This question paper contains 4 printed pages.]

Your Roll No . . . .

5163

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

BY 105 (a) – BIOLOGY

(Admission of 2008 and onwards)

Time : 3 Hours **Maximum Marks : 75**

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

Answer Sections A and B on separate answer-books

SECTION – A

Question No. 1 is compulsory Attempt 3 questions in all.
Make diagrams wherever necessary.

1. (a) Define :

(i) Prokaryotic cell
(ii) Centromere
(iii) pH Scale
(iv) Polysaccharides
(v) Radioactive isotopes
(vi) Mass Number
(vii) Ionic bonds
(viii) Golgi bodies
(ix) Compound microscope **1 × 9 = 9**

(b) Give a brief account of the structure of Plasma-membrane. What role does it play in controlling cellular functions. 5

2. (a) How are the amino acids classified on the basis of their side chains ? Give at least 3 examples. 6

(b) Comment on :

Biological role of water

OR

Role of carbohydrates. 6

3. (a) Describe various kinds of covalent bonds with suitable examples. How are covalent bonds different from the ionic bonds ? 7

(b) Give one word answer :

(i) A technique used to study the molecular structure of proteins

(ii) A method employed for separation of chloroplast pigments

(iii) A method for cell fractionation

(iv) An optical instrument employed for cell study.

(v) A technique used to study the nature of the bacterial cell wall 5

4 Differentiate between any **four** 12

(i) Primary and Secondary structure of proteins

(ii) Karyoplasm and cytoplasm

(iii) RNA and DNA

(iv) α-D Glucose and β-D Glucose

(v) Macro elements and Micro-elements.

(vi) Bacterium and yeast cell.

5. Write short notes on any **four** 12

(i) Hydrogen bonds

(ii) Chloroplast

(iii) Mitosis

(iv) Storage tissues

(v) Starch

SECTION – B

Attempt **three** questions in all, including Question No 1 which is compulsory Draw diagrams wherever necessary

I. (a) Define : 4

(i) Genomics

(ii) Binary Fission

(iii) Crossing over

(iv) Probing

(b) Differentiate between : 6

(i) DNA & RNA

(ii) Derived and Ancestral characters

(iii) Animal and Plant cell.

(c) Expand the Abbreviations : 2

(i) MPF

(ii) Cdk

II. (a) How do isolating barriers help in species formation ? 8

(b) Briefly describe replication of DNA. 4½

III. (a) Describe how over production and heritable variations relate to evolution by Natural selection. 8

(b) Write a short note on cell Fractionation. 4½

IV. Write short notes on :

(i) Lysosome 6½

(ii) Cladogram 6

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