GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VIII (OLD) EXAMINATION – WINTER 2023

Subject Code:2180711   **Date:01-12-2023**

Subject Name: Python Programming

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.**

Q.1	**(a)**	What are key features of python?	**03**
	(b)	What is Immutable Data type? Explain any one immutable data type in python.	**04**
	(c)	Write Python statements that performs following operation on a string str1 = "GTU University Examination".	**07**

    a. Prints length of str1
    b. Prints a character on 11th index of str1
    c. Prints a substring from 0th index to 13th index of str1
    d. Prints all characters of str1 in Upper case
    e. Prints reverse string of str1

Q.2	**(a)**	Explain range () function with an example.	**03**
	(b)	Consider two lists L1 = [1,4,6,8,12] and L2 = [1,2,4,8,9], Write a python function that takes list L1 and L2 as arguments and returns a list that has all the elements of L1 that do not occur in L2.	**04**
	(c)	Explain how list are a mutable data type? Write a python function that takes a list L as an argument and returns a list with the elements "shifted right by one position". For example if L = [1,2,3,4] then output is [4,1,2,3].	**07**

OR

	(c)	What is a recursion? Implement a python function that counts the number of occurrences of a character in the given string using recursion method.	**07**

Q.3	**(a)**	Explain split() function with an example.	**03**
	(b)	What is specification? What is importance of writing specification in a program? How to write them in python?	**04**
	(c)	How to handle Exception in python? Write a python program that raises a ValueError exception with a Message "Input value is not a valid even number" if user enters an odd number or any input that is not a number.	**07**

OR

Q.3	**(a)**	Explain usage of assert statement in python.	**03**
	(b)	What do you mean by bugs? Explain them with its types.	**04**
	(c)	Write a python program to implements insertion sort on a list of integer values.	**07**

Q.4	**(a)**	What is socket? How to create a socket in python?	**03**
	(b)	Create a class Employee with data members: name, department and salary. Create suitable methods for reading and printing employee information.	**04**
	(c)	How to create a Multithreaded program in Python? Explain it with an appropriate example	**07**

OR

Q.4	**(a)**	Explain the function which is used to retrieve the parts of URL.	**03**

(b) Write a Python program to read a text file and do following: **04**
    1. Print no. of unique words
    2. Print no. of lines in text file

(c) Write a python program that creates a class student with following member   **07** attributes: enrollment_no, name and semester. Create suitable methods for reading and printing member variables, also an operator overloading function that converts student object to string.

Q.5 (a) Explain the use of following turtle functions with appropriate example: **03** penup() and goto()

(b) Write a python program to implement a Caesar cipher.   **04**

(c) Explain the major steps used to create widgets. Write a python program to   **07** display a push button labeled as "Click Here". Also add a function on that button that will show a message box having message "You have clicked a button".

OR

Q.5 (a) Write a note on Tkinter widget: Listbox and RadioButton.   **03**

(b) Explain in detail about pack attributes in Tkinter   **04**

(c) Create following regular polygons (regular means all sides the same lengths,   **07** all angles the same) using for loop in turtle
- An equilateral triangle
- A square
- A pentagon
- A hexagon

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