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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

SUPPLEMENTARY SEMESTER EXAMINATIONS – SEPTEMBER 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 any five full questions.

1.	a)	Give the output of the following expressions: i. 56//17 ii. -17//10 iii. -16%5 iv. 17%10 v. 3**4 vi. "12"*3	CO1	(06)
	b)	Write a python program to implement the collatz 3n+1 sequence.	CO1	(06)
	c)	i) Write a function called showNumbers that takes a parameter called limit. It should print all the numbers between 0 and limit with a label to identify the even and odd numbers. For example, if the limit is 3, it should print: 0 EVEN 1 ODD 2 EVEN 3 ODD 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)	List the logical operators. Explain with an example how python does the short circuit evaluation of the expressions using logical operators.	CO1	(06)
	b)	Mention the advantages of continue statement. Write a program to computer only even number sum within the given natural number using continue statement.	CO1	(06)
	c)	i) Write a Python program to get a string from a given string where all occurrences of its first char have been changed to '$', except the first char itself. Sample String : 'restart' Expected Result : 'resta$t' ii) Write a python function that returns the sum of multiples of 3 and 5 between 0 and limit (parameter). For example, if limit is 20, it should return the sum of 3, 5, 6, 9, 10, 12, 15, 18, 20.	CO1	(08)

3.	a)	Define dictionary in python. List and Explain any four useful built-in methods in dictionary, with an examples.	CO2	(08)
	b)	Write a Python function that takes a list and returns a new list with unique elements of the first list. Sample List : [1,2,2,3,3,3,4,4,4,4,5,5,5,5,5] Unique List : [1, 2, 3, 4, 5]	CO2	(06)
	c)	Differentiate "list aliasing" and "slicing" with an examples.	CO2	(06)
4.	a)	Define Lists in python. List and Explain any four useful built-in methods in Lists, with an examples.	CO2	(08)
	b)	Explain the Pure functions and modifiers using list, with an examples.	CO2	(06)
	c)	Write a python program to count the number of vowels present in a given list of strings using 'in' or 'not in' operator.	CO2	(06)
5.	a)	Explain with example the various methods available in the math and time module.	CO3	(06)
	b)	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 program that reads a file and prints only those lines that contain the substring snake.	CO3	(08)
	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	(06)
6.	a)	Explain with example the various methods available in the random module.	CO3	(06)
	b)	i) Write a Python program to read a file line by line and store it into a list. ii) Consider a File Called "workfile". Write Python Program to Read and Print Each Byte in the Binary File.	CO3	(08)
	c)	Write a python program to produce a list of unique element from the input list which contains duplicates of the elements in the list Expected output: Input list: [1,2,3,3,3,3,5,6,9,9] Output list: [1,2,3,5,6,9]	CO3	(06)
7.	a)	What are exceptions? How do you handle an exception in python? Explain the constructs with an example.	CO4	(06)
	b)	Explain the concept of inheritance in Object oriented programming with a python 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)	Explain the concept of polymorphism in Object oriented programming with a python program.	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 definition for a class named Circle with attributes center and radius, where center is a Point object and radius is a number. i) Instantiate a Circle object that represents a circle with its center at (100, 150) and radius 100. 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.	CO4	(08)
9.	a)	Write a GUI application with a button labeled "Submit your Application" When the button is clicked, the window closes.	CO5	(06)
	b)	Explain the basic SQLite Data types with an examples.	CO5	(06)
	c)	Write a python code to Create a new database called "Business_Organization. DB". Which holds the name (TEXT), salary (INTEGER) and the experience (INTEGER). Perform the following operations: i) Create a table and Insert the three employee records. ii) Retrieve the contents from the table.	CO5	(08)
10.	a)	Explain Models, Views, and Controllers in GUI Application.	CO5	(05)
	b)	Illustrate aggregation functions used in the SQL with an example.	CO5	(05)
	c)	Design and Develop GUI application using the following widgets: frame, label, text and button with customizing the visual style.	CO5	(10)

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