Q1-variable and declare

Ans-Variables are containers for storing data values. Python has no command for declaring a variable.

A variable is created the moment you first assign a value to it.

```
x = 5
y = "John"
print(x)
print(y)
```

Q2-what do you mean by insert, append, extend?

Ans-

1. `append`: This method is used to add a single element to the end of a list.
2. `insert`: This method is used to insert a single element at a specific index in the list.
3. `extend`: This method is used to append the elements of an iterable (e.g., a list, tuple, or string) to the end of the list.

Q3-data types

Ans-Python Data Types are used to define the type of a variable. It defines what type of data we are going to store in a variable.

The 6 standard data types in Python are Numeric, String, List, Tuple, Set, and Dictionary.

Q4-Loops

Ans-A loop is an instruction that repeats multiple times as long as some condition is met.

Python programming language provides two types of loops – For loop and While loop to handle looping requirements.

The while loop is used to execute a set of statements as long as a condition is true.

A for loop in Python is used to iterate over a sequence (list, tuple, set, dictionary, and string).

Nested Loop If a loop exists inside the body of another loop, it is called a nested loop.

Q5-class and object

Ans-**Class**- is a code template for creating objects. In python a class is created by the keyword class.

Object-Objects are variables that contain data and functions that can be used to manipulate the data.

Q6-GET & POST method

Ans-

GET: To request data from the server. The GET method is used to request the server to GET the data or information.

POST: To submit data to be processed to the server. It is generally used when we want to upload data or any file to the server, like filling out a form, etc.

Q7-cookies

Ans-Cookies are small files of information that a web server generates and sends to a web browser. Web browsers store the cookies they receive for a predetermined period of time.

Q8-modifiers

Ans-modifications which are used to restrict access to the variables and methods of the class.

three forms of access modifiers, which are Public, Protected and Private in a class.

Q9-ALL operators in python

Ans-**Arithmetic Operators in Python**

Python Arithmetic operators are used to perform basic mathematical operations like addition, subtraction, multiplication, and division.

```
a = 10

b = 3

print(a + b)
```

Comparison Operators in Python

In Python Comparison of Relational operators compares the values. It either returns True or False according to the condition.

```
x = 5

y = 8

print(x < y)

print(x > y)
```

Logical Operators in Python

Python Logical operators perform Logical AND, Logical OR, and Logical NOT operations. It is used to combine conditional statements.

```
p = True

q = False

print(p and q)
```

Bitwise Operators in Python

Python Bitwise operators act on bits and perform bit-by-bit operations. These are used to operate on binary numbers.

```
a = 5

b = 3

print(a & b)
```

Assignment Operators in Python

Python Assignment operators are used to assign values to the variables.

```
x = 10

x += 5

print(x)
```

Q10-List and tuple

Ans- **List**-lists and tuples are used for storing objects in python.Lists are one of the most flexible and powerful containers in Python. A list is initiated with the [ ] symbol.

Tuples-Tuples are also a sequence data type containing elements of different data types.A tuple is initiated with the () symbol.

List

1. Lists help preserve data sequences and further process those sequences in other ways.
2. Lists are dynamic.
3. Lists are mutable.
4. Lists are ordered.
5. An index is used to traverse a list.
6. Iterations are time-consuming
7. Inserting and deleting items is easier with a list.
8. Lists consume more memory

Tuples

1. Tuples are used to store heterogeneous and homogeneous data.

2. Tuples are immutable in nature.
3. Tuples are ordered
4. An index is used to traverse a tuple.
5. Accessing the elements is best accomplished with a tuple data type.
6. Tuple consumes less than the list

Q11-String

1. Ans-String is a collection of alphabets, words or other characters.a string is a sequence of characters, typically used to represent text.
2. It is one of the primitive data structures and are the building blocks for data manipulation. Python has a built-in string class named str.
3. Python strings are "immutable" which means they cannot be changed after they are created. For string manipulation, we create new strings as we go to represent computed values because of their immutable property.
4. String literals can be enclosed by either double or single quotes.

Q12-Controll statement in python

Ans-In Python, control statements are used to manage the flow of execution in a program. They allow you to control the order in which statements are executed based on certain conditions or loops. The main types of control statements in Python are:

Control Statements (break, continue, pass):

1. **break statement**: It is used to exit a loop prematurely, regardless of whether the loop condition is still true.
2. **continue statement**: It is used to skip the rest of the code in a loop and move to the next iteration.
3. **pass statement**: It is a null operation, and it is used when a statement is syntactically required but you don't want any code to execute.

Q13-overloading and overriding

Ans-

Method Overloading	Method Overriding
In the method overloading, methods or functions must have the same name and different signatures.	Whereas in the method overriding, methods or functions must have the same name and same signatures.
Method overloading is a example of compile time polymorphism.	Whereas method overriding is a example of run time polymorphism.
In the method overloading, inheritance may or may not be required.	Whereas in method overriding, inheritance always required.
Method overloading is performed between methods within the class.	Whereas method overriding is done between parent class and child class methods.
It is used in order to add more to the behavior of methods.	Whereas it is used in order to change the behavior of exist methods.
In method overloading, there is no need of more than one class.	Whereas in method overriding, there is need of at least of two classes.

Q14-Exception handling

Ans-Exception handling is a mechanism in programming languages that allows you to handle and respond to errors or exceptional situations that may occur during the execution of a program.

In Python, exception handling is implemented through the use of try, except, else, and finally blocks.

try block:

The try block encloses the code that might raise an exception.

If an exception occurs within the try block, the control is transferred to the corresponding except block.

except block:

The except block specifies the type of exception that you want to catch and handle.

You can have multiple except blocks to handle different types of exceptions.

else block:

The else block is optional and is executed only if no exceptions are raised in the try block.

finally block:

The finally block is optional and is executed whether an exception is raised or not. It is often used for cleanup tasks, such as closing files or releasing resources.

Q15-Dictionary and their properties

1. Ans-In Python, a dictionary is a mutable, unordered collection of key-value pairs.
2. Each key in a dictionary must be unique, and it is associated with a corresponding value.
3. Dictionaries are defined using curly braces {} and the key-value pairs are separated by colons.
4. In this dictionary, 'name', 'age', and 'city' are keys, and 'John', 25, and 'New York' are their corresponding values.

Key properties of dictionaries in Python:

Mutable:

Dictionaries are mutable, meaning you can modify their content by adding, updating, or removing key-value pairs.

Unordered:

The order of items in a dictionary is not guaranteed. This means that the order in which you insert key-value pairs does not necessarily reflect the order in which they will be iterated over.

No Duplicate Keys:

Each key in a dictionary must be unique. If you try to insert a key that already exists, the new value will overwrite the existing value associated with that key.

Key-Value Pairs:

Each element in a dictionary is a key-value pair. The key is a unique identifier, and the value is the associated data.

Q16-inheritance

Ans-Inheritance allows us to define a class that inherits all the methods and properties from another class.

Parent class is the class being inherited from, also called base class.

Child class is the class that inherits from another class, also called derived class.

There are three main types of inheritance in Python:

Single Inheritance:

In single inheritance, a class inherits from only one superclass.

Multiple Inheritance:

In multiple inheritance, a class can inherit from more than one superclass.

Multilevel Inheritance:

In multilevel inheritance, a class inherits from another class, and then another class inherits from the derived class.

Q17-CGI and environment variable

Ans-CGI, or Common Gateway Interface, is a standard protocol that defines how web servers communicate with external programs. It allows web servers to execute scripts. CGI is one of the oldest methods for creating dynamic web pages.

The basic idea behind CGI is that when a user makes a request to a web server for a CGI script, the server executes the script and sends the output (usually HTML) back to the user's browser.

When a CGI script runs, it has access to various environment variables that provide information about the request and the

environment in which the script is executed. These environment variables are set by the web server.

REQUEST_METHOD: The HTTP request method (e.g., GET or POST).

QUERY_STRING: The query string part of the URL for a GET request.

CONTENT_TYPE: The type of data sent to the server for a POST request.

CONTENT_LENGTH: The length of the data sent to the server for a POST request.

HTTP_USER_AGENT: The user agent (browser) making the request.

REMOTE_ADDR: The IP address of the client making the request.

SERVER_NAME: The server's hostname.

SERVER_PORT: The port number on which the server is listening.

Q18-Module and their packages

Ans-**A module** is a pythonic statement containing different functions. Modules act as a pre-defined library in the script, which is accessible to both the programmers as well as the user.

The python modules also store pre-defined functions from the library when the code is being executed.

A module is a file containing Python code, definitions of functions, statements, or classes. An example_module.py file is a module we will create and whose name is example_module.

We employ modules to divide complicated programs into smaller, more understandable pieces. Modules also allow for the reuse of code.

Rather than duplicating their definitions into several applications, we may define our most frequently used functions in a separate module and then import the complete module.

A package is considered a collection of tools that allows the programmers to initiate the code. A Python package acts as a user-variable interface for any source code. This feature allows a Python package to work at a defined time for any functional script in the runtime.