



**ED-623**

M.Sc. 3rd Semester  
Examination, March-April 2021

**BOTANY**

Paper - I

Plant Development and Plant Resources

*Time* : Three Hours]      [*Maximum Marks* : 80  
  [*Minimum Pass Marks* : 16

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**Note** : Answer **all** questions. All questions carry equal marks.

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**Unit-I**

1. What is seed dormancy? Describe the various methods of overcoming seed dormancy.

**OR**

Write notes on any **two** of the following :

- (a) Programmed cell death (PCD)
  - (b) Seed germination
  - (c) Root microbial interaction
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DRG\_17\_(3)

*(Turn Over)*

( 2 )

**Unit-II**

2. Describe wood development in relation to environmental factors.

**OR**

Who is secondary xylem and phloem produced by the activity of cambium? Elaborate the process of secondary growth in dicot stem.

**Unit-III**

3. Elaborate the origin and development of leaf in plants.

**OR**

Write notes on any **two** of the following :

- (a) Trichomes and stomata
- (b) Mesophyll cell
- (c) Apocarpus flower development

**Unit-IV**

4. Write notes on any **two** of the following :

- (a) Oil yielding crops
- (b) Tannins and resins
- (c) Fodder crops

**OR**

( 3 )

Write notes on any **two** of the following :

- (a) Cultivation and uses of fibre crops
  - (b) Timber yielding plants
  - (c) Gums and dyes
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# ED-624

M.Sc. 3rd Semester  
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## BOTANY

Paper - II

Plant Ecology - I  
(Ecosystem and Vegetation Ecology)

*Time* : Three Hours] [Maximum Marks : 80  
[Minimum Pass Marks : 16

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**Note** : Answer **all** questions. All questions carry equal marks.

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### Unit-I

1. What is primary production? Describe the methods of its measurement.

**OR**

Write short notes on any **two** of the following :

- (a) Ecological efficiency  
(b) Sedimentary cycles  
(c) Nitrogen cycle in nature

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DRG\_68\_(3)

(Turn Over)

( 2 )

**Unit-II**

2. Explain the concept of sustainable development.

**OR**

Write short notes on any **two** of the following :

- (a) Concept of resilience
- (b) Sustainability indicators
- (c) Anthropogenic perturbations

**Unit-III**

3. Explain the concept of 'Ecological Niche'.

**OR**

Write short notes on any **two** of the following :

- (a) Interspecific associations
- (b) Synthetic characters used in community analysis
- (c) Concept of continuum

**Unit-IV**

4. Describe the changes that takes place in the properties of ecosystem during succession.

**OR**

( 3 )

Write short notes on any **two** of the following :

- (a) Xerosere
  - (b) Temporal changes in vegetation
  - (c) Inhibition models
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## **ED-625**

M.Sc. 3rd Semester  
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### **BOTANY**

Paper - III

Biotechnology - I  
(Genetic Engg. of Plant and Microbes)

*Time* : Three Hours] [Maximum Marks : 80  
[Minimum Pass Marks : 16

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**Note** : Answer **all** questions. All questions carry equal marks.

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#### **Unit-I**

1. Write down the principles of gene cloning and explain the role of restriction endonuclease in gene cloning with suitable examples.

**OR**

Write notes on the following :

- (a) Principles and scope of Biotechnology
- (b) Bacteriophage vectors

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DRG\_132\_(3)

(Turn Over)

( 2 )

**Unit-II**

2. Explain various methods of vector mediated gene transfer and discuss their advantages and limitations.

**OR**

Write notes on the following :

- (a) Bacterial Transformation
- (b) Transgenic plants

**Unit-III**

3. Describe the mechanism of Polymerase Chain Reaction.

**OR**

Write short notes on the following :

- (a) DNA Fingerprinting
- (b) DNA Sequencing

**Unit-IV**

4. What is gene mapping ? Explain genetic and physical mapping of genes with suitable examples and discuss the role of gene mapping in Biotechnology.

**OR**



( 3 )

Write short notes on the following :

- (a) Microarrays
  - (b) Protein profiling
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## ED-626

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### BOTANY

Paper - IV

Elective-I

Molecular Plant Pathology - I

*Time* : Three Hours]                      [*Maximum Marks* : 80  
  [*Minimum Pass Marks* : 16

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**Note** : Answer **all** questions. All questions carry equal marks.

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#### Unit-I

1. Give the general characters of fungi along with heterotrophic behaviour with emphasis on parasitism and virulence.

**OR**

Write notes on the following :

- (a) Transmission of viruses
  - (b) Principles of plant pathology
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( 2 )

**Unit-II**

2. What is pathogenesis ? Describe the mode of infection by pathogens.

**OR**

Write notes on the following :

- (a) Symptoms of bacterial diseases  
(b) Significance of phyllosphere and rhizosphere

**Unit-III**

3. Describe the role of enzymes and toxins in pathogenesis.

**OR**

Write notes on the following :

- (a) Disease initiation and epidemics  
(b) Predisposing factors

**Unit-IV**

4. Write the techniques applied for introductory bacteriology.

**OR**

Write short notes on the following :

- (a) Pure culture  
(b) Techniques of inoculation and isolation.