B.Sc. Part–II Semester–IV Examination

BIOINFORMATICS

(Fundamentals of Molecular Biology & Immune System)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Attempt **SEVEN** questions in all.

(2) Question No. **1** is compulsory and carries **8** marks.

(3) Attempt **SIX** questions from the rest carrying **12** marks each.

1. (A) Fill in the blanks :

(i) Synthesis of DNA is always _____direction.

(ii) Transfer of peptide from A site to P site by _____.

(iii) An antibody is also called as _____.

(iv) Interferon are made from _____. 2

(B) Choose correct alternatives :

(i) Enzyme Primase is used for :

(a) Ligation

(b) Primer synthesis

(c) Transposition

(d) Linkage

(ii) Lymphatic system is also a part of :

(a) Vascular System

(b) Immune System

(c) Reproductive System

(d) Blood System

(iii) Which of the following DNA polymerase involved in leading strand synthesis in DNA replication ?

(a) DNA Polymerase–I

(b) DNA Polymerase–II

(c) DNA Polymerase–III

(d) DNA Polymerase–IV

6. Write on :

(A) MHC. 4

(B) Applications of Vaccines. 4

(C) Natural Antibodies. 4

OR

(P) Memory Cells. 4

(Q) Macrophages. 4

(R) Helper T-cells. 4

7. Write on :

(A) Antigen-Antibody reaction. 4

(B) Interlukins. 4

(C) IgG. 4

OR

(P) T-lymphatic response. 4

(Q) Functions of lymphatic system. 4

(R) IgD. 4

(iv) Translation occurs in :

(a) Nucleoplasm

(b) Cytoplasm

(c) Chromoplasm

(d) Phytoplasm 2

(C) Answer in **ONE** sentence :

(i) Topoisomerase in DNA replication requires for.

(ii) What are the vaccines ?

(iii) What is translation ?

(iv) Define Structural Genomics. 4

2. Write on :

(A) DNA Backbone. 4

(B) IS Element. 4

(C) Heterochromatic Region. 4

OR

(P) A-form of DNA. 4

(Q) Euchromatic Region. 4

(R) TY Element. 4

3. Give an elaborated account on methods and protocol used for genome function and product prediction. 12

OR

Give detail account on regulation of gene expression at transcriptional level. 12

4. Write on :

(A) Protein chain elongation factors in prokaryotes. 4

(B) Role of GTPase in protein synthesis. 4

(C) Role of tRNA in protein synthesis. 4

OR

(P) Preinitiation complex in eukaryotes. 4

(Q) Aminoacylation of tRNA. 4

(R) Ribosomal RNA. 4

5. Give different types of cells in immune system. Elaborate on mechanism of proliferation of B-cells. 12

OR

How many type of antibodies are synthesized by our body ? Elaborate on its role in immune response. 12