

2021

BOTANY

(Honours)

Paper-CCH-Bot-I

(*Microbiology and Phycology*)

Full Marks : 60

Time : 3 hours

Answer all questions.

*The figures in the right-hand margin
indicate marks.*

PART—I

1. Answer the following questions : 1 × 8

(a) Rhodophyceae is red coloured due to
_____.

(Turn Over)

(2)

- (b) Heterocyst occurs in ———.
- (c) The formation of m-RNA from DNA is called ———.
- (d) Algal cell wall is made up of ———.
- (e) Conjugation without sexpili occurs in ——— bacteria.
- (f) What is the reserve food material in phaeophyceae.
- (g) Capsid of virus is made up of ———.
- (h) What type of bacteria is found in root nodules of legumes.

I-CC-Bot-I

(Continued)

(3)

PART-II

2. Answer any *eight* of the following questions:
1.5 × 8

- (a) Diagrammatic representation of scalariform conjugation of oedogonium.
- (b) What is Virioids ?
- (c) What is binary fission ?
- (d) What is Chlamydospore ?
- (e) Define sex-pilli.
- (f) What is alternation of generation ?
- (g) What is trichome ?

I-CC-Bot-I

(Turn Over)

(4)

- (h) Define isogamous reproduction.
- (i) Diagrammatic representation of vegetative cell of *Chlamydomonas*.
- (j) What is akinetes ?

PART—III

3. Answer any *eight* of the following questions : 2 × 8

- (a) Describe the coenobium of *Volvox*.
- (b) Haplontic life cycle.
- (c) Illustrate the graphic life cycle of *Ectocarpus*.

(5)

- (d) Describe the hypnospores of *Vaucheria*.
- (e) Describe the economic importance of bacteria in industry.
- (f) Differentiate between gram +ve and gram -ve bacteria.
- (g) Role of algae in agriculture.
- (h) Diagrammatic representation of bacterial cell.
- (i) Diagrammatic representation of structure of TMV.
- (j) Describe the asexual reproduction of bacteria.

(6)

PART—IV

4. Answer any *four* questions :

6 × 4

- (a) Describe the role of virus as causal organisms of plant diseases.
- (b) Describe the role of bacteria in agriculture and industry.
- (c) Describe the multiplication of DNA virus.
- (d) Describe the range of Thallus organisation in algae.
- (e) Describe the morphology and life cycle of Fucus.

(7)

- (f) Write the structure and life cycle of Coleochaete.
 - (g) Give an account of morphology and reproduction of Nostoc.
 - (h) Narrate the reproduction of Chara. Give its evolutionary significance.
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2021

BOTANY

(Honours)

Paper-Bot-II

(*Biomolecules and Cell Biology*)

Full Marks : 60

Time : 3 hours

Answer all questions.

*The figures in the right-hand margin
indicate marks.*

PART—I

1. Answer the following questions : 1 × 8

(a) Cell wall is made up of ———.

(b) The individual unit of protein is ———.

(Turn Over)

(2)

- (c) E. R. is absent in ——— cell.
- (d) Energy is ——— in exergonic reaction.
- (e) Define buffers.
- (f) ——— type of bond is present in polysaccharides.
- (g) What is the function of centriole ?
- (h) What is isoenzyme ?

PART—II

2. Answer any *eight* questions within two to three sentences : 1.5 × 8 = 12
- (a) Name the various phases of cell cycle.

(3)

- (b) Draw structure of an amino acid.
- (c) Describe about oxysomes.
- (d) What is pH ? How much the pH value of pure water ?
- (e) Differentiate between nucleoside and nucleotide.
- (f) Write about chemical composition of primary cell wall.
- (g) What is unsaturated fatty acid ? Give an example.
- (h) Write Linear and ring formula of glucose.

(4)

- (i) Differentiate between electrostatic and covalent bond.
- (j) Diagrammatic representation of mitochondria.

PART—III

3. Answer any *eight* of the following within 75 words : 2 × 8

- (a) Write about concept of free energy.
- (b) Differentiate between prokaryotic and eukaryotic cell.
- (c) Describe the function of lipid.
- (d) Describe the type of carbohydrates with one example each.

I-CC-Bot-II

(Continued)

(5)

- (e) Describe the function of peroxisomes.
- (f) Describe about apoenzyme.
- (g) Write down endosymbiotic theory.
- (h) Describe the metaphase of mitosis.
- (i) Describe the function of golgi apparatus.
- (j) Give the diagram for clover leaf model of t-RNA.

PART—IV

4. Answer any *four* questions within 500 words : 6 × 4

I-CC-Bot-II

(Turn Over)

(6)

- (a) Describe the structure and properties of water.
- (b) Describe the structure and classification of amino acids.
- (c) Give an account of mechanism of enzyme action that you have studied.
- (d) Narrate the different type of fatty acids with example.
- (e) Describe the molecular organisation of Chromatin.
- (f) Describe the type and function of endoplasmic reticulum.
- (g) Describe the structure and function of plasma membrane.

(7)

- (h) Describe the different stages of meiotic-I.

2022

BOTANY

(Microbiology and Physiology)

Paper — CC-BOT-I

Full Marks : 60

Time : 3 hours

Answer all questions

The figures in the right-hand margin indicate marks

PART — I

1. Answer the following questions : 1 × 8

~~(a)~~ Which virus is bacterium eater _____.

~~(b)~~ The double stranded RNA virus is called _____.

(c) The cell wall less bacteria is called _____.

(Turn Over)

(2)

- (d) _____ type of reproduction is absent in cyanophyceae.
- (e) The colonial form green algae is _____.
- (f) _____ are the photosensitive organ of chlamydomonas.
- (g) The globule of chara consists of _____ cells.
- (h) The cystocarp is found in _____.

PART - II

2. Answer any *eight* questions of the following : $1\frac{1}{2} \times 8$

- (a) What is priors ? *1/2*
- (b) Define the structure of TMV. *1/2*
- (c) Describe the vegetative reproduction of Bacteria. *1/2*
- (d) Define Heterocyst.
- (e) What is Fermentation ?

(3)

- (f) Describe the pigment system of algae.
- (g) Write about Flagella of Algae.
- (h) Types of cells present in Oedogonium.
- (i) What is advanced Oogamous reproduction ?
- (j) What is conceptacle of Fucus.

PART - III

3. Answer any *eight* of the following questions : 2×8

- (a) Describe Baltimore classification of Viruses.
- (b) Explain the Lgtic cycle of virus. *1/2*
- (c) What is sphaeroplast ?
- (d) Cell structure of cyanobacteria.
- (e) Role of bacteria in agriculture. *1/2*
- (f) Define Transduction in Bacteria. *1/2*
- (g) Discuss the types of sexual reproduction found in algae. *1/2*

(4)

- (h) Fritsch system of classification of algae.
- (i) Define cell structure of polysiphonia.
- (j) Describe about Nucule of Chara. 1

PART - IV

4. Answer any four questions :

6 × 4

- (a) Describe the economic importance of virus with reference to vaccine production and research. 1
- (b) Describe the process of replication of virus (general account).
- (c) Describe the general characteristic and types of Bacteria.
- (d) Describe the reproduction and economic importance of cyanobacteria.
- (e) Describe the life cycle of Chlamydomonas.
- (f) Describe the life cycle of Oedogonium.

(5)

- (g) Describe the morphology and life cycle of Vaucheria.
- (h) Describe the reproduction of polysiphonia.

2022

BOTANY

(*Biomolecules and Cell Biology*)

Paper — CC-BOT-II

Full Marks : 60

Time : 3 hours

Answer all questions

The figures in the right-hand margin indicate marks

PART — I

1. Answer the following questions : 1 × 8

~~(a)~~ Water has highest density at _____.

~~(b)~~ The protein part of the enzyme is called _____.

~~(c)~~ Sulphur containing amino acid is _____.

~~(d)~~ The largest RNA in the cell is _____.

(Turn Over)

(2)

- (e) _____ is the site of synthesis of r-RNA.
- (f) _____ organelle is attached to the nuclear membrane.
- (g) Peroxisome is associated with _____ process.
- (h) The cell wall material is synthesized by _____ during cell division.

PART - II

2. Answer any *eight* questions within *two to three* sentences : $1\frac{1}{2} \times 8$

- (a) Define Free Energy.
- (b) What is Activation Energy of Enzymes ?
- (c) Monosaccharides.
- (d) Isoelectric point of proteins.
- (e) Structure of Nitrogenous bases.
- (f) Chemical composition of plasmamembrane.

(3)

- (g) Define Endocytosis.
- (h) What is storage lipid ?
- (i) Explain mitotic cell division.
- (j) Semi autonomous organelle.

PART - III

3. Answer any *eight* questions within 75 words : 2×8

- (a) Michaelis-Menten equation.
- (b) Coupled reaction.
- (c) What is protein denaturation ?
- (d) Write the structure of nucleotides.
- (e) Essential fatty acids.
- (f) Characteristics of prokaryotic cell.
- (g) Write about Fluid Mosaic Model.

(4)

- (h) Structure and function of Lysosome.
- ~~(i)~~ Describe prophase-I of Meiosis-I.
- (j) Write the structure and function of micro-tubule.

PART - IV

4. Answer any *four* questions within 500 words :

6 × 4

- (a) Describe the laws of Thermodynamics.
- ~~(b)~~ What is carbohydrates ? Describe the classification of carbohydrates with examples.
- (c) Describe the different levels of protein structure.
- ~~(d)~~ Describe the structure of A and B type of DNA.
- (e) Describe the structure and function of cell wall.
- ~~(f)~~ Describe the structure and function of Nucleus.

I-CC-Bot-II

(Continued)

(5)

- (g) Describe the structural organization and function of chloroplast.
- (h) What is cell cycle ? Describe the regulation of cell cycle.

I-CC-Bot-II

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2023

BOTANY

(*Microbiology and Phycology*)

[Honours]

Paper — CC-BOT-I

Full Marks : 60

Time : 3 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

PART — I

1. Answer *all* the questions : 1 × 8

(a) A virus reproduces by using the metabolic machinery of a _____.

(b) A virus that can reproduce without killing its host is called _____.

(Turn Over)

(2)

- (c) Bacteria reproduces asexually by the formation of _____.
- (d) _____ present in heterocyst which carry out Nitrogen fixation.
- (e) The pigment present in Xanthophyta is _____.
- (f) Nannandrous species of Oedogonium is always _____.
- (g) The reserve food material of polysiphonia is _____.
- (h) The life cycle of Ectocarpus is _____.

PART – II

2. Answer any *eight* of the following within *two* to *three* sentences : $1\frac{1}{2} \times 8$

(a) Archaeobacteria

(3)

- (b) Lytic cycle of bacteria
- (c) Virus was discovered by whom ?
- (d) Budding
- (e) Two general characters of Bacteria
- (f) Eye spot of Chlamydomonas
- (g) Agar Agar
- (h) Heterotrichous plant body
- (i) Plurilocular sporangia
- (j) Zoospores.

PART – III

3. Answer any *eight* of the following within 75 words : 2×8

(a) ☒ Viroids

(4)

(b) ✓ Structure of Bacteriophage

(c) Mycoplasma

(d) ✓ Fermentation

(e) ✓ Role of virus in vaccine production

(f) ✓ Anisogamous Reproduction

(g) Carpogonia of Coleochaete

(h) ✓ Globule of Chara

(i) Cystocarp of Polysiphonia

(j) Alternation of Generation.

PART - IV

4. Answer any *four* questions within 500 words :

(a) ✓ Describe the replication of Bacteriophage. 6×4

(5)

(b) ✓ Describe the economic importance of virus in medicine diagnostic and causal organism of plant diseases.

(c) Describe the recombination process of Bacteria.

(d) ✓ Describe the life cycle of Nostoc.

(e) Describe the role of algae in agriculture and industry.

(f) Describe the general characteristic and cell structure of algae.

(g) ✓ Describe the life cycle of Chara.

(h) ✓ Describe the cell structure and reproduction of Ectocarpus.

2023

BOTANY

(Biomolecules and Cell Biology)

Paper—CC-BOT-II

Full Marks : 60

Time : 3 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

PART—I

1. Answer *all* questions :

1 × 8

(a) In _____ bond melting point will be high.

(b) The enzyme carry and joining together two groups with hydrolysis of ATP is called _____.

(Turn Over

(2)

- (c) _____ lipid involved in cell signalling.
- (d) There are _____ types of non-genetic RNA.
- (e) _____ is known as membrane skeleton.
- (f) _____ of cell wall connects two adjacent cells.
- (g) The term Lysosome was first used by _____.
- (h) The organelle is involved with detoxification of drugs is called _____.

PART- II

2. Answer any *eight* questions within 2 to 3 sentences : $1\frac{1}{2} \times 8$

- (a) Endergenic reaction
- (b) Holoenzyme
- (c) Oligosaccharides

(Continued)

(3)

- (d) Structure of fatty acid
- (e) B-DNA
- (f) Two functions of cell wall
- (g) Grana of chloroplast
- (h) Karyokinesis
- (i) Microtubules
- (j) Two functions of Golgi Apparatus.

PART- III

3. Answer any *eight* questions within 75 words : 2×8

- (a) Buffers
- (b) Lock and key hypothesis
- (c) Redox reactions
- (d) Structure of t-RNA

I-CC -Bot-II

(Turn Over)

(4)

- (e) Endosymbiotic theory
- (f) Nucleolus
- (g) Quaternary structure of Protein
- (h) Structure of Nucleus
- (i) Chloroplast as semiautonomous organelle
- (j) Cell cycle.

PART-IV

4. Answer any *four* questions within 500 words : 6×4

- (a) Describe the types and significance of chemical bonds.
- (b) Describe the mechanism of enzyme action.
- (c) Describe the structure and functions of Triacylglycerol.

(5)

- (d) Describe the structure and functions of Nucleotides.
- (e) Describe cell as a unit of structure and function.
- (f) Describe the functions of plasma membrane.
- (g) Describe the structural organization and functions of Mitochondria.
- (h) What is cytoskeleton ? Describe the role, types and structure of cytoskeletons found in plants.