



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Master's Degree Examination – June / July 2021
II Semester

Class : I PG
Major : Zoology

Time : 3 Hours
Max. Marks: 100

20MZOC10 Bioinformatics

Part A
Choose the Correct Answer

10 x 1 = 10

1. Which of the following are the goal of bioinformatics. K1
(i) Organizing biological information using databases
(ii) Process, analyze and visualize biological data
a. only b. (ii)only c. Both (i) and (ii) d. None of the above
2. Which of the following is not correct about FASTA? K1
a. It stands for FAST ALL
b. It was in fact the first database similarity search tool developed, preceding the development of BLAST
c. FASTA uses a hashing strategy to find matches for a short stretch of identical residues with a length of k
d. The string of residues is known as blocks
3. BLOSUM matrices are used for K3
a. Multiple sequence alignment b. Pair wise sequence alignment
c. Phylogentic analysis d. All the above
4. An example of Homology and similarity tool? K2
a. PROSPECT b. EMBOSS c. RASMOL d. BLAST
5. Human Genome Project was also focused on identifying K1
a. SNP s b. VNTR s c. Mini satellites d. Junk DNA
6. Microsatellites are K1
a. Inactivated (methylated) chromosomes
b. Inactivated (RNA "painted") chromosomes
c. Repeated short sequences of DNA
d. Small fragments of DNA
7. Electrophoresis is not used for the separation of K3
a. Nucleic acids b. Proteins c. Amino acids d. Lipids
8. ----- acts as proteomics server to analyze protein sequence and structure and 2D gel electrophoresis. K4
a. MALDI TOF b. EX PASY c. PAM-BLOSUM d. BLAST
9. Which of the following is untrue about SAGE? K1
a. This approach is much more efficient than EST analysis
b. This approach is quite less efficient than EST analysis
c. It uses a short nucleotide tag to define a gene transcript
d. It allows sequencing of multiple tags in single clone
10. In yeast two-hybrid system, which of the following state is accurate: K1
A reporter gene
a. Is fused to the activation domain of a transcription factor
b. Is fused to the DNA binding domain of a transcription factor
c. Requires the presence of histidine in growth medium
d. Is expressed only if the tested protein interaction occurs

Part B 5×6=30
Answer ALL questions
Each answer should not exceed 400 words or two pages

- 11.a. Define Bioinformatics. Discuss the goals and application of Bioinformatics in detail. K1
(or)
- 11.b. List out the protein database and describe two database in detail. K1
- 12.a. Illustrate pair wise sequence alignment method K3
(or)
- 12.b. Discuss about PAM-BLOSUM. K2
- 13.a. Describe in detail about Human Genome Project. K2
(or)
- 13.b. Describe in detail about UCSC genome browser 'ENCODE'. K2
- 14.a. Discuss the following protein structure prediction. K2
(i) Ramachadran plot
(ii) Ab Initio Prediction
(or)
- 14.b. List out the applications in modern drug discovery process. K1
- 15.a. Describe about SAGE and RNA sequencing. K2
(or)
- 15.b. Illustrate in detail about protein – Protein interaction. K3

Part C 5×12=60
Answer ALL questions
Each answer should not exceed 800 words or four pages

- 16.a. List out in detail about biological databases. K1
(or)
- 16.b. Discuss in detail about specialized data bases. K2
a. OMIM b. GEO c. ENA d. KEGG
- 17.a. Illustrate the FASTA and BLAST. K3
(or)
- 17.b. Describe in detail about Phylogenetic tree. K2
- 18.a. Differentiate Eukaryotes, Bacteria, Arachae and Viral Genome. K4
(or)
- 18.b. Analyse Next Generation Sequencing and its importance in biological sciences. K4
- 19.a. Analyze the Gel Electrophoresis techniques with MALDI-TOF. K4
(or)
- 19.b. Evaluate the protein structure with different tools. K5
- 20.a. Discuss in detail about Microarray and its application. K2
(or)
- 20.b. Write on genetic model organisms Zebra fish and Mouse. K3
