

**NALANDA OPEN UNIVERSITY**  
**M.Sc. Botany, Part-I**  
**PAPER-I**  
(Biodiversity of Plant and Diversity of Algae)  
*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer Five Questions in all, selecting at least Two Questions from each group.  
All questions carry equal marks.*

**GROUP 'A'**

1. Describe ecosystem. What are its components ?
2. Explain various important factors responsible for the decline of Biodiversity.
3. What are important attributes made at global level to conserve Biodiversity ?
4. What are recent practices adopted to utilize Biodiversity for sustainable use ?
5. Write short notes on any **Two** of the following :-
  - (a) Method of calculation of productivity in an Ecosystem
  - (b) National park and its use
  - (c) Oxygen cycle
  - (d) Natural resources

**GROUP 'B'**

6. Describe post fertilization changes as found in *Batrachospermum*.
7. How different groups of Algae are classified on the basis of pigments they contain. What are their types ?
8. Give an account of range of thallus organization in members of Chlorophyceae.
9. Write short notes on any **Four** of the following :-
  - (a) Role of *Nostoc* as Nitrogen fixer
  - (b) Source of Agar-Agar
  - (c) Aplanospores
  - (d) Macrandrous species of *Oedogonium*
  - (e) Kelp (Sea)
  - (f) Akinete
10. What is Isomorphic alternation of generation ? Explain in context to life cycle of *Ectocarpus*.

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**Examination Programme, 2018**  
**M.Sc. Botany, Part-I**

<b>Date</b>	<b>Papers</b>	<b>Time</b>	<b>Examination Centre</b>
24.05.2018	Paper-I	3.30 PM to 6.30 PM	Nalanda Open University, Patna
26.05.2018	Paper-II	3.30 PM to 6.30 PM	Nalanda Open University, Patna
28.05.2018	Paper-III	3.30 PM to 6.30 PM	Nalanda Open University, Patna
30.05.2018	Paper-IV	3.30 PM to 6.30 PM	Nalanda Open University, Patna
01.06.2018	Paper-V	3.30 PM to 6.30 PM	Nalanda Open University, Patna
05.06.2018	Paper-VI	3.30 PM to 6.30 PM	Nalanda Open University, Patna
07.06.2018	Paper-VII	3.30 PM to 6.30 PM	Nalanda Open University, Patna
09.06.2018	Paper-VIII	3.30 PM to 6.30 PM	Nalanda Open University, Patna

**NALANDA OPEN UNIVERSITY**

**M.Sc. Botany, Part-I  
PAPER-II**

(Microbiology and Diversity of Fungi)

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer Five Questions in all, selecting at least Two Questions from each group.  
All questions carry equal marks.*

**GROUP 'A'**

1. What are various methods of genetic recombination in Bacteria ? Describe transformation in detail.
2. Give an account of ultrastructure of TMV. How do they replicate in the Host Cell ?
3. Describe ultrastructure of a Bacterial cell. Give an account of chemistry of cell wall of Bacterial cell in detail.
4. Describe nutritional classification of Bacteria.
5. Write short notes on any **two** of the following :-
  - (a) Robert Koch
  - (b) Mycoplasma
  - (c) Ultrastructure of Bacteriophage
  - (d) Plasmid and its significance

**GROUP 'B'**

6. Give an account of Heterothallism in fungi.
7. Describe in detail method of Ascus development in members of Ascomycetes.
8. What do you understand by parasexuality ? Describe the mechanism of parasexual cycle in fungi.
9. Write short notes on any **two** of the following :-
  - (a) Mushroom cultivation
  - (b) Cleistothecia
  - (c) Fungi in industries
  - (d) Apothecium
10. Give an account of Mycotoxin. What is their significance in Human health.

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प्रायोगिक परामर्श कक्षा एवं प्रायोगिक परीक्षा का कार्यक्रम दिनांक 28.05.2018 को प्रकाशित किया जायेगा ।

NALANDA OPEN UNIVERSITY

M.Sc. Botany, Part-I

PAPER—III

(Plant Pathology)

Annual Examination, 2018

Time : 3 Hours.

Full Marks : 80

*Answer any Five Questions. All questions carry equal marks.*

1. What do you understand by the term resistance for a disease in Plants. Describe different kinds of disease resistance found in plants.
2. Classify plant diseases on various criteria.
3. Give an account of organic fungicides. What are qualities of good organic fungicides ?
4. Describe the general process of infection by plant pathogens, with special reference to fungi.
5. Describe symptoms, etiology, disease cycle and control measures for Black or Stem rust of Wheat.
6. Write short notes on any **Two** of the following :—
  - (a) Pre-disposing factor
  - (b) Mixed cropping and its significance
  - (c) Disease Forecasting System
  - (d) Hypertrophy and Hyperplasia as disease symptom
7. Describe Symptoms, disease cycle, etiology and control measures of Loose Smut of Wheat.
8. Write short notes on any **Two** of the following :—
  - (a) Hot water treatment for disease control
  - (b) Endemic disease
  - (c) Genetic engineering and plant pathology
  - (d) Robert Koch and his postulates
9. What is plant quarantine ? How quarantine regulation can help in disease control.
10. Write pathological notes on any two of the following :
  - (a) Red rot of sugarcane
  - (b) Late blight of potato
  - (c) Die back of Chilli
  - (d) Fungus causing white rust of crucifers

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<p>For Practical Counselling Class &amp; Practical Examination Programme Please See on Back Page.</p>
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NALANDA OPEN UNIVERSITY

**M.Sc. Botany, Part-I**  
**PAPER-IV**

(Biology and Diversity of Bryophyta and Pteridophyta )

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer Five Questions in all, selecting at least Two Questions from each group.  
All questions carry equal marks.*

**GROUP 'A'**

1. Give an account of Progressive sterilization of sporogenous tissues in Bryophytes.
2. Describe different methods of vegetative reproduction in Bryophytes.
3. Give an account of classification of Bryophytes upto order levels. Also describe characters of each group.
4. Describe the range of thallus structure in Bryophytes.
5. Write short notes on any **two** of the following :-
  - (a) Similarities between Bryophytes and Algae
  - (b) Role of Peristome in liberation of spores.
  - (c) Photosynthetic tissues in Bryophytes
  - (d) Sporophyte of *Pellia*

**GROUP 'B'**

6. Discuss the importance of heterospory in the origin and evolution of seed habit.
7. Give an account of *Isoetes* and its affinity .
8. Describe the life cycle of any member of order Filicales.
9. Write short notes on any **two** of the following :-
  - (a) Siphonostele
  - (b) Cone of *Equisetum*
  - (c) Sporocarp of *Marsilea*
  - (d) Types of sorus in ferns
10. Describe the salient features in the life cycle of *Psilotum*.

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<p><b>For Practical Counselling Class &amp; Practical Examination Programme Please See on Back Page.</b></p>
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**NALANDA OPEN UNIVERSITY**  
**M.Sc. Botany, Part-I**  
**PAPER-V**  
(Diversity of Seed plants and their taxonomy)  
*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer Five Questions in all, selecting at least Two Questions from each group.  
All questions carry equal marks.*

**GROUP 'A'**

1. Describe the general characters of order *Ginkgoales*. Also mention its Phylogenetic significance.
2. Trace the development of male gametophyte of *Pinus*.
3. Write short notes on any **two** of the following :-
  - (a) Distribution of Gnetales in India
  - (b) Ovule of *Bennettitales*
  - (c) Female fructification of *Lagenostoma*
  - (d) Geological time period
4. Give salient feature of Phylogeny of *Cordaitales*
5. Describe the structure and development of male reproductive structure of *Ephedra*.

**GROUP 'B'**

6. Describe the salient feature of taxonomic classification of Takhtajan.
7. Describe the floral characters and Phylogeny of family Magnoliaceae.
8. Write short notes on any **two** of the following :-
  - (a) Numerical taxonomy
  - (b) Role of Botanical gardens
  - (c) Significance of secondary metabolites
  - (d) Alpha and omega taxonomy
9. Describe the various aspects of Phylogenetic system of classification.
10. Write short notes on any **two** of the following :-
  - (a) ICBN
  - (b) Chemotaxonomy
  - (c) Special type of inflorescence
  - (d) Different types of placentation

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<b>For Practical Counselling Class &amp; Practical Examination Programme Please See on Back Page.</b>
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NALANDA OPEN UNIVERSITY

**M.Sc. Botany, Part-I**  
**PAPER-VI**

(Management of Forest Resources)

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer any Five Questions. All questions carry equal marks.*

1. Describe key factors for integrated pest management also mention its scope.
2. Discuss briefly importance of Agroforestry.

*or*

How the principle of Tissue culture can be applied in tree species.

3. What are the benefits of forests ? Explain.
4. What is MAB ? Describe its project related to forest.
5. What are the major causes for the loss of forest resources ?
6. Write short notes on any **Two** of the following :—
  - (a) Application of haploidy
  - (b) Lac culture
  - (c) Social forestry
  - (d) Protoplast culture and fusion.
7. What is cryopreservation ? Give examples of cryopreservation with its utility.
8. What is Pulp and Paper ? Describe the process of making of paper.
9. Explain different task of forest management.
10. Describe ecological dynamides of forest ecosystem as :
  - (a) Pyramid of energy
  - (b) Pyramid of biomass

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<p><b>For Practical Counselling Class &amp; Practical Examination Programme</b> <b>Please See on Back Page.</b></p>
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NALANDA OPEN UNIVERSITY

M.Sc. Botany, Part-I

PAPER–VII

(Cell Biology)

Annual Examination, 2018

Time : 3 Hours.

Full Marks : 80

*Answer any Five Questions. All questions carry equal marks.*

1. Describe the ultra structure of Chloroplast. Briefly explain its function.
2. Describe fluid mosaic model to explain ultra-structure of biological membrane. Why this model is universally accepted ?
3. What is cell division ? Describe different stages of mitosis with suitable sketches.
4. What are carcinogens ? Describe the causes of cancer.
5. Write short notes on any **Two** of the following :—
  - (a) Chargaff's rule
  - (b) Z-DNA
  - (c) Polytene chromosome
  - (d) Apoptosis
6. Describe the Ultrastructure of Mitochondria. Also mention its function.
7. Write short notes on any **Two** of the following :—
  - (a) Nucleosome
  - (b) Lampbrush chromosome
  - (c) t RNA
  - (d) r RNA
8. Write short notes on any **Two** of the following :—
  - (a) Transcription
  - (b) Histone proteins
  - (c) Experiment of Messelson and Stahl
  - (d) Hormone therapy
9. Explain origin and function of Golgi bodies.
10. Write short notes on any **Two** of the following :—
  - (a) Biochemical theory of origin of life
  - (b) Chemotherapy
  - (c) Oxsosome
  - (d) Peroxisome

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**For Practical Counselling Class & Practical Examination Programme  
Please See on Back Page.**

NALANDA OPEN UNIVERSITY

**M.Sc. Botany, Part-I**  
**PAPER-VIII**

(Anatomy and Embryology)  
*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer Five Questions in all, selecting at least Two Questions from each group.  
All questions carry equal marks.*

**GROUP 'A'**

1. What are meristems ? Describe different types of meristems.
2. What do you understand by the term abnormal secondary growth ? Describe abnormal secondary growth in *Boerhaavia*.
3. Give an account of role of Phellogen in healing of wound.
4. Write short notes on any **two** of the following :-
  - (a) Vascular bundles in Angiosperms
  - (b) Cambium and its role
  - (c) Lenticels and their significance
  - (d) Casparian strips
5. Classify stomata into its various types with suitable diagram, mentioning the significance of each type.

**GROUP 'B'**

6. What are Endosperms ? Describe different types of Endosperms mention its morphological nature.
7. Write short notes on any **two** of the following :-
  - (a) Culture media for Micropropagation
  - (b) Polyembryony
  - (c) Different barriers of fertilization
8. Describe the development of female gametophyte in angiosperms.
9. Describe in detail uses of Experimental embryology.
10. Describe production of haploid through anther culture.

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<p><b>For Practical Counselling Class &amp; Practical Examination Programme Please See on Back Page.</b></p>
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# NALANDA OPEN UNIVERSITY

## M.Sc. Botany, Part-II PAPER-IX

(Plant Physiology and Biochemistry)

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer Five Questions in all, selecting at least Two Questions from each group.  
All questions carry equal marks.*

### GROUP 'A'

1. What are Phytohormones ? Describe the mode of action and role of Gibberellins.
2. Describe the mechanism of opening and closing of Stomata.
3. Give a systematic account of light reaction of Photosynthesis.
4. Write short notes on any **two** of the following :-
  - (a) Phototropism
  - (b) Florigen and its role
  - (c) Cytokinin and its role
  - (d) Electron Transport System
5. What do you understand by the term vernalization ? Describe the mechanism of vernalization.

### GROUP 'B'

6. What Properties of enzymes ? Describe mechanism of action of enzymes.
7. What are secondary metabolites ? Describe different roles played by these metabolites.
8. Write short notes on any **two** of the following :-
  - (a) Co-enzymes
  - (b) Different types of amino acids
  - (c) Transamination
  - (d) Chemical Structure of Chlorophyll
9. Describe different types of Vitamins. How are they synthesized.
10. Write short notes on any **two** of the following :-
  - (a) Nitrification
  - (b) Nucleic acid
  - (c) Korb's cycle
  - (d) N<sub>2</sub> fixing bacteria

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**Revised Examination Programme, 2018**

### M.Sc. Botany, Part-II

<b>Date</b>	<b>Paper</b>	<b>Time</b>	<b>Examination Centre</b>
14.06.2018	Paper-IX	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
18.06.2018	Paper-X	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
20.06.2018	Paper-XI	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
22.06.2018	Paper-XII	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
26.06.2018	Paper-XIII	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
28.06.2018	Paper-XIV	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
30.06.2018	Paper-XV	12.00 Noon to 3.00 PM	Nalanda Open University, Patna
02.07.2018	Paper-XVI	12.00 Noon to 3.00 PM	Nalanda Open University, Patna



# NALANDA OPEN UNIVERSITY

## M.Sc. Botany, Part-II

### PAPER–XI

(Molecular Biology)

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer any Five Questions. All questions carry equal marks.*

1. Explain in step-wise manner that Replication of DNA is semiconservative in Prokaryotes. Briefly describe mechanism involved.
2. Describe the process of translation in Prokaryotes. Mention enzymes involved.
3. Describe different kinds of RNA and also mention their specific role.
4. What are the properties of Genetic code. Explain wobble hypothesis.
5. How DNA thread gets folded to form Nucleosome ? What is significance of Nucleosome in packaging of DNA.
6. Write short notes on any **Four** of the following :
 

(a) Nitrogenous base	(b) Reverse transcriptase
(c) Spliceosome	(d) DNA polymerase and its role
(e) RNA Polymerase its role	(f) Exons and Introns
7. Write short notes on any **Two** of the following :
 

(a) Linker DNA	(b) Northern blotting
(c) Southern blotting	(d) Western blotting
8. What are transposons ? Why are they important in recombinant DNA research ?
9. Describe the concept of Prototrophs and auxotrophs. Why are they important in genetic research.
10. Explain one gene one enzyme hypothesis. How it stands modified ?

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## M.Sc. Botany, Part-II

Programme for Practical Counselling Classes and Practical Examination, 2018

Venue : 1<sup>st</sup> Floor, Biscomaun Tower, Patna

### Practical Counselling Class Programme

<i>Enrollment No.</i>	<i>Batch</i>	<i>Date</i>	<i>Paper</i>	<i>Time (Daily)</i>
All Old Students	<b>B1</b>	07.07.2018 & 09.07.2018	IX to XVI	9.00 AM to 3.00 PM
160260001 to 160260092	<b>B2</b>	13.07.2018 & 14.07.2018	IX to XVI	9.00 AM to 3.00 PM
160260093 to 160260270	<b>B3</b>	19.07.2018 & 20.07.2018	IX to XVI	9.00 AM to 3.00 PM

### Practical Examination Programme

<i>Date</i>	<i>Time</i>					
	<i>9.00 AM to 11.00 AM</i>		<i>11.30 AM to 1.30 PM</i>		<i>2.00 PM to 4.00 PM</i>	
	<i>Batch</i>	<i>Paper</i>	<i>Batch</i>	<i>Paper</i>	<i>Batch</i>	<i>Paper</i>
10.07.2018	B1	IX	B1	X	B1	XI
11.07.2018	B1	XII	B1	XIII	B1	XIV
12.07.2018	B1	XV	B1	XVI	—	
16.07.2018	B2	IX	B2	X	B2	XI
17.07.2018	B2	XII	B2	XIII	B2	XIV
18.07.2018	B2	XV	B2	XVI	—	
21.07.2018	B3	IX	B3	X	B3	XI
23.07.2018	B3	XII	B3	XIII	B3	XIV
24.07.2018	B3	XV	B3	XVI	—	

# NALANDA OPEN UNIVERSITY

## M.Sc. Botany, Part-II

### PAPER–XII

(Environmental Biology)

Annual Examination, 2018

Time : 3 Hours.

Full Marks : 80

*Answer any Five Questions. All questions carry equal marks.*

1. What do you understand by the term pollution ? Give an account of water or Air pollution. Mention its remedy.
2. What is an Ecosystem ? Give an account of Forest or Pond ecosystem.
3. What do you understand by the term sustainable development ? Discuss various strategies formulated for sustainable development.
4. What are the steps taken at Global level to Conserve biodiversity. Give an account.
5. What do you understand by the term biogeochemical cycle. Give an account of carbon or nitrogen cycle.
6. Explain, how human activities have caused major threat to biodiversity. Explain in a systematic manner.
7. What do you understand by the term productivity in an ecosystem ? Describe various types of productivity of ecosystem.
8. Describe different vegetational belts of India.
9. Write short notes on any **Two** of the following :  
(a) Ecological pyramid (b) Noise pollution  
(c) Threatened categories of Plants (d) Endemism.
10. Write short notes on any **Two** of the following :  
(a) Green house effect (b) Acid rain  
(c) Ozone depletion (d) Kinds of natural disaster

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## M.Sc. Botany, Part–II

Programme for Practical Counselling Classes and Practical Examination, 2018

Venue : 1<sup>st</sup> Floor, Biscomaun Tower, Patna

### Practical Counselling Class Programme

<i>Enrollment No.</i>	<i>Batch</i>	<i>Date</i>	<i>Paper</i>	<i>Time (Daily)</i>
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160260093 to 160260270	<b>B3</b>	19.07.2018 & 20.07.2018	IX to XVI	9.00 AM to 3.00 PM

### Practical Examination Programme

<i>Date</i>	<i>Time</i>					
	<i>9.00 AM to 11.00 AM</i>		<i>11.30 AM to 1.30 PM</i>		<i>2.00 PM to 4.00 PM</i>	
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10.07.2018	B1	IX	B1	X	B1	XI
11.07.2018	B1	XII	B1	XIII	B1	XIV
12.07.2018	B1	XV	B1	XVI	—	
16.07.2018	B2	IX	B2	X	B2	XI
17.07.2018	B2	XII	B2	XIII	B2	XIV
18.07.2018	B2	XV	B2	XVI	—	
21.07.2018	B3	IX	B3	X	B3	XI
23.07.2018	B3	XII	B3	XIII	B3	XIV
24.07.2018	B3	XV	B3	XVI	—	

**NALANDA OPEN UNIVERSITY**  
**M.Sc. Botany, Part-II**  
**PAPER–XIII**  
(Plant Resource Utilization and Conservation)  
*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer any Five Questions. All questions carry equal marks.*

1. Write briefly the importance of in situ and ex-situ conservation.
2. Write significance of Biosphere Reserve or National park. Enlist few of them found in India.
3. What do you mean by Cereals? Discuss their importance in relation to human health.
4. Describe the causes of loss of biodiversity.
5. Describe methods adopted in fusion of protoplast. How somatic hybrids can be produced using the method?
6. Write short notes on **any two** of the following :–  
(a) Fiber yielding plant (b) Tea  
(c) Oil yielding plant (d) Botanical of gardens in India.
7. Describe the types of mangroves and its distribution in India.
8. Write short notes on **any two** of the following :  
(a) DBT (b) ICAR (c) CSIR
9. Write short notes on **any four** of the following :  
(a) Seed Bank (b) Medicinal Plant (four)  
(c) Wet lands of Bihar (d) Manufacture of paper from pulp  
(e) NBPGR
10. What is tissue culture? Describe tools used in tissue culture, also mention its objective.

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M.Sc. Botany, Part–II  
Programme for Practical Counselling Classes and Practical Examination, 2018  
Venue : 1<sup>st</sup> Floor, Biscomaun Tower, Patna

**Practical Counselling Class Programme**

<i>Enrollment No.</i>	<i>Batch</i>	<i>Date</i>	<i>Paper</i>	<i>Time (Daily)</i>
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**Practical Examination Programme**

<i>Date</i>	<b>Time</b>					
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12.07.2018	B1	XV	B1	XVI	—	
16.07.2018	B2	IX	B2	X	B2	XI
17.07.2018	B2	XII	B2	XIII	B2	XIV
18.07.2018	B2	XV	B2	XVI	—	
21.07.2018	B3	IX	B3	X	B3	XI
23.07.2018	B3	XII	B3	XIII	B3	XIV
24.07.2018	B3	XV	B3	XVI	—	

# NALANDA OPEN UNIVERSITY

## M.Sc. Botany, Part-II

### PAPER–XIV

(Ethnobotany)

Annual Examination, 2018

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. What do you mean by aromatic plants ? Write botanical name, family and importance of any five aromatic plants.
2. What is Ethnobotany ? Describe in detail the scope of ethnobotany in details.
3. Describe common spices and condiments and their importance.
4. What is germplasm ? How can it be conserved ?
5. Write short notes on **any two** of the following :–  
(a) Sarpagandha (b) Ashwagandha  
(c) Sugarcane (d) Musseli
6. Name some plants used by ethnic people for :  
(a) Making of musical instruments (b) Making of agricultural implements  
(c) Plants used for religious purpose
7. What are Vitamins ? Describe the source of vitamins in our daily diet.
8. Write an essay on centres of Ethnobotany in India.
9. Write short notes on :  
(a) Drug Therapy (b) Sources of plant protein
10. Describe any five fibre yielding plants with botanical name and family.

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## M.Sc. Botany, Part–II

Programme for Practical Counselling Classes and Practical Examination, 2018

Venue : 1<sup>st</sup> Floor, Biscomaun Tower, Patna

### Practical Counselling Class Programme

Enrollment No.	Batch	Date	Paper	Time (Daily)
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### Practical Examination Programme

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11.07.2018	B1	XII	B1	XIII	B1	XIV
12.07.2018	B1	XV	B1	XVI	—	
16.07.2018	B2	IX	B2	X	B2	XI
17.07.2018	B2	XII	B2	XIII	B2	XIV
18.07.2018	B2	XV	B2	XVI	—	
21.07.2018	B3	IX	B3	X	B3	XI
23.07.2018	B3	XII	B3	XIII	B3	XIV
24.07.2018	B3	XV	B3	XVI	—	

# NALANDA OPEN UNIVERSITY

## M.Sc. Botany, Part-II

### PAPER–XV

(Aerobiology)

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer any Five Questions. All questions carry equal marks.*

1. Describe general characters of Virus. How are they transmitted ?
2. What is allergy ? Describe various types of allergy and methods involved.
3. Describe aerobiology in relation to Plant Pathology.
4. Write an essay on aeromycoflora.
5. Write short notes on **any two** of the following :–
 

(a) Sampling technique	(b) Morphology of pollen
(c) Bacteria	(d) Protozoa
6. What do you mean by forecasting in aerobiology. How one can predict onset of disease on the basis of forecasting.
7. Write short notes on **any two** of the following :–
 

(a) Air pollutants	(b) Immunity
(c) Soil pollutant	(d) Sultons model.
8. Explain the structure and morphology of fungal spores.
9. Describe the process of Microsporogenesis.
10. Write the criteria for grouping organisms into five kingdom. Describe main characters of each kingdom with example.

\* \* \*

## M.Sc. Botany, Part-II

Programme for Practical Counselling Classes and Practical Examination, 2018

Venue : 1<sup>st</sup> Floor, Biscomaun Tower, Patna

### Practical Counselling Class Programme

<i>Enrollment No.</i>	<i>Batch</i>	<i>Date</i>	<i>Paper</i>	<i>Time (Daily)</i>
All Old Students	<b>B1</b>	07.07.2018 & 09.07.2018	IX to XVI	9.00 AM to 3.00 PM
160260001 to 160260092	<b>B2</b>	13.07.2018 & 14.07.2018	IX to XVI	9.00 AM to 3.00 PM
160260093 to 160260270	<b>B3</b>	19.07.2018 & 20.07.2018	IX to XVI	9.00 AM to 3.00 PM

### Practical Examination Programme

<i>Date</i>	<i>Time</i>					
	<i>9.00 AM to 11.00 AM</i>		<i>11.30 AM to 1.30 PM</i>		<i>2.00 PM to 4.00 PM</i>	
	<i>Batch</i>	<i>Paper</i>	<i>Batch</i>	<i>Paper</i>	<i>Batch</i>	<i>Paper</i>
10.07.2018	B1	IX	B1	X	B1	XI
11.07.2018	B1	XII	B1	XIII	B1	XIV
12.07.2018	B1	XV	B1	XVI	—	
16.07.2018	B2	IX	B2	X	B2	XI
17.07.2018	B2	XII	B2	XIII	B2	XIV
18.07.2018	B2	XV	B2	XVI	—	
21.07.2018	B3	IX	B3	X	B3	XI
23.07.2018	B3	XII	B3	XIII	B3	XIV
24.07.2018	B3	XV	B3	XVI	—	

# NALANDA OPEN UNIVERSITY

## M.Sc. Botany, Part-II PAPER–XVI

(Biotechnology and Bioinformatics)

*Annual Examination, 2018*

**Time : 3 Hours.**

**Full Marks : 80**

*Answer any Five Questions. All questions carry equal marks.*

1. Give an account of DNA fingerprinting.
2. What is Polymerase Chain Reaction (PCR) ? Describe its application.
3. What are T and B Lymphocytes ? Describe their role in immunity.
4. What are Restriction enzymes ? Discuss their types and uses.
5. Describe the various methods of sterilization. Which method is considered to be the most effective.
6. Write short notes on **any two** of the following :–
  - (a) Types of Proteomics
  - (b) Blast software
  - (c) Cybrids
  - (d) Rh factor
7. Give an account of role of cryopreservation in conservation of germ plasm.
8. Write short notes on **any two** of the following :–
  - (a) DNA chips
  - (b) NCBI
  - (c) Byte
  - (d) *in situ* conservation
9. Fermentation is the base of modern Biotechnology, Discuss the statement.
10. Write briefly :–
  - (a) Protoplast isolation
  - (b) Agrobacterium plasmid

\* \* \*

### M.Sc. Botany, Part–II

Programme for Practical Counselling Classes and Practical Examination, 2018

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