This question paper contains 3 printed pages. Roll No. .....

B.Sc. (Part-III)

Geno. & Prot.

8007–I

B.Sc. (Part-III) Examination, 2021

(Faculty of Science)

(Common of Three and Five Year Integrated Course)

BIOTECHNOLOGY

Paper–BT–701

(Genomics and Proteomics)

Time Allowed : 3 Hours **Maximum Marks : 50**

Answer of all the questions (short answer as well as descriptive) are to be given in the main answer-book only. Answers of short answer type questions must be given in sequential order. Similarly all the parts of one question of descriptive part should be answered at one place in the answer-book. One complete question should not be answered at different places in the answer-book.

Write your roll number on question paper before start writing answers of questions.

Question No. **1** is compulsory. Answer **five** questions in all, selecting at least **one** question from each Section.

PART–A

1. Explain the following in short :

   (a) DNA supercoiling.

   (b) Proteome.

   (c) Nucleosome.

   (d) Genetic map.

   (e) VNTR.

(f) Molecular Pharming.

(g) α-helix.

(h) Isoelectric focusing.

(i) GFP tag.

(j) ExPasy. $1\times10=10$

PART–B

SECTION–A

2. Describe the structure of prokaryotic genome with suitable diagram. 10

OR

Write notes on following :

(a) Chromatin structural model.

(b) Linkage of genes. 5+5=10

SECTION–B

3. Explain the basic concept of following methods :

(a) Pedigree analysis.

(b) Genetic mapping. 5+5=10

OR

What is genome? Explain the theory of C-value paradox and genome complexity. 2+8=10

SECTION–C

4. What is structural and functional proteomics? Give a detailed account of protein structure and functions. 4+6=10

OR

Explain the principle of the following :

(a) Mass spectroscopy.

(b) Gel electrophoresis of proteins. 5+5=10

SECTION–D

5. Write notes on the following :

   (a) Yeast two hybrid system.

   (b) Protein structure databases.

5+5=10

OR

Discuss the various applications of proteomics in health, agriculture and industry. 10

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