Question 1.

Lists are ordered and mutable, they allow indexing and slicing. Duplicate items are allowed.

Dictionaries use a key:value pair for each item. The key must be a immutable type, the value can be mutable.

Each key must be a unique value.

Sets are unordered and do not allow duplicate values. They are mutable.

Tuples are immutable and ordered.

Question 2.

Break exits the current loop when called.

Continue ignores any code following it within the loop but unlike break it starts the loop over again.

Pass does nothing and allows for empty loops to be run without causing error.

Question 3.

Exceptions are used to handle errors. For example if a int type is expected then it would give a ValueError execption.

If a Try: Except is used than errors can be used as a sort of if else condition.

Question 4.1

import random #Imports the random library

def getValue(maxVal): #defines the getValue function with maxVal as a parameter.

a = maxVal \*2 #variable a defined as maxVal \* 2 within the function namespace.

return random.randrange(0,a) #function returns a random number from 0 to a

def func(val): #defines the func function with val as a parameter.

output = set() #creates an empty set of the name output within the function

for i in val: #iterates through the val string

print(i) #prints the first character in the val string.

num = int(i) #variable "num" defined as the integer of the first character in the val string.

if num > 0: #if the first digit of val is greater than 0, this code is run.

rndnum = getValue(num) #calls getValue function and passes previously defined "num" as the parameter. return value of getValue is assignd to variable "rndnum".

output.add(rndnum) #adds "rndnum" value to previously created set "output"

return output #returns the set "output", causing the func function to finish.

val = input('Please enter you 7 digit student id:') #accepts input from the user in the form of a string.

print(func(val)) #calls the function func with the user inputed val as the parameter. Prints the output of func(val)

Question 4.2

import random

def getValue(maxVal):

a = maxVal \*2 #maxVal = 2, a = 4

return random.randrange(0,a) #returns a random number, either 0,1,2,3. assume 3

def func(val):

output = set() #output = empty set

for i in val:

print(i) # i = "2"

num = int(i) #num = 2

if num > 0:

rndnum = getValue(num) #rndnum = 3

output.add(rndnum) #output = {3}

return output #output = {3}

val = input('Pleasee enter you 7 digit student id:') #val = "2014107"

print(func(val)) #prints 2