

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V(NEW) EXAMINATION – SUMMER 2022****Subject Code:3151108****Date:02/06/2022****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Explain how string is converted into list? Convert String S = “GTU Supports Innovation” into list.	<b>03</b>
	(b) How list is different from tuple? Write advantages of tuple.	<b>04</b>
	(c) Describe Arithmetic Operators, Assignment Operators and Bitwise Operators in detail with examples	<b>07</b>
<b>Q.2</b>	(a) Explain for loop in python. Display even numbers from 0 to 100 using for loop	<b>03</b>
	(b) Explain while loop in python. How to create infinite while loop? How to break infinite while loop in certain condition? Explain with example.	<b>04</b>
	(c) Explain nested if statements in Python with logical combinations. Write program to get temperature and humidity from the user. Display following messages in different situations: (1) If temperature>30 and humidity<20% Message: “Hot and Dry” (2) If temperature is in between 20 to 30 and Humidity between 20% to 40% Message: “Good weather condition” (3) If temperature is between 20 to 30 and Humidity more than 80% Message: “Moisture present”	<b>07</b>
	<b>OR</b>	
	(c) Write Python program that accepts a sentence and calculate the number of words, digits, uppercase letters and lowercase letters	<b>07</b>
<b>Q.3</b>	(a) Explain the <b>is</b> and <b>is not</b> operators with example	<b>03</b>
	(b) Write a Python Program to find the sum of all Odd numbers up to a number specified by the user.	<b>04</b>
	(c) Write Python Program to get number from the user and find the Sum of digits in entered number by the user and print the sum. Prompt the user to get the input number.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Write Python Program to find factorial of given number	<b>03</b>
	(b) Explain continue and pass statements in Python with example. What is the use of continue and pass statements?	<b>04</b>
	(c) Explain command line arguments with help of one example	<b>07</b>
<b>Q.4</b>	(a) Write Python code to check if a given year is a leap year or not ?	<b>03</b>

- (b) Write a Python Program to input information for 5 number of students as given below: **04**  
 a. Name  
 b. Registration Number  
 c. Total Marks
- (c) Write Python Program to Prompt for a Marks in the range of 0 to 100. If the entered mark is out of range, it should print an error. If the entered marks is between 0 and 100, print a grade using following information: **07**  
     Marks  $\geq 70$  Grade A  
      $60 \leq \text{Marks} < 70$  Grade B  
      $50 \leq \text{Marks} < 60$  Grade C  
      $40 \leq \text{Marks} < 50$  Grade D  
     Marks  $< 40$  Grade FF
- OR**
- Q.4** (a) Explain file exception handling. What are the reasons for file exceptions? **03**  
 (b) Write Python Program to count the number of times an item appears in the list. **04**  
 (c) Given a point(x,y), Write Python Program to find whether this point lies in the First, Second, Third or Fourth Quadrant of X - Y Plane. Print message of corresponding quadrant. **07**
- Q.5** (a) List Integrated development environment (IDE) used for Micropython programming **03**  
 (b) Write Micropython program to send digital data 0 to pin no. 4 and digital data 1 to pin no. 2 of NodeMCU board. **04**  
 (c) Write a Python program to check the validity of a password entered by the user. Provide prompt to the use to enter the password. **07**  
     The Password should satisfy the following criteria:  
     1. Contain at least 1 letter between a and z  
     2. Contain at least 1 number between 0 and 9  
     3. Contain at least 1 letter between A and Z  
     4. Minimum length of password: 6  
     If password satisfies all above condition, print message "Valid password" else print message "Invalid password".
- OR**
- Q.5** (a) Explain difference between Python and Micropython. **03**  
 (b) What is the necessity of file operations? Explain different mode of file opening. Which mode is preferred if **04**  
 (c) Write Micropython program to read sensor data from pin A0 of NodeMCU board. Glow LED connected at pin number 4 of NodeMCU if sensor data is greater than 500. **07**  
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