USN | | | | | | | | | | | 18EC646

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024
Python Application Programming

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　Max. Marks: 100

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

Module-1

1　a. Identify three types of errors encounter in python and also explain the basic building blocks of Python program. **(07 Marks)**

　　b. Develop Python programs to i) find the area of a rectangle ii) find whether the given number is eve or odd. In both cases accept the input from the user and program must handle non-numeric input gracefully by printing a message and exiting the program. **(08 Marks)**

　　c. Predict the output and justify your answer :
　　　i) $-15\%7$　　ii) $7.7//6$　　iii) $(200 - 70) * 10/5$　　iv) $6 *1 ** 3$　　v) not "True". **(05 Marks)**

OR

2　a. Write a user defined function named 'solve' that returns the remainder and quotient as division of two numbers accepted from the user print the remainder and quotient separately on the console. **(05 Marks)**

　　b. Make use of necessary example and flow chart to explain the concept of alternate execution, chained conditional and nested conditional and nested conditional statements. **(08 Marks)**

　　c. Make use of necessary code snippets to explain :
　　　i)　Short circuit evaluation
　　　ii) Type conversion function
　　　iii) Void functions. **(07 Marks)**

Module-2

3　a. Mention the advantages of break and continue statement. Write a program to compute the sum of only odd numbers within the given natural number using continue statement. **(08 Marks)**

　　b. Make use of necessary syntax and examples to explain the following string methods :
　　　i) lower　ii) capitalize　iii) join　iv) isalpha **(08 Marks)**

　　c. Use find and string slicing to extract the second half of the email address in the following string and print the result – "From support @ vtu.ac.in July 9 2022". **(04 Marks)**

OR

4　a. Write a Python program to accept the file from the user add :
　　　i)　Display the first N-lines of the file
　　　ii) Find the frequency of occurrence of the word accepted from the user in the file **(10 Marks)**

　　b. Develop a Python program to search for the line that starts with the word "From" in a file. **(05 Marks)**

　　c. Explain 'for' loop with necessary syntax. Write a program to compute the factorial of a number accepted from the user. **(05 Marks)**

Module-3

5   a. Identify the ways of traversing a list. Explain with example. Also explain any two list operations. **(08 Marks)**

b. Compare and contrast tuples with lists. Explain the following operations in tuple :
   i)   Sum of tuples
   ii) slicing operations
   iii) tuple assignment. **(06 Marks)**

c. Write a program using lists to store and display the average of N integers accepts from the user. **(06 Marks)**

OR

6   a. Develop a program that accepts a sentence and builds dictionary with LETTERS, DIGITS, UPPERCASE, LOWERCASE and key values and their count in the sequence as values.
   Example :
   Sentence = "VTU@123.e - Learning" d = {LETTERS" : 12, "DIGITS" : 3, "UPPERCASE" : 4, "LOWERCAE" : 8}. **(06 Marks)**

b. Write a Python program to check the validity of a password read by the users. The following criteria should be used to check the validity. Password should have atleast
   i)   One upper case letter
   ii) One lower case latter
   iii) One digit
   iv) One special character from ($ # ! @)
   v)   Eight characters. **(08 Marks)**

c. Demonstrate :
   i)   The difference between pop and remove methods on lists
   ii) How a dictionary item can be represented as a list of tuples. **(06 Marks)**

Module-4

7   a. Differentiate between pure function and modifier develop a Python program to find duration of an event of start and end time is given by defining class TIME. **(08 Marks)**

b. What is polymorphism? Explain with snippet code. **(07 Marks)**

c. Explain init and str method with example. **(05 Marks)**

OR

8   a. Write a Python program that has a class point with attributes as X and Y co-ordinates. Create two objects of this class and find the midpoint of both the points. Also add a method reflux – X to class point, which returns the new point which is the reflection of the point about the X-axis.
   Example : Point $(5, 10) \Rightarrow$ Reflex – X returns point (5, 10). **(08 Marks)**

b. Make use of necessary example to explain single, multiple, multilevel and hierarchical inheritance. **(08 Marks)**

c. Demonstrate the concept of operator overloading with a code snippet. **(04 Marks)**

Module-5

9 a. Make use of an example to explain the significance of XML over the web development.

(08 Marks)

b. Explain any two socket functions. Write a Python program to that makes a connection to a web server and follows the rules of HTTP protocol to request a document and display what server sends back. **(08 Marks)**

c. What is service oriented architecture? List the advantages of the same. **(04 Marks)**

OR

10 a. Create a simple spidering program that will go through Twitter accounts and build a database of them. **(08 Marks)**

b. With necessary diagram and code describe creation of database table using database cursor architecture. **(08 Marks)**

c. Compare the contrast the Javascript object Notation (JSON) and XML. **(04 Marks)**

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