CSOE01

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RAMAIAH
Institute of Technology

(Autonomous Institute, Affiliated to VTU)
(Approved by AICTE, New Delhi & Govt. of Karnataka)
Accredited by NBA & NAAC with 'A' Grade

SEMESTER END EXAMINATIONS JANUARY – FEBRUARY 2021

Program	**:**	**B.E. : Common to all Programs**	**Semester**	**:**	**VII**
Course Name	**:**	**Python Application Programming**	**Max. Marks**	**:**	**100**
Course Code	**:**	**CSOE01**	**Duration**	**:**	**3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT- I

1.	a)	What are membership and identity operators in python? Explain with an example each.	CO1	(06)
	b)	Explain the need for continue and break statements. Write a program to check whether a number is prime or not. Prompt the user for input.	CO1	(06)
	c)	i) Write Python program to replace comma-separated words with hyphens and print hyphen-separated words in ascending order. ii) Write a Python program to construct the following pattern, using a nested for loop. *	CO1	(08)
2.	a)	What is debugging? List and explain the three kinds of errors that one encounters in a program. Give examples.	CO1	(06)
	b)	Given an input string with the combination of the lower and upper case letters, arrange characters in such a way that they are sorted and all lowercase letters should come first followed by uppercase letters. Given: str1 = PyNaTive Expected Output: aeivyNPT	CO1	(06)
	c)	i)Write a python function called fizz_buzz that takes a number.If the number is divisible by 3, it should return "Fizz".If it is divisible by 5, it should return "Buzz".If it is divisible by both 3 and 5, it should return "FizzBuzz". Otherwise, it should return the same number. ii)Write an interactive python program having a function called Initials() that takes input representing a full name and returns the initials of the name in all capital letters. For example If Input: Robert B. Qwerty then Output : RBQ	CO1	(08)

UNIT – II

3.	a)	Describe any two list operations and list methods. Write a program to accept 'n' numbers from the user . Find the sum of all the even numbers and product of all the odd numbers in the given list.	CO2	(08)
	b)	What are pure functions and modifiers with respect to lists in python? Give example for each of the function type.	CO2	(06)
	c)	Compare and contrast tuples with list. Explain the following operations with examples in tuples: i. Sum of two tuples ii. Slicing operators iii. Packing and unpacking of tuples.	CO2	(06)
4.	a)	What is aliasing and cloning w.r.t to lists? Explain each of them with an appropriate example.	CO2	(08)
	b)	Consider the following list : li = [1,3,9,2,7,5,4,20,6] give the output of the following commands: i. li [0 : 4] ii. li [0 : -1] iii. li [: : -1] iv. li [-1 : -4] v. li [:] vi. li [: 5]	CO2	(06)
	c)	List the merits of Dictionary over list. Write a python program to accept USN and marks obtained. Find the maximum and minimum and student USN who have scored in the range 100-85, 85-75 75-60 and below 60 marks respectively.	CO2	(06)

UNIT – III

5.	a)	What are modules? Describe the three different ways to import names into the current namespace, and to use them with an example.	CO3	(06)
	b)	Explain with example the various methods available in the random module.	CO3	(06)
	c)	i) Write a program that reads a file and writes out a new file with the lines in reversed order (i.e. the first line in the old file becomes the last one in the new file.) ii)Write a Python program to count number of characters, words and lines in a file	CO3	(08)
6.	a)	i) Write a Python program to read a file line by line and store it into a list by sorting it by the first letter of each line. ii) Write Python Program to get the File Name from user and find the Longest Word in a File.	CO3	(06)
	b)	i)Discuss the following methods associated with the file object a) read() b) readline() c) readlines() d) write() ii)Describe the different access modes of the files with an example.	CO3	(08)
	c)	i) Write a Python program to generate random odd integers in a specific numerical range using the random module. ii) Write a Python program to get a single random element from a specified string using the random module.	CO3	(06)

UNIT – IV

7.	a)	Explain Raising Exception and Catching Specific Exceptions in Python with a suitable examples.	CO4	(06)
	b)	Define a class named Rectangle which can be constructed by a length and width. The Rectangle class has a method which can compute the area, Write a python program to implement.	CO4	(08)
	c)	Write a note on "Operator Overloading" in python Application.	CO4	(06)

8. a) Differentiate between "deep copy" and "shallow copy" with an example. CO4 (08)
   b) Discuss the need for "self" as a parameter for the class methods with an example. CO4 (06)
   c) Explain the Types of Inheritance in python with an example. CO4 (06)

UNIT – V

9. a) Design and implement a GUI application which accepts the "name" and "time of the day" as input and displays an appropriate greeting message based on the time of the day. CO5 (06)
   b) Create a database to store the population and land area of the Canadian provinces and territories with their capital according to the census CO5 (08)
   Write SQL queries that do the following:
   i. Retrieve the contents of the table
   ii. Retrieve the populations of the provinces and capitals (in a list of tuples of the form [province population, capital population])
   iii. Retrieve the provinces that have land densities within 0.5 persons per square kilometer of on another—have each pair of provinces reported only once.

Province/Territory	capital	Population	Land Area
Labrador	St. John's	512930	370501.69
Prince Edward Island	Charlottetown	135294	5684.39
Nova Scotia	Halifax	908007	52917.43
New Brunswick	Fredericton	729498	71355.67
Quebec	Quebec City	7237479	1357743.08
Ontario	Toronto	11410046	907655.59

   c) List all the SQL aggregate functions. Explain with an example any one of the aggregate function. CO5 (06)

10. a) Design and implement a GUI application to accept a string of numbers and displays the sorted list on click of the button named 'sort'. CO5 (08)
   b) Explain with an example all the steps in creating, populating and saving changes to the database. CO5 (06)
   c) Explain the following terms with respect to the databases with an example code for each. CO5 (06)
   i) keys ii) constraints.

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