2203E885　　　Candidate's Seat No :_____

M.Sc. Sem-1 (AIML & AIML-Defence Specific) Examination

Problem Solving with Python

Time : **ᒣ-00 Hours]**　　　　**March 2022**　　　　[Max. Marks : 100

SECTION – I

Q1.　　Give difference between **(ANY FOUR).** Demonstrate through proper examples:　　[16]
　　　　　　i.　　Local and global variable
　　　　　　ii.　　Script and program
　　　　　　iii.　　List and Tuple data type
　　　　　　iv.　　Interpreter and compiler
　　　　　　v.　　Push and Pop operations in stack
　　　　　　vi.　　Error and Exception

Q2.　　Answer the following:　　[18]

　　　　i.　　Explain the Python Execution model. List the popular tools to write and run Python scripts
　　　　ii.　　Give the rules of naming a valid identifier with examples. What is the method for checking if a name is valid one
　　　　iii.　　Python presents dynamic typing. Comment.
　　　　iv.　　Numeric data types in Python are immutable. Justify this statement through the id() method.
　　　　v.　　The output of print(1.1+2.2) will be 3.3000000000000003. Give reasons and how you can resolve it.
　　　　vi.　　How can you extract real and imaginary parts of complex number ?

Q3.　　Explain different exception handling methods in python (built-in). Explain the syntax of　　[16]
　　　　implementing Python handling.
　　　　　　　　　　　　　　　OR
Q3.　　With respect to functions in Python, what are the following?　　[16]
　　　　　i.　　namespace
　　　　　ii.　　docstrings
　　　　　iii.　　return type
　　　　　iv.　　Scope and Lifetime of variables
　　　　　v.　　Pass by reference vs value
　　　　　vi.　　The Anonymous Functions
　　　　　vii.　　Recursion
　　　　　viii.　　Default argument passing

SECTION – II

Q4.　　i.　　Give output of:　　[16]
　　　　　　my_tuple = ('p' , 'r' , 'o' , 'g' , 'r' , 'a' , 'm')

　　　　　　　　a)　　print(my_tuple[1:4])
　　　　　　　　b)　　print(my_data[:4])
　　　　　　　　c)　　print(my_data[4:-1])
　　　　　　　　d)　　print(my_data[:])

　　　　ii.　　ASCII is subset of Unicode. Justify
　　　　iii.　　List down characteristics of set data type in Python.
　　　　iv.　　What is the use of break and continue in loops? Give example

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Q5. Draw flowchart and write pseudo code for ANY FOUR given loop exercises: [16]

    (a) Write a Python program which iterates the integers from 1 to 50. For multiples of three print "Fizz" instead of the number and for the multiples of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz".

    (b) Write a Python program to find numbers between 100 and 400 (both included) where each digit of a number is an even number

    (c) Write a Python program to sum of two given integers. However, if the sum is between 15 to 20 it will return 20.

    (d) Write a Python program to create the multiplication table (from 1 to 10) of a number

    (e) Write a Python program to remove and print every third number from a list of numbers

    (f) Write a Python program to get the third side of right angled triangle from two given sides

Q6. Define array and explain methods in Python for performing following using array module: [18]

    a) Traverse

    b) Insertion

    c) Deletion

    d) Search

    e) Update

OR

Q6. For NumPy in Python, what are the following: [18]

    a)   object type

    b)   common dtypes available

    c)   attribute to find dimensions

    d)   attribute to change the shape of array to a specific shape length of each element of array in bytes

    e)   attribute to create array of zeroes and ones

    f)   create array with numerical values in range (1,10) with step size of 2

    g)   get all values in array >10