Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 90003

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Seventh Semester
Biotechnology
U19BT726 – PROTEOMICS AND GENOMICS
(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Differentiate between coding and non-coding sequences.	2	K2	CO1
2.	Explain the process of genome annotation.	2	K2	CO1
3.	Describe the principle of RFLP technique.	2	K1	CO2
4.	Delineate the significance of 16S rRNA typing.	2	K1	CO2
5.	List out the steps in 2-D electrophoresis of proteins.	2	K1	CO3
6.	Outline about peptide fingerprinting.	2	K1	CO3
7.	Define personalized medicine.	2	K2	CO4
8.	Write a note on high throughput screening.	2	K2	CO4
9.	What is a protein microarray?	2	K1	CO5
10.	Define metabolomics.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Explain the structural organization of genome in prokaryotes and eukaryotes with suitable examples	13	K2	CO1
		(OR)			
	b)	Discuss genome sequencing methods and annotation process in microbial systems.	13	K2	CO1

12.	a)	Describe the tools and techniques used in genome analysis such as RAPD, RFLP, and SNP analysis.	13	K3	CO2
		(OR)			
	b)	Explain linkage mapping and its role in comparative genomics.	13	K3	CO2
13.	a)	Discuss in detail the various proteomic techniques used for protein identification and characterization.	13	K3	CO3
		(OR)			
	b)	Explain the working principle and applications of MALDI-TOF and LC/MS-MS in proteomics.	13	K3	CO3
14.	a)	Describe the process of high throughput screening for drug discovery and explain the concept of pharmacogenetics.	13	K2	CO4
		(OR)			
	b)	Discuss the significance and ethical concerns of personalized medicine.	13	K2	CO4
15.	a)	Explain microarray-based gene expression profiling and its applications in functional genomics.	13	K4	CO5
		(OR)			
	b)	Discuss the role of systems biology, metabolomics, and metagenomics in understanding gene function.	13	K4	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Design a workflow for identifying potential drug targets from genome sequencing data and explain how proteomics can aid in target validation.	15	K4	CO5
		(OR)			
	b)	Analyze a case study based on any disease about the application of personalized medicine using genome and proteome data integration.	15	K2	CO4