

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VII EXAMINATION - WINTER 2025

Subject Code: 3170416

Date: 13-11-2025

Subject Name: Genomics and Proteomics

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

	Marks
Q.1 (a) Describe genome organization in prokaryotes.	03
(b) Explain FISH.	04
(c) Give a brief note on RAPD with diagram.	07
Q.2 (a) Describe genome-wide association (GWA) analysis.	03
(b) Explain basic principle and design of cDNA.	04
(c) Write a brief note on types of microarray - expression arrays.	07
OR	
(c) Explain design and application of CGH arrays.	07
Q.3 (a) Explain RFLP.	03
(b) Give relationship between protein structure and function.	04
(c) Write brief note on MALDI- TOF.	07
OR	
(a) What are advances in gene finding and functional prediction?	03
(b) Write a note on tertiary and quaternary structure of protein.	04
(c) Elaborate any 6 disease biomarkers.	07
Q.4 (a) Which biomarker is used to monitor heart failure and why?	03
(b) Briefly explain surface plasmon resonance (SPR).	04
(c) Explain principle, steps and application of NGS.	07
OR	
(a) Write any three applications of clinical proteomics.	03
(b) Describe the principle of protein microarrays.	04
(c) Explain whole genome shotgun (WGS) sequencing.	07
Q.5 (a) Explain yeast two hybrid system.	03

- (b) Write working of solid phase ELISA. 04
- (c) Explain Identification and analysis of proteins by 2D analysis 07
- OR**
- (a) Explain Gene Ontology functional enrichment tools. 03
- (b) Explain principle and application of chain termination. 04
- (c) Explain far western analysis. 07
