Shiv Nadar Institute of Eminence
End Term Examination

COURSE CODE: CCC634 **MAX. DURATION: 1 hr**

COURSE NAME: A Gentle Introduction to Python

COURSE CREDIT: 1.5 **MAX. MARKS: 50**

Roll No: _____ Name of Student: _____

Department/ School: _____

INSTRUCTIONS: -

1. Do not write anything on the question paper except **name, roll number** and **department/school.**
2. All the sections are compulsory.

SECTION A (Max Marks = 20 Marks)

1. Illustrate the working of the following dictionary methods: (1 * 3 Marks)
   i. clear()
   ii. pop()
   iii. fromkeys()

2. Match the following: (1 * 5 Marks)

a) Dictionary	1) 1, 2, 3, 4
b) Tuple	2) message = ‘hello world’
c) String	3) net = { }
d) List	4) elem = (‘king’,40, ‘apple’)
e) range(1,5)	5) elements = [‘hello’, ‘world’,80]

3. State True or False for the following statements: (3 marks)
   a. A single line comment in python language starts with # sign.
   b. Key – value pairs are usually sorted in a dictionary.
   c. print(-5//-20) yield 0.
4. Illustrate the difference between two set operations; discard and remove, with suitable example. (3 marks)

5. Illustrate the methods used on two sets to check the relationship between them.

(3 marks)

6. Point out the error, if any, in the following programs: (3 marks)

a.

```
dicts = {'Lion': 4, 'Tiger': 10, 'Wolf': 5, 'Cheetah': 2}
for k,v in dicts.keys():
    print(k,v)
```

b.

```
tpl = ((1,5),(2,3),(4,5))
for x,y in tpl:
   print(x,y)
```

SECTION B (Max Marks = 30 Marks)

Attempt any three questions.

1.

a. Two friends A and B are meeting after a long time. Usually, they love to play some math games. This times A takes the call and decides the game. The game is very simple, A says out an integer and B has to say whether the number is divisible by 4 or not. B as usual knows the logic but since A does not give B much time to think, so B decides to write a python program. Task is to help B to accomplish this task by writing a python program which will calculate whether the number is prime or not. (5 Marks)

b. ***The Lake of Reflections***

In the Pythonic Kingdom, just beyond the Enchanted Forest of Elements, there's a mystical body of water called the Lake of Reflections. On a full moon night, Princess Lysta notices that the lake reflects not just the moon, but also the list of numbers she drops into it. However, it doesn't reflect the exact numbers; instead, it shows only the unique numbers from the list in ascending order.

The lake guardian challenges her, "Drop your list of numbers into the lake, and let's see if you can tell me the reflection it shows."

Can you help Princess Lysta discern the reflection using Python?

(5 Marks)

2. **The Enchanted Forest of Elements** (10 Marks)

Deep within the heart of the Pythonic Kingdom lies the Enchanted Forest of Elements. The trees in this forest are not ordinary; instead of leaves, they bear unique elements as fruits. Each tree represents a list, and the fruits on it represent the elements of that list.

One day, Princess Lysta of Pythonic Kingdom was given a challenge by the mysterious forest guardian. She was presented with one such tree named "TreeAlpha" that bore fruits of various numbers. Some numbers were repeated, creating a beautiful pattern of colors and shapes.

The guardian said, "To unlock the next path in this forest, you must answer my riddle. Find out which number appears the most on TreeAlpha. If two or more numbers have the same frequency, fetch the smallest one. Use the magic of Python, for it is the only way to converse with these trees."

Princess Lysta remembered her lessons on Python magic and knew she could tackle this. But she needs an advisor. Can you help Princess Lysta converse with TreeAlpha and solve the riddle using Python?

3. Dia has borrowed Rs P from Ryan for T years and promised Ryan to pay the amount with the interest. She must pay R% per year. Now she wants to calculate the total interest after five years.

   Write a python code to calculates the total amount Dia must pay to Ryan depending upon whether she must pay “simple” or “compound” Interest, absence of these cases must produce “Invalid choice”.

   Note: For Compound interest the interest is applied half yearly.

   (10 Marks)

4. Provide the output of the following program. (10 Marks)
   a.
```
s = ‘HumptyDumpty’
print(s.isalpha())
print(s.islower())
print(s.upper())
print(s[-8:-2])
print(s.find(‘n’))
```

   b.
```
listx = [12,15, 16, 17, 18, 32, 6]
```
      i.
```
listx.append(55)
print(listx)
```
      ii.
```
listx.remove(65)
print(listx)
```
      iii.
```
print(listx.pop())
```
      iv.
```
x1 = listx.index(55)
print(x1)
```
      v.
```
lst2 = [33,54, listx, 76]
print(lst2)
```