



**DO-003-1144003**

Seat No. \_\_\_\_\_

**M. Sc. (Sem. IV) (CBCS) (W.E.F. 2016) Examination**

**March / April - 2022**

**Botany**

**Plant Biotechnology and Genetic Engineering - BOT-421**

**Faculty Code : 003**

**Subject Code : 1144003**

Time : 3 Hours]

[Total Marks : 100

1 Answer the following : (Any Seven) 7×2=14

- (a) Write the role of virulence genes in gene transfer method.
- (b) What is transgene ? Explain.
- (c) What are the molecular markers ?
- (d) Enlist the methods of direct gene transfer in plant.
- (e) Write the role of SDS and urea in polyacrylamide gel electrophoresis.
- (f) Write the components of plantibodies.
- (g) Enlist the various application of immunology techniques.
- (h) Which factors affect migration of nucleic acid in gel ?
- (i) Write the name of biocontrol agent that used against insects and pathogen.
- (j) Write advantages of GMO plants.

2 Answer the following : (Any Two) 2×7=14

- (a) Describe the *Agrobacterium* mediated gene transfer method.
- (b) Write short note on PCR
- (c) Explain the ISSR marker technique

3 Answer the following : 2×7=14

- (a) Explain step of AFLP technique and its application.
- (b) Write note on Ti plasmid.

**OR**

3 Answer the following : 2×7=14

- (a) Explain non-PCR based marker techniques and application.
- (b) Briefly explain importance of molecular markers in plant breeding programmes.

4 Answer the following : 2×7=14

- (a) Explain protein isolation techniques.
- (b) Describe plantibody concept and its application

5 Write the short on Any Two of the following : 2×7=14

- (a) ELISA
- (b) Biological control of pest
- (c) Affinity chromatography
- (d) SDS-PAGE.

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