CSOE01

RAMAIAH
Institute of Technology

SEMESTER END EXAMINATIONS – MARCH 2022

Program	: **B.E. : Common to all Programs**	**Semester**	: **V / 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) Explain the following with an example each: CO1 (06)
    i.   logical opposites
    ii. type conversions
    iii. return statement.

    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. CO1 (08)
    ii) Write a Python program to construct the following pattern, using a nested for loop.

    ```
    *
    * *
    * * *
    * * * *
    * * * * *
    * * * *
    * * *
    * *
    *
    ```

2. a) What are nested conditionals and chained conditionals? Explain with an example each. CO1 (06)

    b) Write a python program to implement the collatz 3n+1 sequence. 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. CO1 (08)
    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 , as shown below.

    Enter leftmost digit: 1   Enter the next digit: 0
    Enter the next digit: 0   Enter the next digit: 1
    The value is 9

UNIT – II

3. a) Explain all the built in methods available for lists. Give examples for each of the methods. 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) Write a Python function that takes a number as a parameter and check the number is prime or not. 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)	Write a Python program to check whether a list contains a sublist in it as one of its element.	CO2	(06)
	c)	Write a Python function that checks whether a passed string is palindrome or not.	CO2	(06)

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. ii)Write a Python program to count number of characters, words and lines in a file.	CO3	(08)
6.	a)	What is a file handling? Explain open() read() write() and close() functions.	CO3	(06)
	b)	i) Write a Python program to get current time in seconds in Python using the time module. ii) Write a Python program to print a string " MSRIT" five times, using the time module with 5 sec delay in between them.	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)	What are pure functions and modifiers? Write a python program to demonstrate the two kinds of functions.	CO4	(08)
	b)	Write a Python class to implement pow(x, n).	CO4	(06)
	c)	Write a Python class to find a pair of elements (indices of the two numbers) from a given array whose sum equals a specific target number.	CO4	(06)
8.	a)	Explain with an example of how we can use the built in exceptions types to raise an exception for the errors encountered.	CO4	(08)
	b)	Write a Python class to reverse a string word by word. Input string : 'hello .py' Expected Output : '.py hello'	CO4	(06)
	c)	Write a Python class to get all possible unique subsets from a set of distinct integers.	CO4	(06)

UNIT – V

9.	a)	Write a Python program that creates a GUI with a textbox, Ok button and Quit button. On clicking Ok, the text entered in textbox is to be printed in Python shell; on clicking Quit, the program should terminate.	CO5	(10)

	b)	Write a python code that does the following:
		  i. Create a new database called census.db
		  ii. Retrieve the data based on Territory.
		  iii. Retrieve the data based on Provinces that have populations less than one million.
			CO5	(10)

Province / Territory	Population	Land Area

10. a) Explain features of SQL: CO5 (10)
   - Aggregation
   - Grouping
   - Nested Queries
   - Self-joins.

   b) Write a Python program that creates a new database and executes the CO5 (10) following SQL statements. How do the results of the SELECT statements differ from what you would expect Python itself to do? Why?

   CREATE TABLE Numbers(Val INTEGER)
   INSERT INTO Numbers Values(1)
   INSERT INTO Numbers Values(2)
   SELECT * FROM Numbers WHERE 1/0
   SELECT * FROM Numbers WHERE 1/0 AND Val > 0
   SELECT * FROM Numbers WHERE Val > 0 AND 1/0.

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