

CS/2110

5505/NH

**Plant Biotechnology (BHB 26)**

Attempt two question from the each Section A and B and the section C is compulsory

Time 3 hrs

MM :74

**Section A**

- 1 Define the callus and suspension culture. Briefly describes the different types of suspension cultures and techniques for estimation off culture growth and viability of cells 11
- 2 What is meristem culture? Describes the meristem culture in the following heads: (a) the explant, (b) nutritional requirements, (c) rooting of shoots and transfer of plantlets to soil 11
- 3 Write in detail the significance and use of haploids in crop improvements 11
- 4 Write a note on (a)in vitro androgenesis, (b) embryo culture 11

**Section B**

- 5 What is somatic hybrids and cybrids. Discuss their possible applications and achievements giving suitable examples and enumerate their advantages and limitations 11
- 6 Define somaclonal variations. Describe their isolation, characterization, molecular basis and its applications 11
- 7 Elaborate in detail the mechanism and applications of plant Growth Promoting bacteria. 11
- 8 How growth promoting bacteria can help in the biocontrol of pathogens in plants? Discuss in details 11

**Section C**

- 9 **Explain the following (15x2)** 30
  - I. advantages of micropropagation
  - II. somatic embryogenesis
  - III. Comparison between shoot bud and somatic embryo
  - IV. Browning of culture
  - V. Gynogenesis
  - VI. Organogenesis
  - VII. Anther and pollen culture
  - VIII. Embryo rescue
  - IX. Protoplast fusion
  - X. Cybrids
  - XI. Hybridization
  - XII. Homozygous lines
  - XIII. Nodulation
  - XIV. Hydrogenase
  - XV. Bacteroids