CSOE01

SEMESTER END EXAMINATIONS – AUGUST 2020

Program	:	**B.E. : Common to all programs**	**Semester**	:	**VIII**
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)	Illustrate the membership and identity operators with suitable examples.	CO1	(06)
	b)	Write a python program to check whether a given number is armstrong number or not. An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself. For example, 371 is an Armstrong number since 3**3 + 7**3 + 1**3 = 371.	CO1	(06)
	c)	Sourav Ganguly would like to send a private message to Greg Chappel after swearing in as BCCI president. The message is of 'm' size and the message to be sent as 'n' blocks securely using a encryption algorithm. For sending 'n' blocks of data securely, the algorithm uses 'n' prime numbers for the encryption. Illustrate the creation of these first 'n' prime numbers in python as a support for the encryption algorithm.	CO1	(08)

2.	a)	Find the output of the following code snippets,	CO1	(06)

```
i)   numbers = [1, 2, 3, 4]
     numbers.append([5,6,7,8])
     print(len(numbers))
ii)  A = [[1, 2, 3],[4, 5, 6],[7, 8, 9]]
      print([A[i][i] for i in range(len(A))])
iii) x = "abcdef"
     I = "a"
     while I in x:
     print(I, end = " ")
iv)  line = "What will have so will"
     L = line.split('a')
     for I in L:
     print(I, end=' ')
```

	b)	Explain Bitwise and logical operators with suitable examples.	CO1	(06)
	c)	Given an array A of N numbers, Using loop structures and list data structure write a program which prints the sum of the elements of array A with the corresponding elements of the reverse of array A. If array A has elements [1,2,3], then reverse of the array A will be [3,2,1] and the resultant array should be [4,4,4]. **Input Format:** The first line of the input contains a number N representing the number of elements in array A. The second line of the input contains N numbers separated by a space. (after the last elements, there is no space) **Output Format:** Print the resultant array elements separated by a space. (no space after the last element)	CO1	(08)

Example:
Input:
4
2 5 3 1
Output:
3 8 8 3

3.	a)	Differentiate between Shallow copy and Deep copy w.r.t. Lists.	CO2	(06)
	b)	Describe Mathematical functions in python with examples.	CO2	(06)
	c)	Illustrate the process of creating a dictionary named 'dic_frm_list' from 2 lists of 'n' items named as 'keys' and 'values'. The 'n' items for keys and values should be read from the user.	CO2	(08)

4.	a)	Differentiate between Lists and Tuples.	CO2	(06)
	b)	Illustrate lambda functions with the help of a program to generate all even numbers between 27 and 59 inclusive of both.	CO2	(06)
	c)	Write a python program to create a dictionary with key as first character and value as list of words starting with that character.	CO2	(08)

Input : hi hello how are you
Output :
h : ['hi', 'hello', 'how']
a : ['are']
y : ['you']

5.	a)	Apply import,from, * and other module related concepts to create a module called - 'calc' it consists of 4 functions that should return sum, division, multiplication and subtraction. Create another module called – 'user' ,import the calc module and illustrate the use of all the functions of calc module.	CO3	(06)
	b)	Discuss the fundamental file processing operations with pseudo code.	CO3	(06)
	c)	Illustrate the use of local, global, locals( ) and globals( ) with suitable examples.	CO3	(08)

6.	a)	Develop a Python program to print first 10 lines and last 10 lines in a file.	CO3	(06)
	b)	Identify the functions to do the following operations:	CO3	(06)

   i) Renaming a file
   ii) Creating a directory
   iii) Seeking pointer in file
   iv) Removing a directory.

	c)	Use file processing operations and suitable data structures and develop a program to compute the number of characters, words and lines in a file. Also Print the most frequent words read from the file.	CO3	(08)

7.	a)	Identify the types of methods associated with classes and objects.	CO4	(06)
	b)	Summarize how the Garbage Collection process is carried out in Python Environment with suitable python code snippets.	CO4	(06)
	c)	Define a class called TIME with instance variables hour, minute and seconds. Define constructor for initializing instance variables, method to convert integer value to time form(hour, minute, second), method to convert from time form to integer form. Overload the appropriate operators to perform the following operations and to display the objects.	CO4	(08)

T3 = T1+T2
T4 = T1+75
T5 = 130+T1

8.	a)	List and describe built in class attributes in python applications.	CO4	(06)
	b)	Compare Base Overloading and Operator Overloading with suitable examples.	CO4	(06)
	c)	Illustrate the types of Inheritance with suitable figures and programming examples.	CO4	(08)

9.	a)	Design and implement a GUI application to find the input number is perfect number or not. Perfect number, a positive integer that is equal to the sum of its proper divisors. The smallest perfect number is 6, which is the sum of 1, 2, and 3.	CO5	(06)
	b)	List and Explain the SQL data types the database supports with examples.	CO5	(06)
	c)	Develop a database application to Create a table named 'student' to store the student information like usn,name,semester,department and number of clubs. Further insert the number of rows to the same table. The structure of the table is as follows.	CO5	(08)

USN	NAME	SEM	DEPARTMENT	NUMBER OF CLUBS

10.	a)	Develop temperature converter application that allows the user to input temperature in degrees Fahrenheit and push a button to convert that temperature to degrees Celsius. Design should include three elements: i) An Entry widget called ent_temperature to enter the Fahrenheit value ii) A Label widget called lbl_result to display the Celsius result iii) A Button widget called btn_convert that reads the value from the Entry widget, converts it from Fahrenheit to Celsius, and sets the text of the Label widget to the result when clicked.	CO5	(06)
	b)	Explain different types of widgets with Tkinter GUI module.	CO5	(06)
	c)	Illustrate Drop, delete and update and join operations with database using python code.	CO5	(08)

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