Reg. No ..... Name **24P2022**

M. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024

SEMESTER 2 - ZOOLOGY

COURSE : **21P2ZOOT06 - GENETICS AND BIOINFORMATICS**

(For Regular 2023 Admission and Improvement/Supplementary 2022/2021 Admissions)

Duration : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1.	What is known as 'bootstrapping' in molecular phylogenetics?	(R)
2.	What is Telomere?	(U)
3.	What is Loss of function mutation?	(U)
4.	What is FASTA?	(R, CO 7)
5.	What is Narrow sense heritability?	(U)
6.	Explain the uses of structure databases?	(U)
7.	What is Gene silencing?	(U)
8.	What is Maternal inheritance?	(U)
9.	What is Pleiotropy?	(U)
10.	Explain Sanger's DNA sequencing method.	(U, CO 8)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weights: 2**

11.	Explain a gap in a sequence alignment. Explain its implications in phylogenetic information.	(U, CO 7)
12.	What are Metabolites? Differentiate between primary metabolite and secondary metabolites? Explain metabolomics.	(R, CO 8)
13.	Explain the procedure of Phylogeny inference from molecular sequence data.	(U, CO 7)
14.	write brief notes on nucleosome model.	(U)
15.	Comment on molecular mechanisms of recombination.	(U)
16.	Describe temperature dependant plasticity in genetics.	(U, CO 5)
17.	What is genetic mapping with molecular markers?	(U)
18.	Explain the organization and services available from NCBI-Genbank.	(U, CO 7)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Elaborate on sequence alignment search tools and their research applications.	(E, CO 7)
20.	Elaborate on the data types of major biological databases. How can the data be submitted to these databases.	(E)
21.	Elaborate on chromatin modifications and their mechanism of action.	(U, CO 5)
22.	Write an essay on Transposable elements in Bacteria.	(U)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 5	Develop the concepts of Human Genetics, Extra-chromosomal Inheritance, Epigenetics, Quantitative and Population Genetics	U	16, 21	7
CO 7	Interpret the idea of sequence similarity search and sequence analysis methodology	U	4, 11, 13, 18, 19	12
CO 8	Analyse the basic ideas of Genomics, Proteomics, systems biology and metabolomics	An	10, 12	3

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;