Python Interview Q&A for Freshers

Q: What is Python?

A: Python is a high-level, interpreted, general-purpose programming language known for its simplicity and readability.

Q: What are the key features of Python?

A: Easy syntax, interpreted, dynamically typed, supports OOP, large standard library, cross-platform.

Q: What are Python's data types?

A: int, float, str, list, tuple, dict, set, bool.

Q: What is the difference between list and tuple?

A: Lists are mutable, tuples are immutable.

Q: What is a dictionary in Python?

A: A collection of key-value pairs.

Q: What is the difference between 'is' and '=='?

A: `is` checks identity, `==` checks value equality.

Q: What is indentation in Python?

A: Indentation defines blocks of code and is mandatory.

Q: What is a Python module?

A: A file containing Python code that can be imported.

Q: What is a package?

A: A collection of Python modules.

Q: How do you take user input?

A: Using `input()` function.

Q: How do you define a function?

A: Using the `def` keyword: `def function_name():`

Q: What are *args and **kwargs?

A: `*args` allows variable number of arguments; `**kwargs` handles keyworded variable arguments.

Q: What are loops in Python?

A: For, While loops.

Q: What is the use of `break` and `continue`?

A: `break` exits the loop; `continue` skips to the next iteration.

Q: What is a lambda function?

A: An anonymous function defined using `lambda`.

Q: What is OOP?

A: A programming paradigm based on objects and classes.

Q: How do you define a class?

A: Using the `class` keyword: `class ClassName:`

Q: What is `__init__()` in Python?

A: A constructor method that runs when an object is created.

Q: What is inheritance?

A: When one class derives properties of another.

Q: What is encapsulation?

A: Binding of data and methods in one unit.

Q: What is polymorphism?

A: Having multiple forms for the same method/function.

Q: Difference between instance and class variables?

A: Instance: unique to object, Class: shared across all instances.

Q: What is exception handling?

A: Handling runtime errors using `try-except`.

Q: What is the use of `finally`?

A: Executes code regardless of exceptions.

Q: What are common exceptions?

A: `ZeroDivisionError`, `ValueError`, `TypeError`, `FileNotFoundError`.

Q: How do you read a file?

A: `open("file.txt", "r")`

Q: How do you write to a file?

A: `open("file.txt", "w")`

Q: Difference between `r`, `w`, and `a` modes?

A: Read, Write (overwrite), Append.

Q: What is a list comprehension?

A: A concise way to create lists using loops.

Q: How do you reverse a list?

A: `mylist[::-1]` or `mylist.reverse()`

Q: How do you merge two lists?

A: `list1 + list2`

Q: What is a set in Python?

A: An unordered, unindexed collection with unique items.

Q: What is `None` in Python?

A: Represents absence of a value.

Q: What is `pass` in Python?

A: A null operation used as a placeholder.

Q: What is slicing in Python?

A: Extracting parts of strings/lists using indexes: `list[start:stop]`

Q: How to install packages in Python?

A: Using `pip install package-name`.

Q: What is the use of `map()` function?

A: Applies a function to all items in an iterable.

Q: What is `filter()`?

A: Filters items based on a condition.

Q: What is `zip()` in Python?

A: Combines multiple iterables into tuples.

Q: How do you check the type of a variable?

A: `type(var)`

Q: How do you handle multiple exceptions?

A: `except (TypeError, ValueError):`

Q: What is global and local scope?

A: Global: outside functions; Local: inside a function.

Python Mini Coding Questions

Q: Reverse a string

Code:

```
s = 'hello'
print(s[::-1])
```

Q: Find factorial of a number

Code:

```
def fact(n): return 1 if n==0 else n*fact(n-1)
```

Q: Check if a number is prime

Code:

```
n = 7
if n > 1:
 for i in range(2,n):
  if n%i==0: break
 else: print('Prime')
```

Q: Print Fibonacci series

Code:

```
a,b = 0,1
for _ in range(10): print(a, end=' '); a,b = b,a+b
```

Q: Count vowels in a string

Code:

```python
s = 'hello'

print(sum(1 for c in s if c in 'aeiouAEIOU'))
```

Q: Check if a string is palindrome

Code:

```python
s = 'madam'

print(s == s[::-1])
```

Q: Sum of elements in a list

Code:

```python
lst = [1,2,3]

print(sum(lst))
```

Q: Find the largest element in a list

Code:

```python
lst = [1,2,3]

print(max(lst))
```

Q: Sort a dictionary by value

Code:

```python
d = {'a':2, 'b':1}

print(dict(sorted(d.items(), key=lambda x:x[1])))
```

Q: Count frequency of elements in a list

Code:

```python
from collections import Counter

lst = [1,2,2,3]

print(Counter(lst))
```