

M.Sc. Examination, 2019
Semester-IV
Biotechnology
Course : XVI
(Genomics, Proteomics and Bioinformatics)

Time : 3 Hours

Full Marks : 40

Questions are of value as indicated in the margin.

Answer **any four** questions

1. a) Discuss any four characteristics considered when choosing markers for DNA fingerprinting.
b) Why are molecular marker systems better than “classical” markers in detecting variation?
c) Compare the relative advantages and disadvantages of the following molecular markers.
i) SNPs ii) SSRs
2+2+(3+3)=10
 2. Discuss briefly about different gel-based and non-gel based proteomic techniques.
5+5=10
 3. a) What is meant by sequence format? Explain three frequently used sequence formats.
b) Define homology modeling. Write different steps of homology modeling including the assumptions.
c) Define BLAST and FASTA.
3+(1+4)+2=10
 4. a) Describe the main features of human genome project along with its ethical issues.
b) Why SNP consortium has been built and what are its aims?
c) What are degenerate primers? What are the critical parameters of primer designing?
4+3(1+2)=10
 5. a) Describe DNA barcoding along with its merits and demerits.
b) Describe briefly a next generation DNA sequencing technique.
5+5=10
 6. Write short notes on **any four** :
2.5×4=10
 - a) International HapMap Project
 - b) Needleman-Wunsch algorithm
 - c) Pyrosequencing
 - d) AELP
 - e) cDNA microarray
 - f) Global alignment versus local alignment
-