1. What is the main difference between list and Iterable? **Mark: 2**
2. What methods can be used to find if the variable name exists?  **Mark: 2**
3. What is the difference between iterator, sequence, and generator? Provide an example for each **Mark: 6**
4. Write a generator for Fibonacci series. **Mark: 5**
5. Print the following using decorators, where only ‘**A-Shanti**’ is printed by the function. **Mark: 4**

{Hello}

A-Priya

Manish Gupta

Neha

A-Shanti

(/Hello}

1. What is Insertion Sort? Implement it in python **Mark: 2+5**
2. Convert the following codes in functional programming. **Mark: 6**

def flatten\_list(a, result=None):

"""Flattens a nested list.

>>> flatten\_list([ [1, 2, [3, 4] ], [5, 6], 7])

[1, 2, 3, 4, 5, 6, 7]

"""

if result is None:

result = []

for x in a:

if isinstance(x, list):

flatten\_list(x, result)

else:

result.append(x)

return result

1. Write a function flatten\_dict to flatten a nested dictionary by joining the keys with “.” character. **Mark: 3**

>>> unflatten\_dict({'a': 1, 'b.x': 2, 'b.y': 3, 'c': 4})

{'a': 1, 'b': {'x': 2, 'y': 3}, 'c': 4}

1. Write a function treemap to map a function over nested list. **Mark: 6**

>>>treemap(lambda x: x\*x, [1, 2, [3, 4, [5]]])

[1, 4, [9, 16, [25]]]

1. Please write the class for the following code: **Mark: 3**

>>>Class XYZ:

>>> <MAGIC CODE>

>>> x = XYZ()

>>> x.name = “Mayank”

>>> x.a = “Hello”

>>> print(x.a)

Hello Mayank

>>> x.a(“World”)

>>> print(x.a)

Hello World