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Your Roll No.

203

B.Sc. (Prog.)/B.Sc. (Hons.)/I

C

Paper BY-105- BIOLOGY

(Admissions of 2008 and onwards)

Time : 3 Hours

Maximum Marks : 75

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

Section A (Botany)

38 Marks

Attempt *three* questions in all including

Question No. 1 which is compulsory.

I. (a) Define the following (any *five*) : 5

(i) Buffers

(ii) Osmosis

P.T.O.

- (iii) Essential elements
 - (iv) Radioactive isotope
 - (v) Resolving power
 - (vi) Geometric isomers.
- (b) Match the following : 5
- (i) Tertiary structure Cellulose
 - (ii) Primary cell wall Singer and Nicholson
 - (iii) Electron microscope Proteins
 - (iv) Nucleotides Knoll and Ruska
 - (v) Plasma membrane DNA
- (c) Draw a well-labelled diagram of (attempt any *one*) : 3
- (i) A plant cell
 - (ii) A plant virus.

2. (a) Can life sustain without water ? Discuss any *three* important properties of water molecule which are important for existence of life on earth. 6
- (b) Discuss any *three* functional groups with examples. 3
- (c) Explain the basic principle of microscopy. 3½
3. Write short notes on any *four* of the following : 12½
- (a) Compound microscope
- (b) Amino acids
- (c) Cellulose
- (d) Polypeptides
- (e) Glycosidic linkage.
4. Differentiate between any *four* of the following : 12½
- (i) Saturated and unsaturated fatty acids.
- (ii) TMV and Bacteriophage.

- (iii) Primary and secondary cell wall.
- (iv) Light microscope and electron microscope.
- (v) Active and passive transport.

Section B (Zoology)

37 Marks

Attempt *three* questions in all including

Question No. 1 which is compulsory.

- I. (A) Match Column I with Column II :

6

Column I	Column II
(i) Bacteriophage	Protein
(ii) Ribosome	Interphase
(iii) Mitochondria	Transduction
(iv) Peptidoglycan	RNA
(v) Nucleolus	ATP
(vi) Gap phase	Bacteria

(B) Name the scientist who : 5

- (i) Discovered Nucleus.
- (ii) Coined the term Evolution.
- (iii) Proposed Three Domain classification.
- (iv) Coined the term Mitochondria.
- (v) Proposed Cell theory.

(C) State True or False : 2

- (i) Chloroplast is the site for respiration in eukaryotes.
- (ii) Spindle fibers are formed by chromosome and nucleoproteins.
- (iii) Binary fission is asexual mode of reproduction.
- (iv) Whittaker proposed five kingdom classification.

2. Differentiate between any *three* : 4.4.4
- (i) Allopatry and Sympatry
 - (ii) Mitosis and Meiosis
 - (iii) Plant cell and Animal cell
 - (iv) Somatic variation and Germinal variation
 - (v) Eubacteria and Archaea.
3. Write short notes on any *three* : 4.4.4
- (i) Urey-Miller experiment
 - (ii) Fossils
 - (iii) Transcription
 - (iv) Prophase I of Meiosis.
4. Answer any *four* of the following : 3.3.3.3
- (a) Why are the Metaphase chromosomes said to be in dynamic equilibrium ?

- (b) Mitochondria and chloroplast are semiautonomous organelle. Explain.
 - (c) Draw a neat labelled diagram of cell cycle.
 - (d) Briefly describe Oparin-Haldane hypothesis.
 - (e) Describe the theory of acquired inheritance.
 - (f) Describe the dissolution and formation of nuclear envelope during mitosis.
5. (a) Who gave the concept of Natural Selection ? 1.6.5
- (b) What are the various types of Natural Selection ? Explain with suitable example.
- (c) Describe the various types of mutation.