

758301

Jan. 2022

M.Sc. (Biotechnology) - IIIrd SEMESTER

Plant Biotechnology (MBT-301)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) _____ is called the father of Plant Tissue Culture. (1)
- (b) The most commonly used agent for surface sterilization of plant tissues is_____. (1)
- (c) Define the term Totipotency. (1)
- (d) The protoplast is a cell without its _____. (1)
- (e) Define callus. (1)
- (f) Name the *two* main precursors of the biosynthesis of Phenolics. (1)
- (g) Caffeine and Theophylline come under which class of Alkaloids? (1)

- (h) In which conditions, A-DNA can exist individually in a cell? (1)
- (i) Which amino acids are synthesized by shikimic acid pathway? (1)
- (j) What is Isoprene rule? (1)

PART - B

- 2. (a) Write a brief note on organization of plant genome. (3)
- (b) What is cytoplasmic male sterility. (2)

- 3. (a) Draw a flow diagram to show various stages of Somatic Embryogenesis. (3)
- (b) Explain the biosynthesis of Terpenes using a flowchart. (2)

- 4. Explain the different methods of protoplast culture. How is the protoplast fused together? (5)

- 5. (a) Explain the mechanism by which the plant protects itself from herbivory. (3)
- (b) What are Somaclonal Variations? (2)

- 6. What are the different genetic engineering strategies used for virus resistance in plants? (5)