

SUBJECT: PLANT BIOTECHNOLOGY

Day: Wednesday
Date: 31/10/2018

W-2018-1195

Time: 10.00 AM TO 01.00 PM
Max. Marks: 80

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer to both the sections should be written in **SEPARATE** answer book.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** A) Answer any **ONE** of the following: (06)
- i) Explain historical review of Plant Biotechnology.
 - ii) Write a note on facilities for Plant Tissue Culture (PTC).
 - iii) Describe different pathways of *in vitro* plant regeneration.
- B) Give diagrammatic representation of **TWO** of the following: (10)
- i) *In vitro* seed germination of dicots
 - ii) Shoot-tip culture of monocots for induction of multiple shoots
 - iii) Root segment culture for increase in biomass
- Q.2** Write short notes on any **FOUR** of the following: (16)
- a) Steps involved in PTC.
 - b) Enlist the ingredients of Murashige and Skoog's medium.
 - c) What are plant growth regulators? Explain them with examples.
 - d) Meristem is an explant for the production of virus-free plants. Give reason.
 - e) What is callus? Explain its advantages and applications.

SECTION-II

- Q.3** A) Answer any **ONE** of the following: (06)
- i) Describe direct methods for plant transformation.
 - ii) What is germplasm? Describe methods for its conservation.
- B) Attempt any **TWO** of the following: (10)
- i) What is *Agrobacterium*? Describe its importance.
 - ii) Explain the technique of somatic hybridization.
 - iii) Describe the procedure for producing artificial seeds.
- Q.4** Attempt any **FOUR** of the following: (16)
- a) Applications of Genetic Engineering in Agriculture.
 - b) What are secondary metabolites? Write their importance.
 - c) Explain cryopreservation.
 - d) Describe the present status of Genetically Modified plants.
 - e) Write significance of shade-net house in PTC.
- Q.5** Write short notes on any **FOUR** of the following: (16)
- a) Transgenic plants
 - b) Totipotency
 - c) Plant Cell Reactors
 - d) Hairy root culture
 - e) Gametoclonal variants
 - f) Embryo rescue technique
 - g) Elicitors
 - h) Molecular markers