

Day: Saturday

Date: 12-02-2022

W-13268-2021

Time: 2:00 P.M. TO 5:00 P.M.

Max. Marks: 60

N.B.:

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in SAME answer book.
- 5) Draw a labeled diagram WHEREVER necessary.

**SECTION - I**

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) Give definition of Green Biotechnology
- b) What is callus and plant cell suspension culture?
- c) What is the meaning of contamination in plant tissue culture?
- d) Enlist various standard chemical formulations of plant nutrient media.
- e) What are plant genetic resources?
- f) Enlist the types of DNA markers.

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) Describe the technique for preparing stock solutions of two important plant growth regulators.
- b) Explain the technique of *in vitro* plant production via direct and indirect organogenesis.

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) Role of micro propagation in agriculture.
- b) Significance of acclimatization in PTC.

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) De-differentiation and re-differentiation
- b) Plant cell reactors for the production of secondary metabolites.

**SECTION - II**

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) Describe the role of Ti and Ri plasmids in biotransformation.
- b) What are the objectives of cryopreservation of germplasm?
- c) What are the current and future GM plants traits?
- d) What are edible vaccines?
- e) Enlist most commonly grown genetically engineered crops.
- f) Give definition for genetically modified plants.

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) Describe the factors affecting valuable chemical production from plant cell cultures.
- b) Explain the techniques of gene transfer into plant cell.

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) Gene banks of various crops in India
- b) *In vitro* approaches for crop improvement

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) Advantages of chloroplast transformation
- b) Plant derived pharmaceuticals and their importance

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