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

MAKE UP EXAMINATIONS – APRIL 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)	Define debugging. Compare Syntax errors, Runtime errors, Semantic errors in python programming with an example.	CO1	(07)
	b)	Predict the output and justify your answer for the following expression: 1. 25 % 3 2. 25 / 3 3. 25 // 3 4. 7**5*3 5. 200-20*5//9 6. 20-2*3**2 7. -17//10	CO1	(07)
	c)	Write a Python program to Count the number of characters (character frequency) in a given string.	CO1	(06)
2.	a)	Illustrate Type converter functions in python with an example.	CO1	(06)
	b)	What is the output of the following code? x="welcome to Automation" 1. print(x[::]) 2. print(x[0:17]) 3. print(x[0:21]) 4. print(x[11:21]) 5. print(x[::-1]) 6. print(x[0:17:2]) 7. print(x[:7]) 8. print(x[21:])	CO1	(08)
	c)	Compare Chained conditionals vs Nested conditionals with an examples.	CO1	(06)

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 returns the list ls after k rotations. If k is not positive, your function should return ls unchanged. Note that your function should not change ls itself, and should return the rotated list.
		>>> 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
			CO2	(08)

4.	a)	Explain any two python built-in collection data structure with an example.	CO2	(06)
	b)	i) Write a Python program to sort a list of tuples by second Item. ii) Write a Python program to replace last value of tuples in a list. Sample input:[(10, 20, 40), (40, 50, 60), (70, 80, 90)] output:[(10, 20, 100), (40, 50, 100), (70, 80, 100)]	CO2	(06)
	c)	i) Write Python code to create a function called most_frequent that takes a string and prints the letters in decreasing order of frequency. Use dictionaries. ii) Write a Python program to convert a tuple to a dictionary. Sample input: ((2, "w"),(3, "r")) Sample Output:{'w': 2, 'r': 3}	CO2	(08)

UNIT – III

5.	a)	Illustrate namespace, scope and lookup rules in python with relevant examples.	CO3	(06)
	b)	Explain the following with an examples. i) How to open and close a file ii) How to Append Data to a File iii) How to Read a File line by line.	CO3	(06)
	c)	Discuss "math module" and "random module" that is used in Python with an example.	CO3	(08)
6.	a)	Describe "time module" that is used in Python with an example.	CO3	(04)
	b)	i) Write a Python program to count the number of lines in a text file. ii) Write a Python program to count the frequency of words in a file.	CO3	(08)
	c)	Illustrate how you create your own modules in python with a suitable example.	CO3	(08)

UNIT – IV

7.	a)	What are exceptions? How do you handle an exception in python? Explain the constructs with an example.	CO4	(08)
	b)	Write a Python class which has two methods get_String and print_String. The get_String accept a string from the user and print_String print the string in upper case.	CO4	(06)
	c)	Define a class named Shape and its subclass Square. The Square class has an init function which takes a length as argument. Both classes have an area function which can print the area of the shape where Shape's area is 0 by default.	CO4	(06)

8. a) What is sameness w.r.t objects? Explain with an example the concept of deep and shallow equality. CO4 (08)
   b) Write a Python class to convert a roman numeral to an integer. CO4 (06)
   c) Write a Python to define a class RECTANGLE with members width, height, corner_x and corner_y and memner function: to find the centre , area and perimeter of the rectangle. 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) Explain the following terms with respect to the databases with an example code for each. CO5 (08)
      i) keys ii) constraints.

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

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