



## **FD-314**

M.Sc. 1st Semester  
Examination, Dec.-Jan., 2021-22

### **BOTANY**

Paper - I

Cytology

*Time* : Three Hours]                      [*Maximum Marks* : 80

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

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#### **Unit-I**

1. Describe the structure, chemical composition and function of cell wall.

**OR**

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

- (a) Various models of plasma membrane
- (b) Receptors of plasma membrane
- (c) Biochemical energetics

( 2 )

**Unit-II**

2. Describe the ultrastructure of a chloroplast and also give an account on the function of the chloroplast.

**OR**

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

- (a) Plant vacuole
- (b) Biogenesis of mitochondria
- (c) RNA editing

**Unit-III**

3. Describe the various check points of cell cycle. Give the role of cyclin dependent kinases.

**OR**

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

- (a) Ribosomes : Structure and function
- (b) Nuclear pore : Ultrastructure
- (c) Programmed cell death

( 3 )

**Unit-IV**

4. What are microbodies and microtubules ?  
Describe their structure and function.

**OR**

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

- (a) Electron microscope
  - (b) Lysosomes
  - (c) Immunotechniques
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## **FD-315**

M.Sc. 1st Semester  
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### **BOTANY**

Paper - II

Genetics

*Time* : Three Hours]                      [*Maximum Marks* : 80

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

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#### **Unit-I**

1. Describe the structure of chromosome and packaging of DNA.

**OR**

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

- (a) Polytene chromosome
- (b) Karyotype and Idiogram
- (c) Molecular organization of centromere and telomere

( 2 )

**Unit-II**

2. Write an essay on chromosomal aberration and polyploidy.

**OR**

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

- (a) Mapping of bacteriophage genome
- (b) Recombination in phage
- (c) Transformation in bacteria

**Unit-III**

3. Write an essay on mechanism of crossing over.

**OR**

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

- (a) Linkage
- (b) Genetic marker
- (c) Tetrad analysis in *Neurospora crassa*

**Unit-IV**

4. Describe the plant breeding techniques.

**OR**

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

- (a) Alien gene transfer
  - (b) Heterosis and Inbreeding depression
  - (c) Methods for detecting alien chromatin production
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## FD-316

M.Sc. 1st Semester  
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### BOTANY

Paper - III

Microbiology, Phycology and Mycology

*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. Describe nutrition and reproduction of Eubacteria.

**OR**

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*(Turn Over)*

( 2 )

Write short notes on the following :

- (a) Biological importance of cyanobacteria
- (b) Difference between gram positive and gram negative bacteria

**Unit-II**

- 2. Write the general characteristics of phytoplasma and discuss its role in causing plant disease.

**OR**

Write short notes on the following :

- (a) Mycoplasma
- (b) Transmission of viruses

**Unit-III**

- 3. Write an essay on pigmentation and prennation in algae.

**OR**

Write short notes on the following :

- (a) Edible algae
- (b) Thallus organization in algae



( 3 )

**Unit-IV**

4. Give a detailed account of Ascomycotina.

*OR*

Write short notes on the following :

(a) Fungi as biocontrol agent

(b) Parasexuality

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**FD-317**

M.Sc. 1st Semester  
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**BOTANY**

Paper - IV

Bryophyta, Pteridophyta and Gymnosperms

*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. Describe the general characters and ranges of thallus organization in Bryophytes.

**OR**

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

- (a) Role of amphithecium and endothecium in different members of Bryophytes

( 2 )

- (b) Elaters, Elaterophores and Pseudoelaters
- (c) Archegoniophore

**Unit-II**

2. Describe the 'Stelar system' in pteridophytes with suitable examples and labelled diagram.

**OR**

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

- (a) Heterospory leading to seed habit
- (b) Prothallus of pteridophytes
- (c) Root and rhizophore of selaginella

**Unit-III**

3. Describe the general characters and classification of Gymnosperms.

**OR**

Describe the 'Distribution of Gymnosperms' in India.

**Unit-IV**

4. Give a general account of Pteridospermales.

**OR**

( 3 )

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

- (a) Centripetal and centrifugal xylem
  - (b) Monoxyle and pycnoxylic wood
  - (c) Development of male gametophyte of 'Cycas'
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