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 2019

Course & Branch	**:**	**B.E : Common to all branches**	**Semester**	**:**	**VII**
Subject	**:**	**Python Application Programming**	**Max. Marks**	**:**	**100**
Subject Code	**:**	**CSOE01**	**Duration**	**:**	**3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT- I

1.	a)	Give examples for return statement and logical opposites.	CO1	(06)
	b)	Write a Python program to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 2700 (both included).	CO1	(06)
	c)	i) Write a Python program that accepts a word from the user and reverse it. ii) Write a Python program to construct the following pattern, using a nested for loop. *	CO1	(08)
2.	a)	How errors are handled? What is the role of compiler?	CO1	(06)
	b)	List the logical operators. Explain with an example how python does the short circuit evaluation of the expressions using logical operators.	CO1	(06)
	c)	i. Write a Python program in which a student enters the number of college credits earned. If the number of credits is greater than 90, 'Senior Status' is displayed; if greater than 60, 'Junior Status' is displayed; if greater than 30, 'Sophomore Status' is displayed; else, 'Freshman Status' is displayed. ii. Write a Python program that allows the user to enter a four-digit binary number and displays its value in base 10. Each binary digit should be entered one per line, starting with the leftmost digit , asshown below. Enter leftmost digit: 1 Enter the next digit: 0 Enter the next digit: 0 Enter the next digit: 1 The value is 9	CO1	(08)

UNIT– II

3.	a)	What are pure functions and modifiers with respect to lists in python? Give example for each of the function type.	CO2	(06)
	b)	List and explain all the useful built in methods in dictionaries. Explain with appropriate examples.	CO2	(06)
	c)	i)Write a Python function rotatelist(ls,k) that takes a list ls and a positive integer k and returnsthe list ls after k rotations. If k is not positive, your function should return ls unchanged. Notethat your function should not change ls itself, and should return the rotated list.	CO2	(08)

>>> rotatelist([1,2,3,4,5],1) #output is [5, 1, 2, 3, 4]
>>> rotatelist([1,2,3,4,5],3) #output is [3, 4, 5, 1, 2]
>>> rotatelist([1,2,3,4,5],12) #output is [4, 5, 1, 2, 3]
ii)Define a Python function ascending(ls) that returns True if each element in its input list is atleast as big as the one before it. For empty list, it should be True. Here are some examples to show how your function should work.
>>> ascending([]) #returns True
>>> ascending([3,3,4]) #returns True
>>> ascending([7,18,17,19]) #returns False

4.	a)	Explain any two python built-in collection data structure with an example.	CO2	(06)
	b)	What is aliasing and cloning w.r.t to lists? Explain each of them with an appropriate example.	CO2	(06)
	c)	i) Write a program to count frequency of words in a given file, using dictionaries. Ignore the punctuation marks attached to the words in file and treat lowercase and uppercase letters as the same. ii)Read a string from keyboard input. Create a list containing tuples, where each tuple represents a word in the input string and length of that string. Write a program sort the words in descending order of their length.	CO2	(08)

UNIT- III

5.	a)	What are modules? Describe the three different ways to import names into the current namespace, and to use them.	CO3	(06)
	b)	Explain with example the various methods available in the math module and the time 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. ii) Write a python program to find the longest words.	CO3	(06)
	b)	i) Write a Python program to get current time in milliseconds in Python using the time module. ii) Write a Python program to print a string five times, delay three seconds using the time module.	CO3	(06)
	c)	i) Write a Python program to generate random even 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	(08)

UNIT- IV

7.	a)	What are exceptions? How do you handle an exception in python? Explain the constructs with an example.	CO4	(06)
	b)	Discuss the significance of the "self" keyword, __init__() and __str__() method in Python with a proper example code snippet.	CO4	(06)
	c)	Write a program to create a class called Point with two attributes x and y. Write following functions and demonstrate the working of these functions by creating suitable objects. i. To read attribute values ii. To display point as an ordered pair iii. To find distance between two points.	CO4	(08)

8. a) What is sameness w.r.t objects? Explain with an example the concept of shallow and deep copy. CO4 (06)

   b) Write a Python class named Rectangle constructed by a length and width and a method which will compute the area of a rectangle. CO4 (06)

   c) Write a definition for a class named Circle with attributes center and radius, where center is a Point object and radius is a number. CO4 (08)
   i) Instantiate a Circle object that represents a circle with its center at (150, 100) and radius 75.
   ii) Write a function named point_in_circle that takes a Circle and a Point and returns True if the Point lies in or on the boundary of the circle.
   iii) Write a function named rect_in_circle that takes a Circle and a Rectangle and returns True if the Rectangle lies entirely in or on the boundary of the circle.

UNIT- V

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

   b) Design and implement a GUI application to accept a 4 digit number only and to print the number in reverse on click of a button. CO5 (06)

   c) create a database to store the population and land area of the Canadian provinces and territories with their capital according to the CO5 (08)

Province/Territory	capital	Population	Land Area
Labrador	St. John's	512930	370501.69
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

   census
   Write SQL queries that do the following:
   i. Retrieve the contents of the table
   ii. Retrieve the lowest capital city population
   iii. Retrieve the highest province/territory population.

10. a) Explain with an example all the steps in creating, populating and saving changes to the database. CO5 (06)

    b) 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)

    c) Explain the following terms with respect to the databases with an example code for each. CO5 (08)
    i) keys ii) constraints.

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