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Third Semester MCA Degree Examination, Aug./Sept.2020
Programming using Python

Time: 3 hrs.   Max. Marks: 100

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 neat diagram. **(05 Marks)**

b. Give the output of following:
   i) 54//17   ii) -17//10   iii) -16 % 5   iv) "S2" * -1   v) 3.5//1.3 **(05 Marks)**

c. Trace the function calls in the following code by using the memory model:
```
>>>def f(x) :
        x = 2 * x
        return (x)
>>>x = 1
>>>x = f(x+1) + f(x+2)
```
(10 Marks)

OR

2 a. Explain inbuilt functions of string in Python with example. **(04 Marks)**

b. Explain and construct the memory model of variables in Python. **(06 Marks)**

c. Write a program to convert temperature from Celsius to Fahrenheit using function. **(06 Marks)**

d. Explain the usage of keywords "end" and "sep". **(04 Marks)**

Module-2

3 a. Define module. What are the 2 ways to import module? Explain. **(06 Marks)**

b. Write a Python program to find given year is leap year or not. **(06 Marks)**

c. Explain any four string object methods. **(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 roots of quadratic equation. **(06 Marks)**

c. Write short note on short circuit evaluation performed by Python when evaluating combined comparisons. **(06 Marks)**

Module-3

5 a. Write a Python program to search elements using binary search. **(08 Marks)**

b. Variable kingdoms refers to the list ['Bacteria', 'Protozoa', 'Chromista', 'Plantae', 'Fungi' 'Animalia']. Using slicing or indexing with positive/negative indices. Write the expressions that produce the following:
   i)   The first item of kingdoms.
   ii)   The last item of kingdoms.
   iii) The list ['Bacteria', 'Protozoa', 'Chromista']
   iv)   The list ['Chromista', 'Plantae', 'Fungi']
   v)   The list ['Fungi', 'Animalia']
   vi)   The empty list. **(06 Marks)**

c. What is list of lists? Explain with example. **(06 Marks)**

OR

6 a. Using nested for loops, print right triangle of the character T.
T
TT
TTT
TTTT   (06 Marks)

   b. Explain the following methods of list:
i) append (v)   ii) extend (v)   iii) insert (i, v)   iv) reverse (v)   (08 Marks)

   c. Explain the process of modifying lists using memory model.   (06 Marks)

Module-4

7 a. Explain the techniques for reading files.   (12 Marks)

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

OR

8 a. Demonstrate any four methods of Dictionary.   (08 Marks)

   b. Explain the operations performed on sets with example.   (06 Marks)

   c. Write a Python event driven program for file operations:
i)   Open file in read mode
ii)   Open file in write mode
iii) Current position of file pointer.   (06 Marks)

Module-5

9 a. With an example, discuss the different components of a tkinter module.   (10 Marks)

   b. List and explain the phase involved in object orient programming.   (10 Marks)

OR

10 a. Write a short note on: i) isinstance ( )   ii) ___init___( )   (06 Marks)

   b. Explain the Model View Controller design with the help of tkinter program. (08 Marks)

   c. Write a GUI application with a button labeled "GoodBye". When the button is clicked, the window closes.   (06 Marks)

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