## Second Semester MCA Degree Examination, June/July 2017
## Python Programming

Time: 3 hrs.                                                              Max. Marks: 80

**Note:** *Answer FIVE full questions, choosing one full question from each module.*

### Module-1

1   a.   How does a computer run a Python Program? Explain with a neat diagram.          (06 Marks)
    b.   Explain and construct the memory model of variables in Python.                    (06 Marks)
    c.   List any four built – in string functions in Python and explain.                  (04 Marks)

### OR

2   a.   Predict the output of the following code and justify your answer :
         City = "Bengaluru"
         City [1] = City [8] = "e"
         City [6] = "0"
         Print (city).                                                                      (02 Marks)
    b.   Trace the function call and explain the memory model of the following code :
         def f(x) :
             X = 2 * x
             return x
         x = 1
         x = f (x + 1).                                                                     (08 Marks)
    c.   Discuss the usage of the following with respect to the print ( ) function
         i)  sep argument    ii)  end argument    iii)  .format (arguments).               (06 Marks)

### Module-2

3   a.   Predict the output of the following and justify your answer :                     (04 Marks)
         i)  not "False"    ii)  -17 % 10    iii)  (212 – 32) * 5 / 9    iv)  3.5 // 1.3.
    b.   Write a Python program to find average of best two test marks out of three test marks.
                                                                                            (04 Marks)
    c.   What are the two ways of importing a module? Which one is more beneficial? Explain.
                                                                                            (08 Marks)

### OR

4   a.   Discuss the importance of docstring in testing the code semi – automatically using doctest.
                                                                                            (08 Marks)
    b.   Write a Python program to find the roots of a quadratic equation.                  (08 Marks)

### Module-3

5   a.   Consider the list qty = [5, 4, 7, 3, 6, 2, 1] and write the Python code to perform the following
         operation without using built-in methods :
         i)   Insert an element 9 at the beginning of the list   ii)  Insert an element 8 at the end of
         the list   iii)  Insert an element 8 at the index position 3 of the list   iv)  Delete an element
         at the beginning of the list   v)   Delete an element at the end of the list   vi)  Delete an
         element at the index position 3   vii)  Print the list in reverse order (end to start)
         viii)  Delete all the elements of the list.                                        (08 Marks)
    b.   Write the Python program to check whether a given number is prime or not, using for – else
         statement.                                                                         (08 Marks)

**OR**

6 a. Give any four differences between a list and a string in Python. (04 Marks)
  b. Write a Python program to read a string with punctuations and print the same string without punctuations. (08 Marks)
  c. What is a list of lists? Give an example along with its memory model. (04 Marks)

## Module-4

7 a. How can we use 'with' statement while opening a text file? Explain. (04 Marks)
  b. Consider the following two sets and write the Python code to perform following operations on them. (04 Marks)

  i)   Union                Lows = 0, 1, 2, 3, 4
  ii)  Difference           Odds = 1, 3, 5, 7, 9
  iii) Symmetric difference
  iv)  Intersection

  c. Write a Python program to read a word and print the number of letters, vowels and percentage of vowels in the word using a dictionary. (08 Marks)

**OR**

8 a. Store the following data in a list, in a set and in a dictionary. (06 Marks)

| India | USA | UK | Japan |
|-------|-----|----|-------|
| 91    | 1   | 41 | 81    |

  b. In what situations are the sets more useful than the lists? (02 Marks)
  c. Write a Python program to read the contents of a text file and write into another. (08 Marks)

## Module-5

9 a. Write short notes on : i) is instance ( )     ii) _ _ init _ _ ( ). (04 Marks)
  b. With an example, discuss the different components of a tkinter program. (06 Marks)
  c. Write an object oriented Python program to create two time objects : Current _ time and Bread _ time which contains bread baking time. Include addTime method to display the total time taken by the bread maker to prepare a bread. (06 Marks)

**OR**

10 a. What are the steps that Python follows while creating an object? (03 Marks)
   b. Explain MVC design with the help of tkinter program. (08 Marks)
   c. Write a tkinter program to design a GUI window that has a lable of background color green and foreground color white. (05 Marks)

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