MCAE08

RAMAIAH
INSTITUTE OF TECHNOLOGY

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(Autonomous Institute, Affiliated to VTU)
Bangalore – 560 054

SEMESTER END EXAMINATIONS – MAY/JUNE 2017

Course & Branch : Master of Computer Applications   **Semester :** IV

Subject : **Programming with Python**   **Max. Marks : 100**

Subject Code : MCAE08   **Duration : 3 Hrs**

Instructions to the Candidates:
• Answer one full question from each unit.

UNIT - I

1. a) Explain the usage of the following methods with examples: CO2   (10)
   (i) extend()   (ii) pop()   (iii) sort()
   (iv) split()   (v) join()

   b) What is the output of the following code segments? Explain the causes.   CO1   (10)

```
i) for letter in 'Python':
                    if letter == 'h':
                            break
                print 'Current Letter :', letter
ii) for letter in'Python':
if letter =='h':
continue
print'Current Letter :', letter
iii) for letter in'Python':
if letter =='h':
pass
print'This is pass block'
print'Current Letter :', letter
```

2. a) How do you create and access dictionaries in Python? Explain the operations *len(), copy(), clear(), items()* on dictionaries.   CO2   (10)

   b) Develop a python program to count the frequency of word in a string using dictionary.   CO2   (05)

   c) Develop a python program to print unique elements in a list.   CO2   (05)

UNIT – II

3. a) Let *a* be the list of values produced by *range(1,11)*. Using the functions *map* and a *lamda* argument, write an expression that will produce each of the following.   CO4   (06)
   (i)   A list of squares of the values
   (ii)   A list of cubes of the values
   (iii)A list where each element is larger by one than the corresponding element in the original list

   b) What is *LEGB* rule? Apply LEGB rule for the following code and explain what is happening in this code. Also write the output.   CO3   (10)
```
a=7
def fun(b):
        c=17
        def morefun(d):
            e=12
            print(a+b+c+d+e)
```

```
            morefun(3)
                 fun(5)
```

	c)	Demonstrate recursion in Python.	CO3	(04)
4.	a)	Demonstrate different types of function parameters available in python.	CO3	(12)
	b)	Explain list comprehension with example. Also develop a python script to print prime numbers in the given range using comprehension.	CO4	(08)

UNIT - III

5.	a)	Write a regular expression to validate a float number it should satisfy the following.	CO8	(08)

     i.   Number can start with **+**, **-** or **.** symbol.
    ii.   Number must contain *at least* 1 decimal value.
   iii.   Number must have exactly one **.** symbol.

	b)	Explain the following concepts in detail,	CO5	(12)

    i.   Data hiding
   ii.   Inheritance
  iii.   Static members

6.	a)	Define a class BankAccount. The constructor for this class will take one argument i.e. default balance for opening an account. Add methods withdraw, deposit and displayBalance to do respective operations. In the withdraw method check for sufficient balance before withdrawal. And also keep track of number of bank accounts.	CO5	(12)
	b)	Develop a script using regular expressions to search and replace a string in a given input.	CO8	(08)

UNIT – IV

7.	a)	Develop a script to open a file and count number of lines in the file. Find the middle 3 lines in the file and write it on to another file. Repeat the same steps until there are only 3 lines are left.	CO6	(10)
	b)	Develop a simple currency conversion utility that consists of an entry field andtwo buttons. When the button labeled Rupee is pressed the entry field isconverted from Dollar to Rupee. Conversely, when the button labeled Dollar is pressed the value is converted from Rupee to Dollar.	CO9	(10)
8.	a)	Develop a program that asks the user for a file name, then prints the number of specialcharacters, words and lines in the file.	CO6	(10)
	b)	Explain exception handling in python in detail with the help of an example.	CO7	(10)

UNIT - V

9.	a)	Explain in detail the Model, View and Template layers of Django architecture.	CO10	(08)
	b)	Develop a Django web application which takes the username and password from a HTML form and checks whether is a valid user or not by comparing it with the values in database and displays appropriate message on the screen.	CO12	(12)
10.	a)	Describe the various steps in designing the database for aBank application with code.	CO11	(10)
	b)	Develop a Django web application which displays the list of products who belong to a particular category by reading the category from user and whose prices are below 1000 rupees.	CO12	(10)

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