Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–V (NEW) EXAMINATION – WINTER 2020

Subject Code:3151108 Date:22/01/2021

Subject Name:Python Programming

Time:10:30 AM TO 12:30 PM Total Marks: 56

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			Marks
Q.1	**(a)**	Briefly explain Data types and Variable in Python.	**03**
	(b)	Write a program that calculates and prints the number of minutes in a year.	**04**
	(c)	Discuss following Python's operators: Arithmetic, Assignment, Comparison, Logical with suitable examples.	**07**
Q.2	**(a)**	What is The Structure and Behavior of a "while Loop" explain with example.	**03**
	(b)	Write a program that accepts the lengths of three sides of a triangle as inputs. The program output should indicate whether or not the triangle is a right triangle.	**04**
	(c)	Write a python script to Convert Decimal number to Binary number	**07**
Q.3	**(a)**	Discuss Boolean Functions with examples.	**03**
	(b)	Define a function named even. This function expects a number as an argument and returns True if the number is divisible by 2, or it returns False otherwise.	**04**
	(c)	Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument	**07**
Q.4	**(a)**	Discuss in brief python "Dictionaries" with example	**03**
	(b)	Assume that the variable data refers to the dictionary {'b':20, 'a':35}. Write the values of the following expressions: a. data['a'] b. data.get('c', None) c. len(data) d. data.keys()	**04**
	(c)	Write a Python function that checks whether a passed string is palindrome or not	**07**
Q.5	**(a)**	Discuss common functions for accessing files	**03**
	(b)	what are the differences between python and Micro python	**04**
	(c)	Write a Python program to copy the contents of a file to another file	**07**
Q.6	**(a)**	How to read CSV file in python explain with example.	**03**
	(b)	Discus the steps of Installation of MicroPython on Hardware	**04**
	(c)	Write a python program to find the longest words in a read file.	**07**
Q.7	**(a)**	Explain following fucntions of micropython: 1. uart.read(5); 2. pwm0.freq(1000) 3. wlan.scan()	**03**
	(b)	Write a micropython script to Blink led pin connected to GPIO digital pin 1 to 4 of ESP8266 continuously.	**04**
	(c)	Write a micropython script to read PIR sensor data for an ESP8266. If value is high print "Motion detected" otherwise print "Motion Stopped".	**07**
Q.8	**(a)**	Explain steps in micropython to connect esp module's wifi.	**03**
	(b)	Write a micro python program: if Button is Connected with Pin number 1 of ESP8266. When button is pressed toggle the leds connected to pin number 2 and 3.	**04**
	(c)	Write a micropython script to read and print DHT Sensor data for ESP8266 continuously.	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2021

Subject Code:3151108 Date:15/12/2021

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.**

			Marks
Q.1	**(a)**	Define Python? List the important features of python.	**03**
	(b)	What is tuple ? What is the difference between list and tuple?	**04**
	(c)	Write short note on different types of operators in python with appropriate example.	**07**
Q.2	**(a)**	What is a function? Mention the type of function and use.	**03**
	(b)	What is len function and explain how it is used on strings with an example.	**04**
	(c)	What is Data Type? Explain various data types used in Python.	**07**
		OR	
	(c)	Write a python program to check if a string is palindrome or not.	**07**
Q.3	**(a)**	What is the use of str.upper() and str.lower() functions in string?	**03**
	(b)	What are Python's dictionaries? Explain how to create a dictionary in python?	**04**
	(c)	Explain following List methods in python with appropriate example. a) append() b) insert() c) remove() d) clear() e) reverse()	**07**
		OR	
Q.3	**(a)**	What is meant by module in python? . List some built in modules in python.	**03**
	(b)	Explain break and continue statement in python?	**04**
	(c)	What is an exception? Explain about the different types of Exceptions in Python.	**07**
Q.4	**(a)**	Explain string comparison with an example.	**03**
	(b)	Which method is used to read the contents of a file which is already created?	**04**
	(c)	Write a program to enter a number in Python and print its octal and hexadecimal equivalent	**07**
		OR	
Q.4	**(a)**	What are negative indexes and why are they used?	**03**
	(b)	What is the difference between = = and is operator in Python?	**04**
	(c)	Write a python program to find the factorial of any number.	**07**
Q.5	**(a)**	Write the syntax and usage of WHILE and FOR loop.	**03**
	(b)	Give difference between Micro Python and Python.	**04**
	(c)	Explain all file processing modes supported in Python.	**07**
		OR	
Q.5	**(a)**	What is micro python? Discuss unique features of micro python.	**03**
	(b)	How does del operation work on dictionaries? Give an example.	**04**
	(c)	Write program in MicroPython to send digital data on GPIO pins of NodeMCU and glow LED connected with NodeMCU or any other MicroPython supported board.	**07**

Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2021

Subject Code:3151108 Date:07/09/2021

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Describe merits and demerits of python over other language.	**03**
	(b)	Write Python code to find and print first n- Fibonacci numbers.	**04**
	(c)	Describe mathematical and logical operators in python.	**07**
Q.2	**(a)**	What is difference between list and tuple.	**03**
	(b)	Describe elsif ladder structure and nested if..else.. statement.	**04**
	(c)	Write Python code to print following pattern using nested loop. * * * * * * * * * * * * * * *	**07**
		OR	
	(c)	Write Python code to find average, Maximum and Minimum of marks obtained by students for Engineering Drawing subject (class size : 60)	**07**
Q.3	**(a)**	Describe dictionary example in python. How to access individual members?	**03**
	(b)	Describe user defined function in python.	**04**
	(c)	Write a python program to read data from **"file1.csv"**, if data is negative write it in **"negative.csv"** and if data is positive write it in **"positive.csv"**	**07**
		OR	
Q.3	**(a)**	Describe concept of "set" in python. How to access individual members of set?	**03**
	(b)	Describe file handling functions in python.	**04**
	(c)	Write a program to print the same python program using file handling.	**07**
Q.4	**(a)**	Describe with example : Module in python	**03**
	(b)	Describe break, continue, pass statement with example	**04**
	(c)	Write a python function to convert string into upper case and find length of string. String will be passed to function from main program print both the return value in main program..	**07**
		OR	
Q.4	**(a)**	Describe range function with example.	**03**
	(b)	Describe exception handling with example.	**04**
	(c)	Write a program to plot (1) sin wave	**07**

(2) cosine wave
(3) $y = x^2 + 2x + 1$

range of -5 to 5 on (A) separate plot (B) same plot.
Put axes label and plot title for both plots.

Q.5	**(a)**	Describe features of python which are not supported by MicroPython.	**03**
	(b)	Differentiate: Python and MicroPython.	**04**
	(c)	Write MicroPython program to blink LED at 1 sec on GPIO pin	**07**
		OR	
Q.5	**(a)**	Enlist various IDE available to program MicroPython program.	**03**
	(b)	Describe features of MicroPython	**04**
	(c)	Write MicroPython program to read proximity sensor connected at Pin1, blink the LED if sensing is detected.	**07**

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Seat No.: _____ Enrolment No._____

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.**

			MARKS
Q.1	**(a)**	Explain how string is converted into list? Convert String S = "GTU Supports Innovation" into list.	**03**
	(b)	How list is different from tuple? Write advantages of tuple.	**04**
	(c)	Describe Arithmetic Operators, Assignment Operators and Bitwise Operators in detail with examples	**07**
Q.2	**(a)**	Explain for loop in python. Display even numbers from 0 to 100 using for loop	**03**
	(b)	Explain while loop in python. How to create infinite while loop? How to break infinite while loop in certain condition? Explain with example.	**04**
	(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"	**07**
		OR	
	(c)	Write Python program that accepts a sentence and calculate the number of words, digits, uppercase letters and lowercase letters	**07**
Q.3	**(a)**	Explain the **is** and **is not** operators with example	**03**
	(b)	Write a Python Program to find the sum of all Odd numbers up to a number specified by the user.	**04**
	(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.	**07**
		OR	
Q.3	**(a)**	Write Python Program to find factorial of given number	**03**
	(b)	Explain continue and pass statements in Python with example. What is the use of continue and pass statements?	**04**
	(c)	Explain command line arguments with help of one example	**07**
Q.4	**(a)**	Write Python code to check if a given year is a leap year or not ?	**03**

(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 ≥ 70 Grade A
60≤Marks<70 Grade B
50 ≤ Marks <60 Grade C
40 ≤ 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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