

M.Sc. Bio-Informatics Ist Semester

BASIC CONCEPT IN BIOLOGY

Paper—BI : 511

Time Allowed—3 Hours]

[Maximum Marks—75

Note :—Section A is compulsory, each question carries 1½ marks. Attempt **four** questions from Section B, selecting **one** from each unit. Each question carries **12** marks.

SECTION—A

Write short answers for the following :

- I. Postulates of cell theory.
- II. Cell mediated immunity.
- III. Allosteric modification of enzymes.
- IV. Antibody diversity.
- V. Nucleosome.
- VI. Fluid mosaic nature of plasma membrane.
- VII. Stem cells.
- VIII. Allosteric inhibition of enzyme.
- IX. MHC.
- X. GERL complex. 1½×10=15

(Contd)

SECTION—B

UNIT—I

- 1. (a) Highlight the differences between a prokaryotic and eukaryotic cell with the help of diagrams.
- (b) What are the differences in cilia and flagella ? 6×2=12
- 2. What is the role of mitochondria and chloroplast in the energy transactions ? 12

UNIT—II

- 3. Write notes on :
 - (a) Gluconeogenesis
 - (b) Oxidative phosphorylation. 6×2=12
- 4. Describe structural organization of proteins. 12

UNIT—III

- 5. (a) Explain Michaelis-Menten equation.
- (b) Differentiate between covalent catalysis and acid-base catalysis. 6×2=12
- 6. (a) Write a note on the factors affecting enzyme activity.
- (b) What do you understand by enzyme specificity ? 6×2=12

UNIT-IV

7. Write notes on :

(a) Antigen processing and presentations.

(b) MHC polymorphism. $6 \times 2 = 12$

8. Describe structure and function of immunoglobulins.

12

UNIT-V

9. Describe maturation and differentiation of T & B cells.

12

10. Write a note on ELISA.

12

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