2023

(May/June)

BIOTECHNOLOGY

(Honours)

(Genomics, Proteomics and Computer Application)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer Question No. **1** which is compulsory and *any* **four** from the rest

1. Write notes on the following : 2×6=12

(a) BLAST

(b) Quaternary structure of protein

(c) C-value paradox

(d) SNP

(e) Protein domain

(f) Transcriptomics

2. *(a)* What is 'genome project'? Discuss the salient features of *Arabidopsis* genome project. 2+3=5

   (b) List the salient features of the human genome. What are the ethical issues involved in human genome sequencing project? 5+1=6

3. *(a)* Explain how STSs can be used to build a clone contig. 7

   (b) What is a flowchart? Explain the basic data structure of C++ with suitable example. 1+3=4

4. *(a)* Discuss the primary, secondary and tertiary structures of proteins. 7

   (b) Explain the role of bioinformatics in genomics with emphasis on comparative genomics. 4

5. Describe the role of computers in the automation of bioreactors. 11

6. *(a)* What is an operating system? What are the advantages of Windows operating system over Linux operating system? 2+4=6

   (b) Discuss in brief the concept of data mining and its significance in biological sciences. 5

7. *(a)* Discuss the role of bioinformatics in the field of proteomics. 5

   (b) What is an algorithm? Explain the batch-online and real time application of computers in industries. 1+5=6

8. What is bioinformatics? Enumerate the role of bioinformatics in various fields with suitable examples. Add a note on the limitations of bioinformatics. 1+8+2=11

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