

CSOE01(O)/CSOE01



USN	1	M	S						
-----	---	---	---	--	--	--	--	--	--

(Autonomous Institute, Affiliated to VTU)
(Approved by AICTE, New Delhi & Govt. of Karnataka)
Accredited by NBA & NAAC with 'A+' Grade

MAKE UP EXAMINATIONS – AUGUST 2021

Program	: B.E. : Common to all Programs	Semester	: VIII
Course Name	: Python Application Programming	Max. Marks	: 100
Course Code	: CSOE01(O)/CSOE01	Duration	: 3 Hrs

Instructions to the Candidates:

- Answer any five full questions.

- Illustrate the different types of control flow statements available in Python with flowcharts. CO1 (06)
 - Write a Python program to calculate the difference between the squared sum of first n natural numbers and the sum of squared first n natural numbers. CO1 (06)
 - Write a Python program to count the number of even and odd numbers from a series of numbers.
 - Write a Python program to create the multiplication table (from 1 to 10) of a number. Accept the number from the user. CO1 (08)
 - Write a Python program to construct the following pattern, using a nested loops.
Expected Output:
1
22
333
4444
55555
- Explain the need for continue and break statements. Write a program to check whether a number is prime or not. Prompt the user for input. CO1 (06)
 - Discuss the string handling methods in python with examples CO1 (06)
 - Write a Python program which takes two digits m (row) and n (column) as input and generates a two-dimensional array. The value in the i-th row and j-th column of the array should be i*j.
Test Data : Rows = 3, Columns = 4
Expected Result : [[0, 0, 0, 0], [0, 1, 2, 3], [0, 2, 4, 6]] CO1 (08)
 - Write a Python program to get the Fibonacci series between 0 to 50.
- List and explain all the useful built-in methods in dictionaries with appropriate examples. CO2 (06)
 - What will be the output of the following Python code? CO2 (06)
m = [[x, x + 1, x + 2] for x in range(0, 3)]
 - How many elements are in the list m?
m = [[x, y] for x in range(0, 4) for y in range(0, 4)]
 - Suppose t = (1, 2, 4, 3), which of the following is incorrect?
a) print(t[3]) b) t[3] = 45 c) print(max(t)) d) print(len(t))

CSOE01(O)/CSOE01

- c) With syntax, explain the characteristics of lambda function. Also write a Python program to find whether a given string starts with a given character using Lambda. CO2 (08)
4. a) i) Define tuple in Python. CO2 (06)
ii) With examples demonstrate any five operations on tuple.
b) Describe features of pure functions and modifiers with example for each. CO2 (06)
c) Write a Python program: CO2 (08)
i) To remove duplicates from a list.
ii) To read two lists and returns True if they have at least one common member.
5. a) Define module. Develop a python program to create your own module. CO3 (06)
b) Develop a python program to demonstrate following operations on files. CO3 (08)
i. Opening a File
ii. Writing into File
c) Illustrate the process of merging two sorted lists with appropriate code snippets. CO3 (06)
6. a) Define time module. Develop a python program to demonstrate math module. CO3 (06)
b) Develop a python program to demonstrate following operations on files. CO3 (08)
i. Reading from the created file
ii. Closing the file.
c) Compare linear search and binary search. CO3 (06)
7. a) i) With the help of an example, explain how do you raise custom exceptions? CO4 (08)
ii) Describe the importance of finally in the try statement.
b) 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. 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 a 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 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 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. CO4 (08)
i. To read attribute values
ii. To display point as an ordered pair
iii. To find distance between two points.

CSOE01(O)/CSOE01

9. a) Write a GUI application which accepts user input in Fahrenheit and convert degrees Fahrenheit to degrees Celsius when the button 'convert' is clicked. CO5 (06)
- b) Explain the MVC design. Applying the MVC design, develop graphical user interface as an example. CO5 (06)
- c) List and explain the different types of joins to combine the tables. What is the necessity to combine the tables? Explain. CO5 (08)
10. a) 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)
- b) 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
Manitoba	Winnipeg	671274	551937.87
Saskatchewan	Regina	192800	586561.35
Alberta	Edmonton	937845	639987.12
British Columbia	Victoria	311902	926492.48
Ynkon	Whitehorse	21405	474706.97
Nunavut	Iqabit	5236	1925460.18

Write SQL queries that do the following:

- i) Retrieves the provinces that have the population of less than one million or greater than five million.
- ii) Retrieves the populations of provinces that have a land area greater than 500,000 square kilometers.
- iii) Retrieves the provinces along with their population densities.
- c) List and explain with an example the SQL data types the database supports. CO5 (06)
