

# **Syllabus for Plant Biotechnology (SCQP25)**

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**Note:**

- i. The Question Paper which will have 75 questions.*
- ii. All questions will be based on Subject-Specific Knowledge.*
- iii. All questions are compulsory.*
- iv. The Questions will be Bilingual (English/Hindi).*

**Plant Biotechnology (SCQP25)**

**UNIT I**

Introduction, Cryo and organ genic differentiation, Types of culture: Seed, Embryo, Callus, Organs, Cell and Protoplast culture. Micro propagation Axillary bud proliferation, Meristem and shoot tip culture, callus culture, organogenesis, embryogenesis, advantages and disadvantages of micro propagation.

**UNIT- II**

In vitro haploid production Androgenic methods: Anther culture, Microspore culture Androgenesis Significance and use of haploids, Ploidy level and chromosome doubling, diploidization, Gynogenic haploids, factors effecting gynogenesis, chromosome elimination techniques for production of haploids in cereals.

**UNIT - III**

Protoplast Isolation and fusion Methods of protoplast isolation, Protoplast development, Somatic hybridization, identification and selection of hybrid cells, Cybrids, Potential of somatic Hybridization limitations. Soma clonal variation. Nomenclature, methods, applications basis and disadvantages

**UNIT - IV**

Plant Growth Promoting bacteria.

## Plant Biotechnology (SCQP25)

Nitrogen fixation, Nitrogenase, Hydrogenase, Nodulation, Biocontrol of pathogens, Growth promotion by free-living bacteria.

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