**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING, BPS MAHILA VISWAVIDYALAYA**

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**4-Week Online Summer Training Program on “Programming Skills for Engineering”**

**ASSIGNMENT NO.2**

**Note:** Attempt any 8 problems from below mentioned 18 problems.

1. (a) Write a program that uses a while loop (not a for loop) to read through a string and print the characters of the string one-by-one on separate lines.

(b) Modify the program above to print out every second character of the string.

2. A) create a list and perform the following methods

1) insert () 2) remove() 3) append() 4) len() 5) pop() 6) clear()

3. Write a python program to find factorial of a given number using functions

4. Write a program that has a list of ten words, some of which have repeated letters and some which don’t. Write a program that picks a random word from the list that does not have any repeated letters.

5. Write a program that asks the user to enter a length in centimeters. If the user enters a negative length, the program should tell the user that the entry is invalid. Otherwise, the program should convert the length to inches and print out the result. There are 2.54 centimeters in an inch.

6. Ask the user for a temperature. Then ask them what units, Celsius or Fahrenheit, the temperature is in. Your program should convert the temperature to the other unit. The conversions are *F* = 95*C* + 32 and *C* = 5 9 (*F*-32).

7. Write a program that generates and prints 50 random integers, each between 3 and 6.

8. Create a dictionary and apply the following methods

1) Print the dictionary items 2) access items 3) use get() 4)change values 5) use len()

9. Create a tuple and perform the following methods

1) Add items 2) len() 3) check for item in tuple 4)Access iems

10. Write a python program to convert temperature to and from Celsius to fahrenheit.

11. Write a python program to construct the following pattern using nested for loop:

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12. Write a python program to that accepts length of three sides of a triangle as

inputs. The program should indicate whether or not the triangle is a rightangled

triangle (use Pythagorean theorem):

13. Write a program using a while loop that asks the user for a number, and prints a countdown from that number to zero.

14. Write a program that uses a for loop to print the numbers 100, 98, 96, . . . , 4, 2.

15. Write a program that prints a giant letter A like the one below. Allow the user to specify howlarge the letter should be.

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16. Ask the user to enter a temperature in Celsius. The program should print a message based on the temperature:

• If the temperature is less than -273.15, print that the temperature is invalid because it is below absolute zero.

• If it is exactly -273.15, print that the temperature is absolute 0.

• If the temperature is between -273.15 and 0, print that the temperature is below freezing.

• If it is 0, print that the temperature is at the freezing point.

• If it is between 0 and 100, print that the temperature is in the normal range.

• If it is 100, print that the temperature is at the boiling point.

• If it is above 100, print that the temperature is above the boiling point.

17. Write a function called factors that takes an integer and returns a list of its factors.

18. Write a function called change\_case that given a string, returns a string with each upper case letter replaced by a lower case letter and vice-versa.