Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**POST GRADUATE DIPLOMA IN BIOINFORMATICS SEMESTER - 1 WINTER 2022 EXAMINATION**

**Subject Code:1310203 Date:5 Jan 2023**

**Subject Name:Python for 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. Operator precedence in Python.
2. Inheritance feature of OOPS programming.
3. Methods and Functions similar yet different in Python.
4. Indent in python code and its significance.
5. Difference between capitalized() and title() methods.
6. Flow charts.
7. Difference between count() and find().
8. Any two methods for string manipulation along with the usage.
9. Variable in python.
10. Write a program that will print the GC content of the given nucleotide sequence.

**Q.2 Answer the following (Any 2 out of 3)** **(Marks-2X10=20)**

1. What is Data structure in programming language? Describe each data structure of python with one example.
2. Write a program to find an ambiguous letter within a sequence of your choice.
3. Write a program to find the restriction site of Sma1, BamHI and HindIII in a DNA sequence provided in a txt file.

**Q.3 Answer the following (Any 6 out of 8)** **(Marks-6X5=30)**

1. What is a dictionary in python? Explain different methods bound to dictionary.
2. Differentiate between ordered and unordered data types with example.

**3.** Write a program to cut the DNA sequence in exon and intron.

**4.** Differentiate between if/else and elif loops with the help of example.

**5.** What is Bio-python? Write the use of any one Bio-python module used in bioinformatics analysis.

**6.** Differentiate between while and for loops.

**7** Write a python script to calculate the count of valine in a protein sequence.

**8** Write a script to concatenate two different restriction enzyme lists of your choice.

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