plant hormone is responsible for saving the crop from falling?
  - Cytokinin
  - Gyberellin
  - Auxin
  - Ethylene
- The term organogenesis means
  - Formation of callus culture
  - Formation of root and shoot from callus culture
  - Genesis of organ
  - All the above
- Embryo culture is used for
  - establishing suspension culture
  - recovery of interspecific hybrids
  - somatic hybridization
  - haploid production
- Artificial seeds are
  - Seeds produced in laboratory condition
  - Seeds encapsulated in a gel
  - Somatic embryos encapsulated in a gel
  - Zygotic embryos encapsulated in a gel
- Hairy root cultures for secondary metabolite production are induced by transforming plant cells with
  - aspergillus niger
  - agrobacterium tumefaciens
  - bacillus thuringiensis
  - agrobacterium rhizogenes
- The aerobic digestion of sewage is used to produce
  - biomass
  - metal articles
  - synthetic fuels
  - biofuels
- The first transgenic plant to be produced is
  - tobacco
  - brinjal
  - rice
  - cotton
- The virus mediated gene transfer using genetically modified bacteriophages is called
  - transfection
  - transduction
  - transformation
  - conjugation

**Part - B**

**3 x 6 = 18**

**Answer any Three questions**

**Each answer should not exceed 400 words or two pages**

11. Write short notes on heat sterilization of glasswares.
12. Briefly write about surface sterilization techniques.
13. Comment on meristem culture. What are the advantages?
14. Write short notes on somatic embryogenesis.
15. Give a brief account on embryo culture and its advantages.
16. Comment on artificial seeds.
17. Write about hairy root culture and its advantages.
18. Write about cell suspension culture.
19. Describe shot gun method.
20. Comment on Bt cotton.

**Part - C**

**2 x 11 = 22**

**Answer any Two questions**

**Each answer should not exceed 800 words or four pages**

21. Mention the basic requirements of plant tissue culture laboratory.
22. How will you prepare MS media? Explain.
23. Write the methods and applications of micropropagation technique.
24. Give an account on any two plant hormones and their physiological effects.
25. Describe in detail the somatic hybridization technique.
26. Elaborate in detail the anther culture technique. List the merits and demerits.
27. With the diagram, explain the components of a bioreactor.
28. Discuss the current developments in biofuel production.
29. Explain *Agrobacterium* – mediated gene transfer in plants.
30. How will you construct a transgenic plant? Explain.

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