Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2160410 Date:21/05/2019

Subject Name: Bioinformatics

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.**

Q.1	**(a)**	Give the historical overview of Bioinformatics.	**03**
	(b)	What is consensus sequence?	**04**
	(c)	Briefly explain the role of NCBI. Further, discuss MMDB.	**07**
Q.2	**(a)**	Enlist the tools of Entrez.	**03**
	(b)	Write with an example: global alignment.	**04**
	(c)	Discuss the importance of molecular biology in understanding bioinformatics.	**07**
		OR	
	(c)	For what attributes, do the phylogenetic analysis help?	**07**
Q.3	**(a)**	What is cladistics and systemics?	**03**
	(b)	How is the score calculated for BLAST and transition-transversion matrices?	**04**
	(c)	Explain the terms: target identification and validation, lead molecule identification and optimization.	**07**
		OR	
Q.3	**(a)**	Describe Hidden Markov Model.	**03**
	(b)	Narrate the major features of PDB.	**04**
	(c)	Give the importance of multiple sequence alignment.	**07**
Q.4	**(a)**	Write the steps of *Chau-Fasman* method for secondary structure prediction.	**03**
	(b)	What is DNA microarray?	**04**
	(c)	Make a clear list of applications of Bioinformatics and briefly important of all.	**07**
		OR	
Q.4	**(a)**	Make a list of all the tools for gene prediction.	**03**
	(b)	Discuss maximum parsimony method representing phylogeny.	**04**
	(c)	What are the major tools or techniques in proteomics? Explain any two of them.	**07**
Q.5	**(a)**	"Protein structure is related with its function'. Discuss briefly.	**03**
	(b)	Write the steps for GOR IV method.	**04**
	(c)	What is Single nucleotide polymorphism? Explain.	**07**
		OR	
Q.5	**(a)**	Define: Progressive alignment.	**03**
	(b)	What is clinical trial? What are its phases?	**04**
	(c)	Explain the types of proteomics studies, based on their characteristics.	**07**

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