P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Fifth Semester, B.E. - Information Science and Engineering
Semester End Examination; Dec. - 2019
Python Programming

Time: 3 hrs   *Max. Marks: 100*

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

1 a. Write a program that reads an integer between 0 and 1000 and adds all the digits in the integer. For example of an integer is 932, the sum of all its digits is 14 (9 + 3 +2).   **6**

b. Explain the advantages of Python programming.   **7**

c. Write a python program to get the Least Common Multiple (LCM) of two positive integers.   **7**

2 a. Given an integer *n*, perform the following conditional actions:

   i) If *n* is odd, print weird

   ii) If *n* is even and in the inclusive range of 2 to 5, print not weird   **10**

   iii) If *n* is even and in the inclusive range of 6 to 20, print weird

   iii) If *n* is even and greater than 20, print not weird

b. Write a program to implement Rock Paper Scissor game (hint: Ask for player plays (using input), compare them, print out a message of congrats to the winner and ask if the players want to start a new game)   **10**

   Rules: i) Rock beats scissor   ii) Scissor beats paper   iii) Paper beats rock

UNIT - II

3 a. Write a Python program to get a single string from two given strings, separated by a space and swap the first two character of each string.   **6**

   Sample input : *a = "abc", b = "xyz"*   Output : *a = "xy ab"   b = "ab xy"*

b. Write a Python program to add 'ing' at the end of a given string (length should be atleast 3). If the given string already ends with 'ing' then add 'ly' instead. If the string length of the given string is less than 3, leave it unchanged.   **7**

c. Write a program to design a recursive function to reverse a string.   **7**

4 a. Write a recursive function to print Fibonacci series up to n read as input.   **6**

b. Write a program to print the index of the character in a string.   **6**

c. Given a string, return a new string made of three copies of the last two characters of the original string. The input string length will be atleast 2.   **8**

   Example: Input: "hello"   Output: "lololo"

UNIT - III

5 a. Design a program takes list elements and removes the duplicate items from the list.   **10**

b. Write a program that takes a line and count the frequency of word appearing in that line using dictionary   **5**

  c. Explain the concept of list. Illustrate with an example.   5

6 a. With examples, explain usage of following list methods: 10

    i) append( )   ii) count( )   iii) insert ( )   iv) pop( )   v) sort( )

  b. Explain the concept of tuple. Write a program to create a tuple and display the items in it.   5

  c. Write a program that reads the numbers in to a dictionary and multiplies all the item in the dictionary by a value 8 to generate a new dictionary.   5

UNIT - IV

7 a. Write a class as student and methods to read and display the name and USN of a student.   4

  b. Discuss _init_ ( ) and _del_ ( ) method used in object oriented Python.   8

  c. With an example for each, explain single and multilevel inheritance.   8

8 a. Design a class named Quadratic equation for a quadratic equation $ax^2 + bx + x = 0$. The class contains;

    i) The private data fields a, b, and c that represent three coefficients

    ii) A constructor for the arguments for a, b and c

    iii) Three get methods for a, b, and c

    iv) A method named getDiscriminant() that returns the discriment which is $b^2 – 4ac$ 10

    v) The methods getRoot1() and getRoot2() for returning two non negative roots.

Write a program that prompts the user to enter values for a, b, and c and display the result based on the discriminate. If the discriminant is positive, display the two roots. If it is zero, display one root, else display "The equation has no roots".

  b. Design a class named location for locating a maximal value and its location in a two dimensional list. The class contains the public data field's row, column and max value. Write a method returns the location of the largest element in a two dimensional list. The return value is an instance of location. Write a test program that prompts the user to enter a two dimensional list and display the location of the largest element in the list.   10

UNIT - V

9 a. Design a program that reads a file and capitalized the first letter of every word in the file.   8

  b. Explain the concept of exceptional handling with suitable illustration.   6

  c. Write a program to copy the contents from the 20th character of one file to another file.   6

10 a. Design a program that has a try block which can generate multiple exceptions. Write the catch block for each case.   6

  b. Write a program to read numbers from a file and calculate the sum of all those numbers.   6

  c. Given two **.**txt files that have a list of numbers that are overlapping. File a**.**txt has a list of prime number under 1000 and file b**.**txt has a list of number up to 1000. Write a program to find an overlapping of numbers.   8

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