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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)
