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

Continuous Internal Assessment – II April, 2025
II Semester

Class: I PG — **Time: 2 Hours**
Branch: Zoology — **Max. Marks: 60**

23MZOC10 Bioinformatics

Course Outcomes:

CO1:	Locate and use the main databases at the NCBI and EBI resources and know the difference between databases, tools, repositories and be able to use each one to extract specific information
CO2:	Extract data from specific databases using accessions numbers and gene names
CO3:	Able to perform simple genome sequence analyses using existing tools
CO4:	Interpret correctly the outputs from tools used to analyse biological data and make meaningful predictions from these outputs.
CO5:	Able to describe and comprehend the fundamental concepts of molecular modelling and computational driven drug discovery

Part A **6 x 1 = 6**

Choose the Correct Answer

1. Regions of repetitive DNA at the end of a chromosome that protects against chromosomal deterioration during replication is — CO3 K1
   a) Mini satellite b) Introns c) Telomeres d) Microsatelite
2. The short DNA fragments that are placed onto a microarray are called — CO3K1
   a) Probes b) Markers c) mRNA d) Test sequences
3. Cytoscape is developed using — CO4K2
   a)Java script b)C++ c)FORTRAN d) R programming
4. Rosetta is a ----- prediction method? — CO4K3
   a) ab-initio b) Threading c) Primary structure d) Homology modelling
5. ExPASy databases include ------ except — CO5 K1
   a) Swiss-port b) PHYLIP c) Trembl d) Prosite
6. Scientific name of Zebrafish is — CO5 K2
   a)Danio rerio b) Mus musculus c)Caenorhabditis elegans d)Saccharomyces cerevisiae

Part B **3 x 6 = 18**

Answer ALL questions.Each answer should not exceed 400 words or two pages

7. a) Write short note UCSC genome browser — CO3K2

OR

7. b) Explain about Noncoding and repetitive DNA sequences — CO3 K4
8. a) Explain the importance of Expasy tools for protein analysis — CO4 K4

OR

8 b)Discuss the importance of x-ray chrystallography and NMR spectroscopy for structure validation — CO4 K3
9. a) Explain the significance of Cytoscape for visualizing molecular interaction networks — CO4 K3

OR

9. b) The fruit fly, Drosophila, is used as a model organism to study disciplines ranging from fundamental genetics to the development of tissues -Justify — CO5 K4

Part C **3 x 12 = 36**

Answer ALL questions. Each answer should not exceed 800 words or four pages

10. a) Elaborate on goals and applications of ENCODE and GENCODE — CO3 K4

OR

10. b) Give an account on Homology modeling and threading — CO3K3

11. a) Write an account on the steps involved in electrophoresis and MALDI-TOF — CO4 K3

OR

11. b) Write an essay on molecular visualization tools — CO4 K3
12. a) Explain microarray technique. Compare and contrast RNA Seq and Microarray technique — CO5 K2

OR

12. b) Discuss significance of E.coli and *yeast* models for genome based studies — CO5K4

No. of Copies: 6 **Name of the staff: Dr. K.S.Santhy**