Part 1

**Qn.1 Difference between variables and data types**

A variable is an item that is used to store value while a datatype determines the type of value a variable can hold.

Examples of data types include;

Numbers include integer, float, complex numbers

Strings

Boolean includes true, false

**Qn.2 Difference between numbers and strings**

A number is a data type that represents numerical values while a string is a data type that represents a sequence of characters such as letters.

Numeric variables include integers eg age=21, floats eg height= 4.2, complex number

Strings include name=’Betty’

**Qn.3 Type Conversion**

Type conversion is where the data type of an item in python is converted to another. For example; converting integer to string we use age=21, str\_age= str(age)

Converting string to integer we use age =’21’ ,int\_age =int(age)

**Qn.4 Booleans**

A Boolean is a data type that is used to represent the truth value of an expression. For example , the expression 1<=2 is true, while the expression 0==1 is false.

Part 2

Qn.1

# input numbers

input\_x = input('X: ')

input\_y = input('Y: ')

# convert number to integer

x = int(input\_x)

y = int(input\_y)

# performing operations

print(x + y)

print(x - y)

print(x \* y)

print(x / y)

Qn.2

# assign numbers

num1 = 5

num2 = 7

print(num1 == num2)

print(num1 != num2)

print(num1 > num2)

print(num1 < num2)

Qn.3

# assign numbers

num1 = 5

num2 = 7

print(num1>0 and num2>0)

print(num1>0 or num2<0)

print(not num1 >0)

number\_1 = [6,2,3]

number\_2 = [6,2,3]

number\_3 = number\_1

print(number\_1 is number\_2)

print(number\_1 is number\_3)

Qn.4

#Finding out if an element is in a list

list = ['john','mary','peter','juma','calum']

is\_code = 'shafara' in list

print(is\_code)

#Finding out if an element is in a list

list = ['john','mary','peter','juma','calum']

is\_code = 'shafara' not in list

print(is\_code)