U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Biotechnology **Duration: 3 hrs.**
Course Code 19BT6DCGAP **Max Marks: 100**
Course: Genomics and Proteomics **Date: 05.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	*CO*	*PO*	Marks
1	a)		Enumerate the principle and steps of pacific biosciences SMRT sequencing.	*CO1*	*PO1*	**07**
	b)		Present the steps of Automated Sanger sequencing. Write the method to interpret the sequencing results.	*CO1*	*PO1*	**08**
	c)		Elucidate the steps of pyrosequencing.	*CO1*	*PO1*	**05**
			UNIT - II			
2	a)		Sequence-tagged site (STS) mapping is a technology used in physical mapping of the genome. Write the steps of the technique.	*CO2*	*PO1*	**08**
	b)		Write the principle of the optical mapping technique.	*CO2*	*PO1*	**07**
	c)		Write the steps of Fluorescent *in situ* hybridisation (FISH) mapping.	*CO2*	*PO1*	**05**
			UNIT - III			
3	a)		What is AFLP? Elaborate the steps of the technique.	*CO3*	*PO5*	**08**
	b)		Enumerate the principle of DNA microarrays.	*CO3*	*PO5*	**06**
	c)		What is STR typing? Write its principle.	*CO3*	*PO5*	**06**
			OR			
4	a)		Elucidate the principle and steps involved in RNA Seq. Add a note on FastQC.	*CO3*	*PO5*	**08**
	b)		Elaborate on the principle and steps of differential display PCR technique.	*CO3*	*PO5*	**08**
	c)		What are SNPs? Discuss the types.	*CO3*	*PO5*	**04**

			UNIT - IV			
	5	a)	Illustrate the method of the Isotope Coded Affinity Tagging (ICAT) used in quantitative proteomic analysis.	*CO3*	*PO5*	**10**
		b)	What is MALDI-TOF? Elucidate the phases of MALDI-TOF.	*CO3*	*PO5*	**10**
			OR			
	6	a)	What is Tandem Mass spectrometry? Explain Quadrupole Time-of-flight MS.	*CO3*	*PO5*	**10**
		b)	Elucidate the utility of mass spectrometry in the detection of phosphoproteome.	*CO3*	*PO12*	**10**
			UNIT - V			
	7	a)	What is the principle of Surface Plasmon Resonance spectroscopy? Depict the workflow and write the applications.	*CO4*	*PO1*	**08**
		b)	Present the instrumentation and working principle of Atomic Force microscopy.	*CO4*	*PO1*	**08**
		c)	What are analytical protein microarrays? Write their utility.	*CO4*	*PO1*	**04**

****