Brain International School
Vikas Puri, New Delhi

ASSIGNMENT NO-4
SUBJECT: COMPUTER SCIENCE

CLASS: XI **November '26**

Q1. Differentiate between a tuple and a list on the basis of mutability and syntax. Give one example of each.

Q2. Unpack the tuple T = (10, 20, 30) into three variables a, b and c. Write Python statements to display their sum.

Q3. Predict the output of the following code:

```
T = (10, 20, 30, 40, 50)
print(T[1:4])
print(T[::-1])
print(T * 2)
```

Q4. Given the dictionary D = {'Ravi':78, 'Simran':85, 'Aman':64}, write Python statements to: (a) Update Aman's marks to 70. (b) Check whether the key 'Simran' exists in the dictionary and display the result.

Q5. Differentiate between the keys() and values() methods of a dictionary with suitable examples.

Q6. Write a Python program to count the frequency of each element in a given tuple using a dictionary.

Q7. Predict the output:

```
D = {'a':10, 'b':20, 'c':30}
print(D.get('d', 0))
D['d'] = 40
print(len(D))
print(list(D.items()))
```

Q8. What is the difference between del and pop() when working with dictionaries? Give one example of each.

Q9. What is the difference between import math and from math import sqrt? Illustrate with one example of using the sqrt() function.

Q10. Write a Python program using the random module to generate and display five random integers between 1 and 100.

Section B – 3 Marks Each (5 × 3 = 15 Marks)

Q11. Predict the output of the following code:

```
T = (5, 10, 15, 10, 20, 10)
print(T.count(10))
print(T.index(15))
print(T[2:5])
```

Q12. Write a Python program to create a dictionary containing the names of five students as keys and their marks as values. Display: (a) All student names. (b) All marks. (c) The total number of students.

Q13. Write a Python program to find the maximum and minimum marks, along with the corresponding student name, from a dictionary of the form {Student_Name: Marks}.

Q14. Consider the following dictionary:

```
D = {'A':10, 'B':20, 'C':30, 'D':40}
```

Write Python statements to:
(a) Add a new key 'E' with value 50.
(b) Delete the key 'B'.
(c) Display the dictionary after performing the above operations.

Q15. Write a Python program using the math module to accept a number from the user and display its square root and its value raised to the power 3 using math.sqrt() and math.pow().

Section C – 4 Marks Each (5 × 4 = 20 Marks)

Q16. Write a Python program to create a dictionary using a for loop, storing the names of four employees as keys and their monthly salaries as values. Perform the following operations:

(a) Display all employees with their salaries.
(b) Calculate and display the total salary paid to all employees.

Q17. Write a Python program to input a string and create a dictionary that stores the frequency of each character in the string. Example: Input: BANANA Output: {'B': 1, 'A': 3, 'N': 2}

Q18. Consider the following dictionary:

D = {'Maths': 85, 'English': 78, 'Computer': 95, 'Physics': 88}

Write Python statements to perform the following operations:
(a) Display all the keys and values separately.
(b) Display the key-value pairs using the items() method.
(c) Find and display the number of key-value pairs.
(d) Display the subject with the highest marks.

Q19. Write a Python program to input a tuple of 10 numbers and perform the following operations:
(a) Display the tuple.
(b) Count the number of even and odd elements.
(c) Find the maximum and minimum elements without using built-in max() and min() functions.
(d) Display the sum of all elements.

Q20. Write a Python program using the random module to simulate the rolling of a fair six-sided die 20 times. Store the results in a list and display:
(a) The list of outcomes.
(b) The frequency of each number from 1 to 6 using a dictionary.
(c) The number that occurred most frequently.