

2019

(4th Semester)

Time : 2 1/2 hours

Full Marks : 60

Answer from both the Sections as per direction

The figures in the right-hand margin indicate marks
Candidates are required to answer in their own words
as far as practicable

(MOLECULAR BIOLOGY)

SECTION - A

1. Answer all questions of the following : 2 x 6

- (a) BDNA
- (b) Intron
- (c) Operon Concept
- (d) RNA Polymerase

(Turn Over)

- (e) Nucleosome
- (f) Inhibitors of Replication.

SECTION - B

Answer all questions : 12 x 4

- 2. What is transformation ? How Griffith was able to prove "DNA as the genetic material".

Or

Write notes on the following :

- (i) Types of DNA
- (ii) Nucleosome.

- 3. Discuss the mechanism of DNA replication.

Or

Write notes on the following :

- (i) Okazaki Fragments
- (ii) Types of DNA replication.

- 4. What are the principles of Transcriptional regulation in Prokaryotes and Eukaryotes.

Or

Write notes on the following :

- (i) Gene Silencing
- (ii) Transcription factors

- 5. Discuss the mechanism of Translation.

Or

Write notes on the following :

- (i) RNA splicing
- (ii) Inhibitors of Transcription.

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(PLANT ECOLOGY AND PHYTOGEOGRAPHY)

SECTION - A

1. Answer all questions of the following : 2 x 6

- (a) Synecology
- (b) Pedogenesis
- (c) Symbiosis
- (d) Natality

(Turn Over)

Write a brief account of saprotic and pionic components of a fresh water ecosystem studied

OR

Write notes on the following :

- (i) Ecological pyramid
- (ii) Xerosec

What is phytogeography? Write a short account of basic principles governing geographical distribution of plants.

OR

Write notes on the following :

- (i) Di-tropical forest of India
- (ii) Nitrogen cycle

(e) Ecotone

(f) Productivity.

SECTION - B

Answer all questions : 12 x 4

2. Write a brief account of different components of soil complex.

Or

Write notes on the following :

(i) Hydrological cycle

(ii) Soil profile.

3. Define Parasitism. How parasites have evolved adaptive mechanism using this mode of life.

Or

Write notes on the following :

(i) Interspecific competition

(ii) Predation.

4. Write a brief account of abiotic and biotic components of a fresh water ecosystem studied by you.

Or

Write notes on the following :

(i) Ecological pyramid

(ii) Xerosere.

5. What is phytogeography ? Write a short account of basic principles governing geographical distribution of plants.

Or

Write notes on the following :

(i) Dry tropical forest of India

(ii) Nitrogen cycle.

2019

(4th Semester)

SECTION—B

Time : 2 1/2 hours

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(PLANT SYSTEMATICS)

SECTION—A

1. Answer of the following : 2 x 6

- (a) Documentation
- (b) Species concept
- (c) Rejection of Names
- (d) Inflorescence of Asteraceae

(2)

- (e) Cladogram
- (f) Function of Herbarium.

SECTION -- B

Answer all questions : 12 x 4

2. What is Botanical garden ? Write a brief about 3 important botanical gardens of India.

Write notes on the following :

- (i) Field diary
 - (ii) Herbarium Technique.
3. Write a brief account of International code of Botanical Nomenclature.

Write notes on the following :

- (i) Effective and Valid publication
- (ii) Binomial system of nomenclature.

SHBOT-10

(Continued)

(3)

4. Describe the floral structure of Asteraceae and discuss why this family is considered as advanced.

Or

Write notes on the following :

- (i) Floral characters of Musaceae
 - (ii) Give the distinguishing features of family Myrtaceae.
5. What is Homology? What are the types of Homology? What are the criteria helpful in identifying homology? How homology differs from analogy.

Or

Write notes on the following :

- (i) Phyly of Angiosperm
- (ii) Parallelism and Convergence.

SHBOT-10

BA-1600

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as far as practicable

(ECONOMIC BOTANY AND PLANT
BIOTECHNOLOGY)

SECTION - A

1. Answer all questions of the following : 2 x 6

- (a) Evolution of New Crop
- (b) Uses of Soybean

(Turn Over)

- (c) Micropropagation
- (d) Uses of clove
- (e) RFLB
- (f) Molecular DNA molecular.

SECTION - B

Answer all questions : 12 x 4

2. What is concept of centres of origin of cultivated plants ? Describe 08 centres of origin of cultivated plants as proposed by Vavilov.

Or

Write notes on the following :

- (i) Importance of germplasm diversity
 - (ii) Economic importance of clove and black pepper.
3. Give a general account and extraction of essential oil with special reference to Groundnut.

Or

Write notes on the following :

- (i) Uses of Tea
- (ii) Uses of cotton.

4. What is Totipotency ? Describe the process of embryo culture.

Or

Write notes on the following :

- (i) Endosperm culture
- (ii) Haploid production.

5. Discuss the process of PCR Technique ?

Or

Write notes on the following :

- (i) Southern Blotting
- (ii) DNA Fingerprinting.

Total Pages—3

SHBOT(08)

2018

(4th Semester)

Time : $2\frac{1}{2}$ hours

Full Marks : 60

Answer all questions

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as far as practicable*

(MOLECULAR BIOLOGY)

SECTION – A

1. Answer *all* of the following questions: 2×6
- (a) ZDNA
 - (b) Peptide Bond
 - (c) Lac Operon

(Turn Over)

(2)

- (d) DNA polymerase
- (e) Nucleosome
- (f) Transcription factors.

SECTION - B

Answer all questions : 12 x 4

2. Describe the structure of DNA proposed by Watson and Crick.

Or

Write notes on the following :

- (i) Structure of RNA
 - (ii) Eukaryotic chromosome.
3. Discuss the mechanism of DNA replication.

Or

Write notes on the following :

- (i) Inhibitors of Replication
- (ii) DNA polymerase.

SHBOT(08)

(Continued)

(3)

4. What is Transcription ? Discuss the mechanism of Transcription.

Or

Write notes on the following :

- (i) Central Dogma
 - (ii) Genetic code.
5. Discuss the mechanism of Translation.

Or

Write notes on the following :

- (i) Operon concept
- (ii) Inhibitors of protein synthesis.

SHBOT(08)

BA-1,500

Total Pages—3

SHBOT(09)

2018

(4th Semester)

Time : $2\frac{1}{2}$ hours

Full Marks : 60

Answer all questions

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(PLANT ECOLOGY AND PHYTOGEOGRAPHY)

SECTION - A

1. Answer all questions of the following : 2×6
- (a) Autecology
 - (b) Soil Profile
 - (c) Commensalism
 - (d) Mortality

(Turn Over)

(2)

- (e) Food Web
- (f) Hot spot.

SECTION - B

Answer all questions : 12 x 4

2. Define Soil Profile. Write a short account of factors that govern soil formation.

Or

- Write notes on the following :
- (i) Various forms of water in environment
 - (ii) Pedogenesis.

3. Define Competition. With suitable examples write a brief account of types of inter and intraspecific competition among population.

Or

- Write notes on the following :
- (i) Commensalism
 - (ii) Mutualism.

(3)

4. Define ecosystem. Write a brief account of the structure and function of a typical ecosystem.

Or

Write notes on the following :

- (i) Food Web
- (ii) Hydrosere.

5. What do you understand by ecosystem energetics ? Write a brief account of energy flow in an ecosystem.

Or

Write notes on the following :

- (i) Nitrogen cycle
- (ii) Phytogeographical divisions of India.

Total Pages—4

SHBOT (10)

2018

(4th Semester)

Time : $2\frac{1}{2}$ hours

Full Marks : 60

Answer all questions

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(PLANT SYSTEMATICS)

SECTION—A

1. Answer all of the following :

2 × 6

(a) Plant identification

(b) Molecular data

(c) Author citation

(Turn Over)

(2)

- (d) Valid publication
- (e) Modern system of classification
- (f) Florets of Asteraceae.

SECTION - B

Answer all questions : 12 x 4

2. What are the different types of plant identification keys ? Write with suitable examples.

Or

Write notes on the following :

- (i) Botanical Garden
 - (ii) Herbarium Technique.
3. Give a brief account of the principles, rules and recommendations of Botanical Nomenclature.

(3)

Or

Write notes on the following :

- (i) Species concept
 - (ii) Principle of priority.
4. Give a comparative account of floral structure of family Poaceae and Cyperaceae.

Or

Write notes on the following :

- (i) Floral structures of Rosaceae
 - (ii) Floral characters of Zingiberaceae.
5. Discuss the different theories in the origin of Angiosperms.

(4)

Or

Write notes on the following :

- (i) Phylogenetic tree
- (ii) Phyly of Angiosperm.

Total Pages—4

SGBOT (02)

X3 Sc
4/15 Sem
DSIE

2018

(4th Semester)

Time : 2 $\frac{1}{2}$ hours

Full Marks : 60

Answer all questions

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as far as practicable*

**(ECONOMIC BOTANY AND PLANT
BIOTECHNOLOGY)**

SECTION—A

1. Answer *all* of the following : 2 × 6

(a) Germplasm diversity

(b) Uses of Clove

(Turn Over)

(2)

- (c) Haploid production
- (d) Uses of Black Pepper
- (e) RAPD
- (f) DNA fingerprinting.

SECTION - B

Answer all questions : 12 x 4

2. Discuss the origin, morphology and uses of wheat.

Or

Write notes on the following :

- (i) Vavilov's work
- (ii) Importance of legumes to man and ecosystem.

SCBOT (02)

(Continued)

(3)

3. Explain the morphology, processing and uses of Tea.

Or

Write notes on the following :

- (i) Uses of cotton
- (ii) Extraction of groundnut oil.

4. What is Totipotency ? Describe the process of Anther culture.

Or

Write notes on the following :

- (i) Micropropagation
- (ii) Embryo culture.

5. What is Blotting Technique ? Discuss Western Blotting.

SGBOT (02)

(Turn Over)

(4)

Or

Write notes on the following :

- (i) DNA sequencing
- (ii) Molecular DNA marker.