Q1 Install Python and write the steps of installation and understand difference between scripting and interactive modes in IDLE.

Ans 1 Steps to Install Python:

Go to https://www.python.org

Click on Downloads

Download latest version

Run the installer

Click “Add Python to PATH”

Click Install Now

Difference Between Modes:

Interactive Mode Scripting Mode Runs line by line Runs full program at once Used for testing Used for full programs Shows >>> prompt Runs .py file

Q2 Create a variable to store your age and print its type using type().

```
age = 19
print("age")
print( type(age))
```

```
age
<class 'int'>
```

Q3 Declare a string variable called x and assign it the value "Hello".

```
x = "Hello"
print( x)
```

```
Hello
```

Q4 Print out the value of x

```
x=19
print(x)
```

```
19
```

Q5 Take different data types and print values using print function.

```
a = 10
b = 3.14
c = "Python"
d = True

print("Integer:", a)
print("Float:", b)
print("String:", c)
print("Boolean:", d)
```

```
Integer: 10
Float: 3.14
String: Python
Boolean: True
```

Q6 Declare x and y as integers. Assign 9 to x and 7 to y. Perform addition, multiplication, division and subtraction.

```
x = 9
y = 7

print("Addition:", x + y)
print("Subtraction:", x - y)
print("Multiplication:", x * y)
print("Division:", x / y)
```

```
Addition: 16
Subtraction: 2
Multiplication: 63
Division: 1.2857142857142858
```

Q7 Write a program to compute the length of hypotenuse using Pythagoras theorem.

```
import math

a = float(input("Enter side a: "))
b = float(input("Enter side b: "))

c = math.sqrt(a*a + b*b)

print("Hypotenuse =", c)
```

```
Enter side a: 4
Enter side b: 6
Hypotenuse = 7.211102550927978
```

Q8 Write a program to find simple interest.

```
p = float(input("Enter Principal: "))
r = float(input("Enter Rate: "))
t = float(input("Enter Time: "))

si = (p * r * t) / 100

print("Simple Interest =", si)
```

```
Enter Principal: 4500
Enter Rate: 0.72
Enter Time: 2
Simple Interest = 64.8
```

Q9 Write a program to find area of triangle when length of sides are given.

```
base = float(input("Enter base of triangle: "))
height = float(input("Enter height of triangle: "))

area = 0.5 * base * height

print("Area of triangle =", area)
```

Q10 Convert given seconds into hours, minutes and remaining seconds.

```
seconds = int(input("Enter total seconds: "))

hours = seconds // 3600
minutes = (seconds % 3600) // 60
remaining_seconds = seconds % 60

print("Hours:", hours)
print("Minutes:", minutes)
print("Seconds:", remaining_seconds)
```

Q11 Swap two numbers without taking additional variable.

```
a = 5
b = 10

print("Before Swap:", a, b)

a, b = b, a

print("After Swap:", a, b)
```

```
Before Swap: 5 10
After Swap: 10 5
```

Q 12 Find sum of first n natural numbers.

```
n = int(input("Enter n: "))

sum_n = 0

for i in range(1, n + 1):
    sum_n = sum_n + i
```

```
print("Sum of first", n, "natural numbers =", sum_n)
```

```
Enter n: 12
Sum of first 12 natural numbers = 78
```

Q13 Print truth table for bitwise operators (&, |, ^).

```
a = 5
b = 3

print("a =", a, "b =", b)
print("a & b =", a & b)
print("a | b =", a | b)
print("a ^ b =", a ^ b)
```

Q14 Find left shift and right shift values of a given number.

```
num = int(input("Enter number: "))

print("Left Shift by 1:", num << 1)
print("Right Shift by 1:", num >> 1)
```

Q15 Using membership operator find whether a given number is in sequence (10,20,56,78,89).

```
sequence = (10, 20,56,78,89)

num = int(input("Enter number: "))

if num in sequence:
    print("Number is in sequence")
else:
    print("Number is NOT in sequence")
```

```
Enter number: 56
Number is in sequence
```