

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA INTEGRATED– SEMESTER-IV EXAMINATION –SUMMER-2020****Subject Code:2648601****Date:04-11-2020****Subject Name:Python (PY)****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.**

- Q.1 (a)** Write syntax for following: **07**
- 1) Take integer input from user
 - 2) Let data=" Hello". Print string data in reverse order.
 - 3) Multiline comments
 - 4) Declare tuple with multiple data type elements
 - 5) Decimal number to octal conversion
 - 6) While loop
 - 7) Declare global variable
- (b)** Write any one major difference between following: **07**
- 1) Mutable and Immutable
 - 2) Global and Local variable
 - 3) Functions and Generators
 - 4) append() and extend() list methods
 - 5) readline() and readlines()
 - 6) Canvas and frame
 - 7) \d and \D sequence characters in regular expression
- Q.2 (a)** Write program which have class Student with following instance variable. **07**
(empId,empName, empdesignation, Basicsalary), and having following instance methods. calculateHRA(15 % of Sal), calculateTA(5 % of Sal), calculateDA(25 % of Sal) calculateNetSal. Show proper use of class into main program.
- (b)** What is Recursion? Write down program to find factorial of a number with iterative and recursive functions. **07**
- OR**
- (b)** Explain types of variables and types of methods in class using example. **07**
- Q.3 (a)** What are quantifiers and sequence character in regular expression? Explain using example. **07**
- (b)** Briefly explain the data types available in Python with real life examples. Write a code to explain use of different data types using class. **07**
- OR**
- Q.3 (a)** What is regular expression? Suppose str = "Dhara Om Bhavna 123 Ekta Jay 9abc". **07**
Write a regular expression for following requirements on the basis of "str":
1. Search all the word having length between 3 to 5.
 2. Find all the word who start with numeric value.
 3. Find all the non-alphabetic word.
 - 4.
- (b)** Explain iteration mechanism with real life examples of WHILE and FOR loops. **07**

- Q.4 (a)** Explain following methods of pyplot with example. **07**
1. hist()
 2. pie()
 3. title()
- (b)** What is Data Frame in python? Suppose to there is student.csv file which having data of stdid ,name, engMark, gujMark, hinMark, and total. Find out student for following criteria using pandas operation. **07**
1. Create data frame from student.csv file using panda's method.
 2. Find out student who having maximum marks in engMark using data frame.
 3. Find out student who having less than 35 marks in hinMark using data frame.
- OR**
- Q.4 (a)** Write a Python program using PyLab to display strength of students in a college for 5 years. First year strength was 3000 which increased by 5% every year. Display graph accordingly. Use Xlabel, Ylabel, Title, Legend accordingly. **07**
- (b)** What is Data frame? Explain Data frame with different kind of source using example. **07**
- Q.5 (a)** Write a python program which having two function to display a record from employee and department table as following criteria. **07**
1. Display employee detail with department name. (first function)
 2. Display employee from particular department only. (second function)
- Following are structure of table.
Employee(empId,empName,empSal,depId)
Department(depId,depName,depDesc)
- (b)** Explain seek() and tell() methods in detail with proper example to read a binary file. **07**
- OR**
- Q.5 (a)** Write a python program which show to insert and delete records in Product table with following fields. (prodId,prodName,qty,rate,brandName) **07**
- (b)** Explain filter(), map() and reduce() functions using lambda with examples. **07**
