

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY**

**THIRD SEMESTER – NOVEMBER 2022**

**PBT 3502 – PLANT BIOTECHNOLOGY**

Date: 25-11-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**PART - A**

**Answer ALL the Questions**

**I Choose the correct answer (5 x 1 = 5 Marks)**

- 1 Which of the plants meristem has not been successfully cultured?  
a) Apple                      b) Banana                      c) Potato                      d) Sugarcane
- 2 Microcarrier which is used in gene gun is  
a) Silver                      b) Gold                      c) Aluminium                      d) Copper
- 3 Which one of the following is biotic stress?  
a) Drought                      b) Water logging                      c) Bacteria                      d) Salt tolerance
- 4 Find out which is the major pest of sorghum  
a) *Chilo partellus*                      b) *Helicoverpa armigera*  
c) *Erwinia uredovora*                      d) *Nilaparvata lugens*
- 5 Regulatory body for GM crops in India  
a) MAHYCO                      b) MoEF                      c) USDA                      d) GEAC

**II State whether the following are true or false. (5 x 1 = 5 Marks)**

- 6 Phenolic compounds in PTC can be removed by activated charcoal.
- 7 Biolistics is also called as microinjection.
- 8 Ethyl methyl sulphonate is a chemical mutagen of plants.
- 9 MAAS is also called as molecular farming.
- 10 Nagoya protocol is a supplementary agreement to the Convention on Biological Diversity

**III Complete the following (5 x 1 = 5 Marks)**

- 11 Somaclonal variations in PTC were discovered by \_\_\_\_\_.
- 12 Sonication assisted agrobacterium method of gene transfer uses \_\_\_\_\_ waves.
- 13 \_\_\_\_\_ is done for introducing novel genes in plants by genetic engineering.
- 14 Lycopene is a \_\_\_\_\_ in tomato.
- 15 \_\_\_\_\_ is an exclusive right granted for an invention of a product.

**IV Answer the following within 50 words (5 x 1 = 5 Marks)**

- 16 Define caulogenesis.
- 17 What are SSR markers?
- 18 Cite two examples of chemical mutagens.
- 19 Mention the role of chitinase inhibitors?

20 Write a note on FDA.

**PART - B**

**Answer the following each within 500 words.**

**(5 x 8 = 40 Marks)**

**Draw diagrams wherever necessary**

21 a) Give an account on biosynthesis of 2iP.

**OR**

b) Briefly describe the role of gibberellins in plant tissue culture?

22 a) Briefly explain the role of RFLP markers.

**OR**

b) Compare and contrast visual markers and antibiotic selection markers.

23 a) Give an account on development methods used in production of Bt brinjal.

**OR**

b) Suggest a methodology to raise insect resistant plants through genetic engineering.

24 a) Illustrate the shikimic acid pathway for biosynthesis of phenolic compounds.

**OR**

b) How does column chromatography play an important role in extraction of phytochemicals?

25 a) What are the applications of transgenic crops?

**OR**

b) Give a detailed note on IPR and plant genetic resources.

**PART - C**

**Answer any TWO of the following, each within 1500 words.**

**(2 x 20 = 40 Marks)**

**Draw diagrams wherever necessary.**

26 Justify the statement “Meristem plays important role in producing virus resistant plants”.

27 Describe the sonication assisted transformation technique.

28 Elaborate on the mevalonic acid pathway in production of phytochemical compounds.

29 Discuss the importance of Cartagena protocol on biosafety.

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