No. of Printed Pages : 4 **Sem-IV-Bot-CC-VIII(R&B)**

2023

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*
Figures in the right hand margin indicate marks.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Fill in the blanks. (all) [1 × 8

(a) The term Nucleic acid was coined by _____.

(b) RNA as genetic material in TMV was demonstrated by _____.

(c) Primer RNA is eliminated by the enzyme _____.

(d) Ribozyme was discovered by _____.

(e) Uncoiling of DNA is catalysed by _____.

(f) Tryptophan is used as _____ in tryptophan operon.

(g) The energy source for initiation of translation is _____.

(h) The multiprotein complex involved in splicing of pre-mRNA is _____.

P.T.O.

GROUP - B

2. Answer any eight of the following within two or three sentences each. [1½ × 8

(a) Write about mitochondrial DNA.

(b) Write about 3 properties that give stability to DNA.

(c) What is exon shuffling ?

(d) What is gene ?

(e) What is theta type replication ?

(f) Write about Rolling Circle Replication.

(g) What is heat shock protein ?

(h) Write about Epigenetic gene regulation.

(i) What is ribosome translocation ?

(j) What is reverse transcription ?

GROUP - C

3. Write notes on any eight of the following within 75 words each. [2 × 8

(a) Cot curves

(b) Heterochromatin

(c) RNA editing

(d) Central Dogma

(e) Split genes

(f) Feedback induction

(g) Gene silencing

(h) Charging of tRNA

(i) Activation of aminoacids

(j) Non-sense codons

GROUP - D

4. Answer any four questions within 500 words each.

(a) Discuss about characters of DNA as genetic material. [6

(b) Explain nucleosome concept of chromatin structure. [6

(c) Explain the experiment, that proved the mechanism of semi conservative replication. [6

(d) Describe the mechanism of splicing of hn RNA. [6

(e) Describe about mechanism of Lac Operon. [6

(f) Describe mechanism of transcription in prokaryotes. [6

(g) Describe about structure, composition and functions of ribosome.

[6

(h) Describe the mechanism of translation in prokaryotes. [6

No. of Printed Pages : 4 **Sem-IV-Bot-CC-IX(R&B)**

2023

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*
Figures in the right hand margin indicate marks.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Fill in the blanks. (all) [1 × 8

(a) Lithosphere is also called _____.

(b) 'O' Horizon is so named because it is made up of _____.

(c) Snow refers to forms of _____.

(d) A group of interbreeding organisms belonging to the same species is known as _____.

(e) Exponential population growth shows _____ shaped curve.

(f) A Transition area between two biological communities is called _____.

P.T.O.

(g) The ecological pyramid of Number is always _____.

(h) Chaparral biome is also known as _____.

GROUP - B

2. Answer any eight of the following within two or three sentences each. [1½ × 8

(a) What is biosphere ?

(b) Whatr is ecological dynamism ?

(c) What do you mean by biological weathering ?

(d) What is Acid rain ?

(e) What is Relative humidity ?

(f) What is Blackman's law of limiting factor ?

(g) What is natality ?

(h) What is Ecotones ?

(i) What are decomposers ?

(j) What is phytogeography ?

GROUP - C

3. Write notes on any eight of the following within 75 words each. [2 × 8

(a) Homeostasis

(b) Biological components of soil

(c) Phases of precipitation

(d) Types of Fog

(e) Mutualism

(f) Age Pyramid

(g) Ecological amplitude

(h) Trophic level

(i) Cycling of carbon

(j) Theory of Tolerance

GROUP - D

4. Answer any four questions within 500 words each.

(a) Give an account of Lithosphere and its various components. [6

(b) Describe temperature as an ecological factor. [6

(c) Describe the composition of soil and soil profile. [6

(d) Give an account of water in the soil. [6

(e) Describe in brief some important characteristic features of population. [6

(f) Illustrate the various stages of hydrosere. [6

(g) Give an illustrative account of single channel and double channel energy flow models. [6

(h) Give an account of vegetation of Odisha. [6

No. of Printed Pages : 4

Sem-IV-Bot-CC-X(R&B)

2023

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*
Figures in the right hand margin indicate marks.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Fill in the blanks. (all) [1 × 8

(a) The term systematics first appeared in the famous work of _____.

(b) _____ defined systematics as a scientific study of the kinds and diversity of organism.

(c) The evolutionary trend and relationship among the organisms is illustrated through _____.

(d) The term Biosystematics was coined by _____.

(e) New species evolve from previous species via _____ process.

(f) The term microspecies was proposed by _____.

P.T.O.

(g) Specimen or other element designated by the author or used by him as the nomenclature is _____.

(h) When two species involved in the cross belong to same geneous is called _____.

GROUP - B

2. Write notes on any eight of the following within two or three sentences each. [1½ × 8

(a) Palynology

(b) Alkaloids

(c) Flora

(d) Family

(e) Monographs

(f) Phytochemistry

(g) Homology

(h) Documentation

(i) Contributions of Theophrastus

(j) Cledogram

GROUP - C

3. Write notes on <u>any eight</u> of the following within 75 words each. [2 × 8

(a) e-Flora

(b) Single access keys

(c) Species concept

(d) Journals

(e) Cytological evidence

(f) Analogy

(g) Paraphyly

(h) Molecular data

(i) Phylogenetic tree

(j) Concept of taxa

GROUP - D

4. Answer <u>any four</u> questions within 500 words each.

(a) Write an essay on Multi-Access with its advantages. [6

(b) Describe virtual herbarium with its uses. Mention about virtual herbaria with database. [6

(c) Discuss aims and objectives systematics. [6

(d) Discuss about important features of hierarchical system of cla-ssification and categories. [6

(e) Describe briefly about Bentham and Hooker's system of clas-sification. [6

(f) Describe briefly about the family *Lamiaceae*. [6