(18) 7/12/2018

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 32 **I**

Unique Paper Code : 32161101

Name of the Paper : Microbiology and Phycology

Name of the Course : **B.Sc. (Honours) Botany**

Semester : I

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **any five** questions including Question No. **1** which is compulsory.

1. (a) Fill in the blanks : (1×10=10)

(i) ..... is an example of prokaryotic alga.

(ii) Iodine is derived from .....

(iii) ..... is an unicellular motile green alga.

(iv) Transduction in bacteria was described by .....

(v) Largest animal virus is .....

P.T.O.

(vi) Biogas can be produced with the help of ..... bacteria

(vii) ..... is the reserve food material of Red algae.

(viii) Colony of *Volvox* is calledas .....

(ix) Female gametangia in *Polysiphonia* is known as .....

(x) Unilocular sporangia is found in .....

(b) Define the following : (1×7=7)

(i) Gongrosira stage

(ii) Fimbriae

(iii) Virusoids

(iv) Hormogonia

(v) Stigma

(vi) Akinetes

(vii) Synzoospores

(c) Explain the following terms : (2×5=10)

(i) Cap cells

(ii) Heterotrichous thallus

(iii) Chemoorganotrophs

(iv) Palmella stage

(v) Attenuated vaccines

2. Write notes on the following : (3×4=12)

(a) Formation of daughter colonies in *Volvox*

(b) Internal organization of thallus in *Fucus*

(c) Mycoplasma

(d) Structure of TMV

3. Draw well labelled diagrams of the following : (3×4=12)

(a) EM of *Chlamydomonas*

(b) VS of endospore

(c) EM of bacteriophage

(d) Sex organs of *Chara*

4. Differentiate between the following : (3×4=12)

(a) Lytic and lysogenic cycle

(b) Gram positive and Gram negative bacteria

(c) Cyanophyceae and Phaeophyceae

(d) Prions and viroids

5. Explain any **three** of the following : (4×3=12)

(a) Replication of bacteriophage

(b) Alternation of generation in *Polysiphonia*

(c) Conjugation in bacteria

(d) Sexual reproduction in *Ectocarpus*

6. Discuss any **three** of the following : (4×3=12)

(a) Evolutionary significance of *Prochloron*

(b) Significant contributions of F E Fritsch or H D Kumar

(c) Role of virus in biotechnology

(d) General features of Chlorophyceae

7. Explain briefly any **two** of the following : (6×2=12)

(a) Special features of Baltimore classification of virus

(b) Macrandrous and Nanandrous species of *Oedogonium*

(c) Economic importance of algae

(19)

This question paper contains **4** printed pages]

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S. No. of Question Paper : **33**

Unique Paper Code : **32161102** **I**

Name of the Paper : **Biomolecules and Cell Biology**

Name of the Course : **B.Sc. (Hons.) Botany**

Semester : **I**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all, including question No.. **1** which is compulsory. *All* parts of questions must be attempted together.

1. (*a*) Name the organelle in which the following enzymes are located : 5×1=5

(*i*) Cytochrome oxidase

(*ii*) Catalase

(*iii*) Acid phosphatase

(*iv*) Signal peptidases

(*v*) Rubisco.

P.T.O.

(*b*) Match the following : 5×1=5

'A'	'B'
(*i*) Polysaccharide	*r*RNA transcription
(*ii*) Nucleolus	Tubulin
(*iii*) Gaucher's disease	Chloroplast
(*iv*) Endosymbiont	Lysosome
(*v*) Microtubule	Glycogen.

(*c*) State true *or* false : 5×1=5

(*i*) Solid particles are ingested by pinocytosis.

(*ii*) Cellulose is a kind of polysaccharide.

(*iii*) Lipids in cell membranes are amphipathic.

(*iv*) Plasmids are extrachrosomal DNA present in all eukaryotic cells.

(*v*) Nucleolus is a membrane bound structure.

2. Differentiate between (any *three*) : 3×5=15

(*i*) Facultative heterochromatin and constitutive heterochromatin.

(*ii*) Mitosis and Meiosis.

(*iii*) Endocytosis and Exocytosis

(*iv*) Lysosome and Glyoxysome

(*v*) DNA and RNA.

3. Write short notes on (any *three*) : 3×5=15

(*i*) Biological role of proteins

(*ii*) Semiautonomous nature of mitochondria

(*iii*) Glycosylation

(*iv*) Structure of Flagella.

4. Draw well labelled diagrams of the following (any *three*) : 3×5=15

(*i*) Ultrastructure of chloroplast

(*ii*) Double helical structure of DNA

(*iii*) Nuclear Pore Complex

(*iv*) Structure of *t*RNA

5. (*a*) Describe the structure, composition and function of cell wall.

(*b*) Describe the structure and functions of microtubules

(*c*) Golgi apparatus is the export house of the cell. Comment

3×5=15

P.T.O.

6. (*a*) Discuss the molecular organization of chromatin.

(*b*) Discuss the role of endoplasmic reticulum in folding and processing of proteins.

(*c*) Explain the structure and function of mitochondria.

3×5=15