



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: Biochemistry/ Biotechnology

Time : 3 Hours

Max Marks : 100

20MBCC07 / 20MBTC09 Bioinformatics

Part- A

10X 1 = 10

Choose the Correct Answer

- Which of the following is an example of Homology and similarity tool? CO3 K6
 - BLAST
 - RasMol
 - EMBOSS
 - PROSPECT
- Which of the following scientist created the first Bioinformatics database? CO2K3
 - Dayhoff
 - Pearson
 - Richard Durbin
 - Michael.J.Dunn
- The laboratory work using computers and computer-generated models generally offline is referred to as _____. CO6K1
 - In silico
 - Wet lab
 - In vivo
 - In vitro
- The term Bioinformatics was coined by _____. CO1K3
 - J.D Watson
 - Pauline Hogeweg
 - Margaret Dayhoff
 - Frederic Sanger
- The process of finding the relative location of genes on a chromosome is called _____. CO3K4
 - Gene tracking
 - Genome walking
 - Genome mapping
 - Chromosome walking
- What is the deposition of cDNA into the inert structure called? CO1K6
 - DNA probes
 - DNA polymerase
 - DNA microarrays
 - DNA fingerprinting
- Which of the following is untrue about SCOP? CO5K3
 - It is a database for comparing and classifying protein structures
 - It is constructed almost entirely based on manual examination of protein structures
 - The proteins are grouped into hierarchies of classes, folds, super families, and families
 - The SCOP families consist of proteins having low sequence identity (>30%)
- Stable complexes consist of proteins that are _____ associated with each other, like many _____ proteins for instance. CO2K2
 - temporarily, oligomeric
 - temporarily, monomeric
 - permanently, oligomeric
 - permanently, monomeric
- Sets of proteins that are part of stable complexes and sets of proteins involved in transient interactions _____ in terms of the similarity in gene expression among the set of proteins. CO6K4
 - are similar
 - differ
 - are same
 - show similar function
- Many levels of clone redundancy may be required to build a consensus map because individual clones can have _____. CO3K3
 - rearrangements
 - deletions
 - two separate fragments
 - vectors

Part- B

5X 6 = 30

Answer all the questions

Each answer should not exceed 400 words or two pages

- 11.a. Enumerate the database of SCOP. CO5K6
(or)
11.b. Outline components of literature database. CO1K4
- 12.a. Illustrate about BLOSUM. CO3K2
(or)
12.b. Write the concept of substitution matrices. CO1K2
- 13.a. Give an account on Detecting ORFs. CO4K2
(or)
13.b. Point out features of secondary structure of RNA. CO4K3
- 14.a. Evaluate the Modifications of DNA microarrays. CO3K1
(or)
14.b. Summaries the concept of Protein microarrays. CO6K2
- 15.a. Mention the Basic concepts – Metabolic network modeling. CO1K1
(or)
15.b. Describe the prediction of ligand binding. CO4K6

Part- C

5X 12 = 60

Answer all the questions

Each answer should not exceed 800 words or four pages

- 16.a. Demonstrate the scientific search engine of Entrez pubmed. CO3K2
(or)
16.b. Elaborately discuss scope, branches and applications of bioinformatics. CO1K4
- 17.a. How to construct the pylogenetic tree? Explain. CO4K5
(or)
17.b. Contrast between global (Needleman - Wunsch) and local (Smith - Waterman) alignment algorithms. CO1K2
- 18.a. How to predict the secondary structure of protein? Explain. CO5K3
(or)
18.b. Elucidate the designing primers and probes. CO2K2
- 19.a. Distinguish between traditional proteomics vs modern proteomics. CO3K2
(or)
19.b. Overviewed the characteristics of structural, functional and comparative genomics. CO4K6
- 20.a. Write a detail note on QSAR – high throughput screening. CO6K2
(or)
20.b. Disscuss in detail on Computer -aided drug design. CO5K3
