

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

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P.T.O.

- (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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