Python – Problem Set

A. Python - Basics

1. Write a Python program to get the Python version you are using.

2. Write a Python program to display the current date and time.

3. Write a Python program which accepts the radius of a circle from the user and outputs the circumference.

4. Write a Python program which accepts the user's first and last name and print them in reverse order.

5. Write a Python program to accept a filename (with extension) from the user and print the extension of that file.

6. Write a Python program to print the calendar of a given month and year.
   (Hint*:* Use 'calendar' module)

7. Write a Python program to calculate number of days between two dates.

8. Write a Python program to find whether a given number, accepted from the user, is even or odd,

9. Write a Python program that will accept the base and height of a triangle and compute the area.

10. Write a Python program to compute the greatest common divisor (GCD) of two positive integers.

11. Write a Python program to compute the distance between the points (x1, y1) and (x2, y2).

12. Write a Python program to check whether a file exists.

13. Write a Python program to list all files in a directory in Python.

14. Write a Python program to get the current username.

15. Write a python program to sum of the first n positive integers.

16. Write a Python program to get file creation and modification date/times.

17. Write a Python program to convert seconds to day, hour, minutes and seconds.

18. Write a Python program to calculate the sum of the digits in an integer.

19. Write a Python program to sort three integers without using conditional statements and loops.

20. Write a Python program to get the size of an object in bytes.

21. Write a Python program to get the ASCII value of a character.

22. Write a Python program to swap two variables without using a temp variable.

23. Write a Python program to check if a string is numeric.

24. Write a Python program to check if a number is positive, negative or zero.

25. Write a Python program to check if lowercase letters exist in a string.

26. Write a Python program to extract all words of length 1 from a user entered sentence.

27. Write a Python program to convert true to 1 and false to 0.

28. Write a Python program to check whether a user entered IP address is valid or not.

29. Write a Python program to convert a decimal integer to binary conserving leading zeros.

30. Write a python program to convert decimal to hexadecimal.

31. Write a Python function to check whether a number is divisible by another number. Accept two integers values form the user.

32. Write a Python function that takes a positive integer and returns the sum of the cubes of all the positive integers smaller than the specified number.

33. Write a Python function that takes a sequence of numbers and determines if all the numbers are unique.

34. Write a Python program to create all possible string combinations using the letters 'a', 'e', 'i', 'o', 'u' by using the characters exactly once.

35. Write a Python program to count the number of characters in a given text file.

36. Write a Python program to add two positive integers without using the '+' operator. (Hint: Use bit wise operations to add two numbers)

37. Write a Python program to find the median among three given numbers.

38. Write a Python program to find the factorial of a given positive number.

39. Write a Python program to find the number of currency notes (Sample of notes: 10, 20, 50, 100, 200 and 500) against a given amount.

40. Write a Python program to find the digits which are absent in a given mobile number.

41. Write a Python program to check whether a user entered string is a palindrome or not.

42. Write a Python program to check whether three given lengths (integers) of three sides form a right triangle or not. Print "Yes" if the given sides form a right triangle otherwise print "No".

43. Write a Python program to print all prime numbers which are less than or equal to a given integer.

44. Write a Python program that accepts a set of n numbers as input and sorts them in descending order.

45. Write a Python program which reads a text (only alphabetical characters and spaces.) and prints two words. The first one is the word which occurs most frequently in the text. The second one is the word which has the maximum number of letters.

46. Write a Python program to replace a string "Python" with "Java" and "Java" with "Python" in a given string.

47. Write a Python program to compute the sum of first n prime numbers.

B. Python Lists

1. Write a Python program to concatenate all elements in a list into a string and return it.

2. Write a Python program to test whether all numbers of a list is greater than a certain number entered by the user.

3. Write a Python program to remove the first item from a specified list.

4. Write a Python program to print a long text, convert the string to a list and print all the words and their frequencies.

5. Write a Python program to sum all the numbers in a list.

6. Write a Python program to get the largest and smallest number from a list of integers.

7. Write a Python program to remove duplicates from a list.

8. Write a Python program to check if a list is empty or not.

9. Write a Python program to clone a list.

10. Write a Python program to find the list of words that have length>n from a given list of words.

11. Write a Python function that takes two lists and returns 'True' if they have at least one element in common.

12. Write a Python program to print a specified list after removing the elements in the odd position.

13. Write a Python program to print the numbers of a specified list after removing even numbers from it.

14. Write a Python program to shuffle and print a specified list.

15. Write a Python program to generate all permutations of a list in Python.

16. Write a Python program to display the index of an element in a list.

17. Write a Python program to convert a list of characters into a string.

18. Write a Python program to append a list to the second list.

19. Write a Python program to find the second smallest number in a list.

20. Write a Python program to get unique values from a list.

21. Write a Python program to get the frequency of the elements in a list.

22. Write a Python program to find common items from two lists.

23. Write a Python program to swap the position of every n-th value with the (n+1) th in a list.

24. Write a Python program to prefix a user supplied string before each element in a list.

25. Write a Python program to concatenate elements of a list.

26. Write a Python program to convert a string to a list.

27. Write a Python program to check if a given item is present in a list.

28. Write a Python program to replace the last element in a list with another list.

29. Write a Python program to find the list in a list of integer lists whose sum of elements is the highest.

30. Write a Python program to find all the values in a list are greater than a specified number.

C. Python Dictionaries

1. Write a Python program to get the depth of a dictionary.

2. Write a Python program to check if there are empty dictionaries in a list of dictionaries.

3. Write a Python script to sort (ascending and descending) a dictionary by value.

4. Write a Python script to add a key to a dictionary.

5. Write a Python script to concatenate a set of dictionaries to create a new one.

6. Write a Python script to check if a given key already exists in a dictionary.

7. Write a Python program to iterate over dictionaries using for loops.

8. Write a Python program to remove a key from a dictionary.

9. Write a Python program to sort a dictionary by key.

10. Write a Python program to get the maximum and minimum value in a dictionary.

11. Write a Python program to remove duplicate key-value pairs from a dictionary.

12. Write a Python program to check a dictionary is empty or not.

13. Write a Python program to find the highest 3 values in a dictionary.

14. Write a Python program to create a dictionary from a string.

15. Write a Python program to print a dictionary in table format.

16. Write a Python program to print a dictionary line by line.

17. Write a Python program to print matching key values in two dictionaries.

D. Python Tuples

1. Write a Python program to create a tuple with different data types.

2. Write a Python program to add an item into a tuple.

3. Write a Python program to convert a tuple to a string.

4. Write a Python program to find the repeated items of a tuple.

5. Write a Python program to check whether an element exists in a tuple.

6. Write a Python program to convert a list to a tuple.

7. Write a Python program to remove an item from a tuple.

8. Write a Python program to find the index of an item of a tuple.

9. Write a Python program to find the length of a tuple.

10. Write a Python program to convert a tuple into a dictionary.

11. Write a Python program to unzip a list of tuples into individual lists.

12. Write a Python program to reverse a tuple.

13. Write a Python program to convert a list of tuples into a dictionary.

14. Write a Python program to replace last value of tuples in a list with a specified value.

15. Write a Python program to remove empty tuples from a list of tuples.