

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

M.SC. INDUSTRIAL BIOTECHNOLOGY/ POST GRADUATE DIPLOMA IN BIOINFORMATICS  
SEMESTER - 1 WINTER 2022 EXAMINATION

**Subject Code:1310104**

**Date: 9 Jan 2023**

**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.
4. Draw neat and clean diagrams as required.

**Q.1 Write a note on following**

**(Marks-  
10X2=20)**

1. BOLD
2. RepeatMasker
3. UniProt
4. Rasmol
5. Peptide bond, phi, psi and chi torsion angles
6. GOR
7. Image Processing in Microarray
8. Transcriptomics
9. Clustal W
10. Motifs

**Q.2 Answer the following (Any 2 out of 3)**

**(Marks-  
2X10=20)**

1. Describe the step by step process of any one dynamic programming method of alignment.
2. Illustrate step wise Maximum Parsimony tree construction method using example.
3. Explain the molecular modelling technique based on template prediction and its application in drug discovery.

**Q.3 Answer the following (Any 6 out of 8)**

**(Marks-  
6X5=30)**

1. Differentiate between primary & secondary databases with examples.
2. What is force field and its utility in structural bioinformatics.
3. Juke – carton model of evolution.
4. What are the advantages of Python programming in bioinformatics s compare C or C++.
5. How does fold recognition approach helps in predicting protein structure?
6. Differentiate between QSAR and structure based drug designing.
7. How the differentially expressed genes do help in biomarker identification?
8. What is system biology? Describe any one interactome.

\*\*\*\*\*