GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2023

Subject Code:3151108   **Date:05-12-2023**
Subject Name:Python Programming
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.
   Simple and non-programmable scientific calculators are allowed.

			MARKS
Q.1	**(a)**	Describe membership operator and identity operator with example.	**03**
	(b)	Write Python program to find sum of first N numbers using while loop. (Take N as user input)	**04**
	(c)	Differentiate List, Tuple, Set and Dictionary.	**07**
Q.2	**(a)**	Describe following list methods with example. (1) append( ) (2) insert( ) (3) discard( )	**03**
	(b)	Describe for loop with example.	**04**
	(c)	Write Python code to print following pattern using nested loop. 1 / 0 1 / 1 0 1 / 0 1 0 1 / 1 0 1 0 1 / Take Number of row as user input.	**07**

OR

	(c)	Write Python code to find determinant of 3x3 Matrix. Enter 9 data run time.	**07**
Q.3	**(a)**	Describe python tuple with example. Describe any two built-in tuple methods	**03**
	(b)	Describe filter method/function available in python with example.	**04**
	(c)	Write a python program to read marks of students from **"student_marks.csv".** Find average, maximum, and minimum marks from data. (File contains 100 records)	**07**

OR

Q.3	**(a)**	Describe different methods to make dictionary variable.	**03**
	(b)	Enlist different modes of opening file. Describe any three method with example	**04**
	(c)	Write a program to print 100 fibonacci numbers in file "Myfibonnaci.csv"	**07**
Q.4	**(a)**	Enlist types of plot available in python matplotlib module.	**03**
	(b)	Describe python function with keyworded variable length argument with example.	**04**

	(c)	Write following python functions:	**07**

(c) Write following python functions: **07**
Function-1: Returns reverse string word wise.
Function-2: Count occurrence of vowels from input string.
Design Main python code where above functions are called.

<div align="center">OR</div>

Q.4 **(a)** Enlist python operators which results in Boolean output. Explain with example. **03**

(b) Enlist python errors. Describe try-except block with example. **04**

(c) Write a python program to find roots of following quadratic equation and plot it. **07**
$$y = 3x^2 - 5x - 4$$
in the range of -5 to 5 on plot. Put axes label and plot title.

Q.5 **(a)** Enlist various tools available to program MicroPython. **03**

(b) Describe lambda function with two examples. **04**

(c) Sketch circuit diagram to interface 8-LEDs with GPIO of CPU* Write MicroPython program to blink LEDs in ring counter pattern. **07**

CPU* : Microcontroller board which supports Micropython Programming.

<div align="center">OR</div>

Q.5 **(a)** Describe merits and demerits of Micropython over python. **03**

(b) Describe Modules in python. **04**

(c) Sketch circuit diagram to interface 16x2 LCD with CPU* Write MicroPython program to display "Python Programming" on first line of LCD. **07**

CPU* : Microcontroller board which supports Micropython Programming.

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