MENEDŻERSKA AKADEMIA NAUK STOSOWANYCH W WARSZAWIE 51 DPH COMPUTER ENGINEERING

****

# PREPARED BY

## ENFAL SEVİNÇ 77789

PROGRAMMING IN SCRIPTING LANGUAGES

# SUPERVISOR

## KUMAR NALINAKSH

2023 POLAND

[Question 1 4](#_Toc134817572)

[Question 2 4](#_Toc134817573)

[Question 3 4](#_Toc134817574)

[Question 4 5](#_Toc134817575)

[Question 5 5](#_Toc134817576)

[Question 6 5](#_Toc134817577)

[Question 7 5](#_Toc134817578)

[Question 8 6](#_Toc134817579)

[Question 9 6](#_Toc134817580)

[Question 10 6](#_Toc134817581)

[Question 11 6](#_Toc134817582)

[Question 12 7](#_Toc134817583)

[Question 13 7](#_Toc134817584)

[Question 14 7](#_Toc134817585)

[Question 15 7](#_Toc134817586)

[Question 16 7](#_Toc134817587)

[Question 17 8](#_Toc134817588)

[Question 18 8](#_Toc134817589)

[Question 19 8](#_Toc134817590)

[Question 20 8](#_Toc134817591)

[Question 21 9](#_Toc134817592)

[Question 22 9](#_Toc134817593)

[Question 23 9](#_Toc134817594)

[Question 24 9](#_Toc134817595)

[Question 25 10](#_Toc134817596)

[Question 26 10](#_Toc134817597)

[Question 27 10](#_Toc134817598)

[Question 28 10](#_Toc134817599)

[Question 29 11](#_Toc134817600)

[Question 30 11](#_Toc134817601)

[Question 31 11](#_Toc134817602)

[Question 32 11](#_Toc134817603)

[Question 33 11](#_Toc134817604)

[Question 34 12](#_Toc134817605)

[Question 35 12](#_Toc134817606)

[Question 36 12](#_Toc134817607)

[Question 37 12](#_Toc134817608)

[Question 38 12](#_Toc134817609)

[Question 39 13](#_Toc134817610)

[Question 40 13](#_Toc134817611)

[Question 41 13](#_Toc134817612)

[Question 42 13](#_Toc134817613)

[Question 43 14](#_Toc134817614)

[Question 44 14](#_Toc134817615)

[Question 45 14](#_Toc134817616)

[Question 46 14](#_Toc134817617)

[Question 47 15](#_Toc134817618)

[Question 48 15](#_Toc134817619)

[Question 49 15](#_Toc134817620)

Question 50  [15](#_Toc134817620)

## Question 1

What is inheritance in Python?

Answer

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.

## Question 2

How can you inherit a class in Python?

Answer

In Python, you can inherit a class by creating a new class and specifying the superclass (also known as the base class or parent class) in the class definition. This is done by including the name of the superclass in parentheses after the subclass name

## Question 3

What is method overriding?

Answer

Method overriding is a feature in object-oriented programming that allows a subclass to provide a different implementation of a method that is already defined in its superclass. It enables the subclass to redefine the behavior of a method inherited from the superclass according to its specific requirements.

## 

## Question 4

How do you implement polymorphism in Python?

Answer

In Python, polymorphism is achieved through the concept of method overriding and method overloading

## Question 5 What are the different types of inheritance in Python?

Answer

1)Single Inheritance

2)Multiple Inheritance

3)Multilevel Inheritance

4)Hirarchical Inheritance

5)Hybrid Inheritance

## Question 6

How do you implement composition in Python?

Answer

In Python, composition is implemented by creating classes that contain instances of other classes as member variables. This allows the composed class to use the functionality of the contained classes.

## Question 7

What is an abstract class?

Answer

## An abstract class in Python is a class that is meant to be inherited from and cannot be instantiated on its own. It serves as a blueprint for subclasses, defining common attributes and methods that subclasses should implement. Abstract classes are designed to be extended and provide a way to define a common interface for a group of related classes.

## Question 8

What is an interface?

Answer

In the context of programming, an interface is a contract that defines a set of methods or functionalities that a class must implement. It specifies the behavior that a class should adhere to, without providing any implementation details. An interface defines what methods a class should have, but not how those methods should be implemented.

## Question 9

What is a metaclass in Python?

Answer

A metaclass in Python is a class of a class that defines how a class behaves. A class is itself an instance of a metaclass. A class in Python defines how the instance of the class will behave. In order to understand metaclasses well, one needs to have prior experience working with Python classes.

## Question 10

## What is an exception in Python?

Answer

An Exception is an error that happens during the execution of a program. Whenever there is an error, Python generates an exception that could be handled. It basically prevents the program from getting crashed.

## Question 11

How do you handle exceptions in Python?

Answer

## To handle the exception, we have put the code, result = numerator/denominator inside the try block. Now when an exception occurs, the rest of the code inside the try block is skipped. The except block catches the exception and statements inside the except block are executed.

## Question 12

What is the purpose of the else clause in a try-except block?

Answer

The try block lets you test a block of code for errors. The except block lets you handle the error. The else block lets you execute code when there is no error.

## Question 13

How do you raise an exception in Python?

Answer

## As a Python developer you can choose to throw an exception if a condition occurs. To throw (or raise) an exception, use the raise keyword.

## Question 14 What is the finally block in Python?

Answer

In Python, the 'finally' keyword is used in the context of exception handling, specifically with try-except blocks. The 'finally' block contains code that will always be executed, regardless of whether an exception occurs or not within the “try” block

## Question 15

What is an assertion in Python?

Answer

## In Python, assertions are statements that you can use to set sanity checks during the development process. Assertions allow you to test the correctness of your code by checking if some specific conditions remain true, which can come in handy while you're debugging code.

## Question 16

How does inheritance help in code reusability?

Answer

?

## Question 17

Can you inherit from multiple classes in Python?

Answer

Python supports inheritance from multiple classes.

## 

## Question 18

What is method resolution order (MRO)?

Answer

The MRO is determined using the C3 linearization algorithm, which ensures that the order of method resolution follows a consistent and predictable pattern. It aims to maintain the integrity of the inheritance hierarchy while handling the potential conflicts that can arise from multiple inheritance.

The MRO is essential for resolving method calls in cases where a class inherits from multiple base classes that define the same method name. It helps to avoid ambiguity and determines the order in which the inherited methods will be invoked.

## Question 19

What is a super() function in Python?

Answer  
The super() function is used to give access to methods and properties of a parent or sibling class. The super() function returns an object that represents the parent class.

## Question 20

What is encapsulation in Python?

Answer

### Encapsulation refers to the bundling of attributes and methods inside a single class. It prevents outer classes from accessing and changing attributes and methods of a class. This also helps to achieve data hiding. In Python, we denote private attributes using underscore as the prefix i.e single \_ or double \_\_ .

## Question 21

What is an abstract method?

Answer

The purpose of an abstract method is to define a method signature or contract that the derived classes must implement. It specifies the method's name, parameters, and return type, but leaves the implementation details to the classes that inherit from the abstract class or implement the interface.

## Question 22

How do you create an interface in Python?

Answer

## In Python, you can create an interface using an abstract base class (ABC) from the abc module. The abc module provides the ABC class as a base for defining abstract base classes, and the abstractmethod decorator to define abstract methods within the class.

## Question 23

How do you create a custom exception in Python?

Answer

In Python, you can create a custom exception by defining a new class that inherits from the built-in `Exception` class or one of its subclasses. To raise the custom exception, you can use the `raise` keyword followed by an instance of your custom exception class.

## Question 24

What is the purpose of the raise statement in Python?

Answer

## The raise keyword is used to raise an exception. You can define what kind of error to raise, and the text to print to the user.

## Question 25

How can you use the with statement to handle exceptions in Python?

Answer

## The with statement in Python is primarily used for resource management, ensuring that resources are properly acquired and released. It provides a convenient way to handle exceptions related to resource management automatically.When an exception occurs within a block of code inside a with statement, the with statement automatically cleans up the resources, even if an exception is raised. This is particularly useful for resources that need to be released or closed, such as files, network connections, or database connections. Question 26

How do you handle multiple exceptions in a single block?

Answer

To handle multiple exceptions in a single block in Python, you can use multiple except statements or a single except statement with multiple exception types.

## Question 27

What is the purpose of the finally block?

Answer

The finally block in Python is used to define a set of statements that are always executed, regardless of whether an exception occurs or not. It provides a way to ensure that certain code is executed, regardless of the outcome of the preceding try block or any exception that might be raised.

## Question 28

What are some built-in exceptions in Python?

Answer

ValueError

TypeError

importEroor…..etc

## Question 29

How do you create a user-defined exception in Python?

Answer

To generate a user defined exception, we use the “raise” keyword when a certain condition is met. The exception is then handled by the except block of the code. We then use pass statement. pass statement is used to show that we will not implement anything in our custom exception class.

## Question 30

How do you handle exceptions in invoked functions?

Answer

When invoking functions in Python, you can handle exceptions that may be raised within those functions using try and except blocks. By placing the function call inside a try block, you can catch and handle any exceptions that occur during the execution of the function.

## Question 31 How do you implement method overloading in Python?

Answer

There isn't any method overloading in Python.

## Question 32

What is multiple inheritance in Python?

Answer

If a child class is inheriting the properties of a single other class, we call it single inheritance. However, if a child class inherits from more than one class, i.e. this child class is derived from multiple classes, we call it multiple inheritance in Python

## Question 33

How do you resolve method name conflicts in multiple inheritance? Answer

Method Overriding,Method Aliasing,Method Resolution Order

## Question 34

What is a mixin class in Python?

Answer

A mixin is a class that provides methods to other classes, but it's not considered a base class itself. 00:18 This special class is going to expose some methods that the derived class can utilize—methods that will essentially be mixed in to the derived class.

## Question 35

What is operator overloading in Python?

Answer

Python. | Operator Overloading means giving extended meaning beyond their predefined operational meaning. For example operator + is used to add two integers as well as join two strings and merge two lists. It is achievable because '+' operator is overloaded by int class and str class.

## Question 36 What is a descriptor in Python?

Answer

Descriptors are Python objects that implement a method of the descriptor protocol, which gives you the ability to create objects that have special behavior when they're accessed as attributes of other objects

## Question 37

How do you use abstract classes and interfaces together in Python?

Answer

?

## Question 38

What is the purpose of the init\_subclass() method in Python? Answer

\_\_init\_subclass\_\_ is just a hook method. You can use it for anything you want. It is useful for both registering subclasses in some way, and for setting default attribute values on those subclasses

## Question 39

How do you handle exceptions in a multi-threaded program in Python?

Answer

Handling exceptions in a multi-threaded program in Python requires careful consideration due to the concurrent nature of threads and the potential for exceptions to be raised from multiple threads simultaneously. Python provides several mechanisms to handle exceptions in multi-threaded programs, including

## Question 40

What is the purpose of the traceback module in Python?

Answer

The Python traceback module contains vital information for identifying and resolving problems in your code. Learning to use tracebacks will help you master the Python language and become a stronger programmer overall.

## Question 41

How do you customize exception handling in Python?

Answer

In Python, you can customize exception handling by defining your own exception classes and implementing exception handling logic specific to your application's requirements. Custom exception classes allow you to create meaningful and specialized exceptions that convey the specific nature of the error or exceptional condition encountered in your code. You can also customize the behavior of exception handling using the try-except statement and additional constructs.

## Question 42

What is the purpose of the contextlib module in Python?

Answer

The contextlib module of Python's standard library provides utilities for resource allocation to the with statement. The with statement in Python is used for resource management and exception handling. Therefore, it serves as a good Context Manager.

## Question 43

What are some best practices for error and exception handling in Python?

Answer

## ?

## Question 44

What is the purpose of the AssertionError exception in Python? Answer

AssertionError Python is useful to check the output of a function, to check whether the input is valid or not, or to test a program..

## Question 45

How do you use the assert statement in Python?

Answer

In Python, the assert statement is used as a debugging aid to check that a condition is true. It allows you to express assumptions about the state of your code and detect potential issues or bugs during development or testing. The assert statement takes a condition as an argument and raises an AssertionError if the condition evaluates to False.

## Question 46 What is the difference between a syntax error and a logic error in Python? Answer

Whenever we do not write the proper syntax of the Python programming language (or any other language) then the python interpreter throws an error known as a syntax error. On the other hand, Logical Errors are those errors that cannot be caught during compilation time.

## Question 47

What is the purpose of the try-except-else block in Python? Answer

The try block lets you test a block of code for errors. The except block lets you handle the error. The else block lets you execute code when there is no error.

## Question 48 How do you handle exceptions in a complex program with many modules in Python?

## Answer

?

## Question 49

What is the purpose of the sys.exc\_info() function in Python? Answer

The sys. exc\_info function returns a 3- tuple with the exception, the exception's parameter, and a traceback object that pinpoints the line of Python that raised the exception. Question 50

How do you implement custom exception hierarchies in Python?

Answer

?