1. What are the differences between operators and values in the following?

\*

'hello'

-87.8

-

/

+

6

Ans.->**Operators** are used to perform operations on variables and values.operators are divided in following groups: Arithmetic operators,Assignment operators,comparison operators,logical operators,Identity operators,Membership operators,Bitwise operators

Operators - \* , - , / , +

**Value** ->Variables are containers for storing data values. Strings are surrounded by either single quotation marks, double quotation marks. By using operators we assign valyes to variables

Values - ‘ hello ‘,-87.8, 6

2. What is the difference between string and variable?

spam

'spam'

## Ans-> String *is a type of information you would store in a variable.A string is an array of characters so we use the indexes to acess the characters of it.we slice a string to get substring .we use + operator to concatenate a string*

## *A string is usually word,enclosed with”” or’’and multiline string with a triple quote*

*Eg ’spam’*

**Variable** is a store of information, and we use the single = to assign the text to it .variable is a reserved memory location to store values.variable gives data to the computer for processing .If a variable contains value of string use isinstance built-in function takes two arguments first is variable and second the type you check for Eg-spam

3. Describe three different data forms.

**Ans - Common data types include:**

* Integer.
* Floating-point number.
* String.

**Integer-Integers** are whole numbers, such as 1, 20, 3000, 10200305, etc. They are declared simply by writing a whole **number**. For example, the statement x = 5 will store the **integer number** 5 in the **variable** x.

**Floating-point number-**The **float** type in **Python** represents the **floating point number**. **Float** is used to represent real **numbers** and is written with a decimal **point** dividing the **integer** and fractional parts. For example, 97.98, 32.3+e18, -32.54e100 all are **floating point numbers**.

**String-**- A **string in Python** is a sequence of characters. It is a derived data type. **Strings** are immutable. This means that once defined, they cannot be changed. Many **Python** methods, such as replace() , join() , or split() modify **strings**. The isnumeric() method returns True if all the characters are **numeric** (0-9), otherwise False.

4. What makes up an expression? What are the functions of all expressions?

An **expression** is a combination of values, variables, operators, and calls to functions. An **expression** is an instruction that combines values and operators and always evaluates down to a single value. For **example**, this is an **expression**: >>> 2 + 2. The 2s are integer values and the + is the mathematical operator. This **expression** evaluates down to the single integer value 4.

There are three **kinds of expressions**: An arithmetic **expression** evaluates to a single arithmetic value. A character **expression** evaluates to a single value of **type** character. A logical or relational **expression** evaluates to a single logical value.

5. In this chapter, assignment statements such as spam = 10 were added. What's the difference between a declaration and an expression?

**Declaring** a variable means binding it to a data type **Python** is completely object oriented, and not "statically typed". You **do** not **need to declare variables** before using them, or **declare** their type. Every **variable in Python** is an object.

An **expression** is an instruction that combines values and operators and always evaluates down to a single value.

spam = 10

A variable is created the moment you first assign a value to it. Python has no command for declaring a variable. So the data type is not declared here.

6. After running the following code, what does the variable bacon contain?

bacon = 22

bacon + 1

Ans- 23

7. What should the values of the following two terms be?

'spam' + 'spamspam'

'spam' \* 3

Ans -'spamspamspam'

8. Why is it that eggs is a true variable name but 100 is not?

Ans- Rules for Python variables:

* A variable name must start with a letter or the underscore character
* A variable name cannot start with a number
* A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and \_ )
* Variable names are case-sensitive (age, Age and AGE are three different variables)

So,their for eggs is a true variable name but 100 is not.

9. Which of the following three functions may be used to convert a value to an integer, a floating-point number, or a string?

Ans-

* int() - constructs an integer number from an integer literal, a float literal (by removing all decimals), or a string literal (providing the string represents a whole number)
* float() - constructs a float number from an integer literal, a float literal or a string literal (providing the string represents a float or an integer)
* str() - constructs a string from a wide variety of data types, including strings, integer literals and float literals

10. What is the error caused by this expression? What would you do about it?

'I have eaten ' + 99 + ' burritos.'

Ans – TypeError : can only concatenate str(not “int”) to str

To resolve it: ‘I have eaten’ + str(99)+’burritos.’