Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 170405 **Date: 03/12/2013**

Subject Name: Genomics and Proteomics

Time: 10:30 TO 01:00 **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	What is genomics? Discuss various branches of genomics.	**07**
	(b)	Define proteome and proteomics. Comment on different branches of proteomics.	**07**
Q.2	**(a)**	Explain the packing of nuclear DNA in eukaryotes.	**07**
	(b)	Comment on prokaryotic genome organization.	**07**
		OR	
	(b)	Comment on human genomic variations.	**07**
Q.3	**(a)**	Comment on natural gene circuits. Briefly explain the concept of synthetic biology.	**07**
	(b)	Briefly describe specialized nucleotide databases.	**07**
		OR	
Q.3	**(a)**	Discuss various gene prediction methods and tools.	**07**
	(b)	Comment on the construction and applications of EST.	**07**
Q.4	**(a)**	Define DNA microarray and comment on the construction and applications of DNA microarray for healthcare applications.	**07**
	(b)	Describe Serial Analysis of Gene Expression (SAGE).	**07**
		OR	
Q.4	**(a)**	Describe principle, procedure and applications of 2D-PAGE.	**07**
	(b)	Describe principle, procedure and applications of Mass Spectroscopy technique used in proteomics.	**07**
Q.5	**(a)**	What is protein microarray? Comment on the construction and applications of protein microarray.	**07**
	(b)	Describe the principle, procedure and applications of Rational Drug Designing.	**07**
		OR	
Q.5	**(a)**	Comment on protein structure prediction and visualization.	**07**
	(b)	Comment on protein modeling, docking and simulation.	**07**

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