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

MAKEUP EXAMINATIONS – FEBRUARY 2020

Program	:	**B.E. : Common to all programs**	**Semester**	:	**VII**
Course Name	:	**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)	Bring out the differences between the compiler and an interpreter. List and explain the three kinds of errors in a program. Give examples.	CO1	(06)
	b)	Write a python program to implement the collatz 3n+1 sequence.	CO1	(06)
	c)	i) Write a Python program to find numbers between 200 and 600 (both included) where each digit of a number is an odd number. The numbers obtained should be printed in a comma-separated sequence ii) Write a Python program that accepts a string and calculate the number of digits and letters. Sample Data : Python 3.2 Expected Output :Letters 6 Digits 2.	CO1	(08)
2.	a)	What are nested conditionals and chained conditionals? Explain each of them with an example.	CO1	(06)
	b)	Explain the following with an example each: i) short circuit evaluation ii) ** and // operators iii) Built-in Functions.	CO1	(06)
	c)	i)Write a Python program to add 'ing' at the end of a given string (length should be at least 3).If the given string already ends with 'ing' then add 'ly' instead. If the string length of the givenstring is less than 3, leave it unchanged Sample String : 'abc' Sample String : 'string' Expected Result : 'abcing'Expected Result : 'stringly` ii)A string with parentheses is well bracketed if all parentheses are matched: every openingbracket has a matching closing bracket and vice versa. Write a Python functionwellbracketed(s) that takes a string s containing parentheses and returns True if s is wellbracketed and False otherwise.Here are some examples to show how your function should work. >>>wellbracketed("22")False >>>wellbracketed("(a+b)(a-b)")True	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 toshow 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 asthe same. ii) Read a string from keyboard input. Create a list containing tuples, where each tuplerepresents a word in the input string and length of that string. Write a program to sort the wordsin descending order of their length.	CO2	(08)

UNIT-III

5.	a)	Explain with example the various methods available in the random module and the time module.	CO3	(06)
	b)	With an example explain how to fetch information from the web in python?	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)	What is a file handler? Discuss its usage in file handling? Explain open() function with syntax and example.What is the need of close() function?	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 a series of unique random numbers using the random module. ii) Write a Python program to get a single random element from a specified string.	CO3	(08)

UNIT-IV

7.	a)	Write a python program to demonstrate the concept of Inheritance in python.	CO4	(06)
	b)	i) Write a Python class which has two methods get_String and print_String. get_String accept a string from the user and print_String print the string in upper case. ii) Define a class Person and its two child classes: Male and Female. All classes have a method "getGender" which can print "Male" for Male class and "Female" for Female class.	CO4	(08)
	c)	Describe the following exceptions with an example. i.TypeErrorexception, ii.NameErrorexception, iii. IndexError.	CO4	(06)

8. a) Differentiate between deep copy and shallow copy with an examples. CO4 (08)
   b) Explain Raising Exception and Catching Specific Exceptions in Python with a suitable examples. CO4 (06)
   c) 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. CO4 (06)

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 census. 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

Write the SQL queries that do the following:

i) Retrieve the contents of the tables.

ii) Retrieve lowest capital city population.

iii) Retrieve 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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