

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3150312****Date:15/12/2021****Subject Name:Python Programming for Biomedical Engineers****Time:02:30 PM TO 05:00 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) Define following terms in the context of Python programming: 1) Identifier, 2) Statement and 3) Operator	03
	(b) What is precedence? Explain with at least 2 different examples.	04
	(c) Enlist the control flow statements.	07
Q.2	(a) Give syntax and explain following built-in python functions: min(), all() and len()	03
	(b) Write a program that fulfills following conditions:	04
	1) 'while' loop is executed 5 times only.	
	2) Use 'True' as the Boolean Expression for while loop.	
3) Each execution of the loop must print the number of iteration of the loop.		
4) The loop must terminate and the program should not generate any error message.		
(c) Write a program to get 5 numerical inputs from the user and display the sum and average of these numbers. Also display the largest and smallest value entered by the user.	07	
OR		
(c) Explain with example the use of Index Number in accessing characters in a string.	07	
Give following two examples of string slicing using index number on the string you have selected above.		
1) Positive indexing		
2) Combination of positive and negative indexing		
Q.3	(a) Explain basic list operations.	03
	(b) Give example of all the methods to create a dictionary.	04
	(c) Consider following list :	07
locations = ["Gotham", "NY", "Mirzapur", "Vizag", "Titan"]		
Apply following methods on the given list (write proper syntax for the method) in given order and write what will be the output of these methods: count(), index(), sort(), insert(), reverse(),pop() and copy()		
For insert() method add location 'Batcave' such that sorting is not broken		
OR		
Q.3	(a) Enlist the properties of 'Dictionary' class.	03
	(b) Differentiate between following for list:	04
	1) append() and insert()	
2) pop() and remove()		
(c) For the below given dictionary, write a program to demonstrate traversing using 'for' loop. Also, write the output of your program. The output must	07	

give a sentence mentioning the country name and corresponding capital for all the pairs in the dictionary.

```
capital = {"India": "New Delhi", "USA": "Washington D.C.", "Russia": "Moscow", "Japan": "Tokyo", "Germany": "Berlin"}
```

- Q.4** (a) What is immutable data? Explain tuple as immutable data type with necessary example. **03**
- (b) Explain the properties of set. **04**
- (c) What is zip() function? Write a python program to illustrate the use of zip() function. **07**

OR

- Q.4** (a) What are sets and frozenset? Explain and compare them. **03**
- (b) Explain tuple packing and unpacking. **04**
- (c) Explain following methods of sets with proper syntax and example: add(), difference(), intersection(), issubset(), remover(), symmetric_difference() and union() **07**

- Q.5** (a) What is user defined function? Why are they useful in programming? **03**
- (b) Explain *args and **kwargs for functions. **04**
- (c) Explain graphing methods in python. **07**

OR

- Q.5** (a) Enlist methods associated with File Object. **03**
- (b) What is NumPy? Explain in brief. **04**
- (c) Explain file types and different access modes available in python to access a file. **07**
