PYTHON FOR COMPUTATIONAL PROBLEM SOLVING

QUIZ: Unit - 4

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QUIZ

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What will be the output of the following code?

```
func = lambda x: (lambda y: x + y)
result = func(10)(5)
print(result)
```

a) 5
b) 10
c) 15
d) Error

Answer: c) 15

QUIZ

What will be the output of the following code?

```
f = lambda x: (x == 1)
f(5)
```

a) Error
b) True
c) 0
d) False

Answer: d) False

QUIZ

Which of the following statements is true about lambda functions?

a) Lambda functions can have multiple statements in its definition as return values
b) Lambda functions are only allowed in the context of map and filter
c) Lambda functions cannot access variables defined outside of their scope
d) Lambda functions can be immediately invoked by passing arguments after defining them

Answer: d) Lambda functions can be immediately invoked by passing arguments after defining them

Example: (lambda x: x+y)(20)

QUIZ

Given the code below, which expression correctly creates an anonymous function to sort pairs using the second element in each tuple in ascending order?
pairs = [(1, 9), (2, 3), (4, 6)]

a) pairs.sort(key=lambda x: x[0])
b) pairs.sort(key=lambda x: x[1])
c) pairs.sort(key=lambda x: x[1], reverse=True)
d) Both b and c

Answer: b) pairs.sort(key=lambda x: x[1])

QUIZ

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What will be the output of the following code?

```
numbers = [5, 3, 2]
result = (lambda x, y, z: x * y + z)(*numbers)
print(result)
```

a) 30
b) 17
c) 15
d) Error

Answer: b) 17

QUIZ

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How would you rewrite the following function using a lambda expression?

```
def multiply_and_add(a, b, c):
    return a * b + c
```

a) lambda a, b, c: a + b * c
b) lambda a, b, c: a * b + c
c) lambda a, b, c: (a * b) * c
d) lambda a, b, c: a + b + c

Answer: b) lambda a, b, c: a * b + c

QUIZ

What will be the output of the following code?

```
add_to = lambda x: (lambda y: x + y)
func = add_to(10)
print(func(3))
```

a) 10
b) 13
c) 3
d) Error

Answer: b) 13

QUIZ

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Given the following code, which of the statements correctly creates a list of square of each element in the list?
nums = [2, 4, 6]

a) square = lambda x: x**2 for x in nums
b) [lambda x: x**2 for x in nums]
c) list(map(lambda x: x**2, nums))
d) None of the above

Answer: c) list(map(lambda x: x**2, nums))

QUIZ

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What will be the output of the following code?

```
words = ["hello", "world"]
result = list(map(lambda x: x.upper(), filter(lambda x: len(x) > 4, words)))
print(result)
```

a)[]
b) ['HELLO']
c) ['WORLD']
d) ['HELLO', 'WORLD']

Answer: d) ['HELLO', 'WORLD']

QUIZ

Given the code below, which option produces the correct result for summing even numbers only?

```
from functools import reduce
nums = [1, 2, 3, 4, 5, 6]
```

a) reduce(lambda x, y: x + y, filter(lambda x: x % 2 == 0, nums))
b) reduce(lambda x, y: x if x % 2 == 0 else y, nums)
c) reduce(lambda x, y: x + y, map(lambda x: x % 2 == 0, nums))
d) reduce(lambda x, y: y if x % 2 == 0 else x, nums)

Answer: a) reduce(lambda x, y: x + y, filter(lambda x: x % 2 == 0, nums))

QUIZ

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What will be the result of this code?

```
numbers = [2, 4, 6]
from functools import reduce
print(reduce(lambda x, y: x * y, map(lambda x: x + 1, numbers)))
```

a) 105
b) 90
c) 120
d) 48

Answer: a) 105
map results in [3, 5, 7] and reduce multiplies them: 3 * 5 * 7)

QUIZ

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Which of the following will generate a list of the squares of odd numbers from range(10)?

a) list(map(lambda x: x % 2 == 1, filter(lambda x: x**2, range(10))))
b) filter(lambda x: x % 2 == 1, map(lambda x: x**2, range(10)))
c) list(map(lambda x: x**2, filter(lambda x: x % 2 == 1, range(10))))
d) None of the above

Answer: c) list(map(lambda x: x**2, filter(lambda x: x % 2 == 1, range(10))))

QUIZ

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What will the following code output?

```
nums = [1, 3, 5, 7]
result = list(map(lambda x: x * 2, filter(lambda x: x % 2 == 1, nums)))
print(result)
```

a) [2, 6, 10, 14]
b) [6, 10, 14]
c) [2, 6, 10]
d) [2, 6, 10, 12]

Answer: a) [2, 6, 10, 14]

QUIZ

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Which of the following expressions correctly calculates the product of all even numbers in the list nums?

```
from functools import reduce
nums = [1, 2, 3, 4, 5, 6]
```

a) reduce(lambda x, y: x * y, filter(lambda x: x % 2 == 0, nums))
b) reduce(lambda x, y: x + y, filter(lambda x: x % 2 == 0, nums))
c) map(lambda x: x % 2 == 0, nums)
d) filter(lambda x: x % 2 == 0, reduce(lambda x, y: x * y, nums))

Answer: a) reduce(lambda x, y: x * y, filter(lambda x: x % 2 == 0, nums))

QUIZ

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What is the output of following code?

```
names = ['a', 'bb', 'ccc']
result = max(names, key=len)
print(result)
```

a) 'a'
b) 'bb'
c) 'ccc'
d) Error

Answer: c) ccc

QUIZ

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What will min(zip([1, 2, 3], [10, 5, 2])) produce?

a) (1, 10)
b) (3, 2)
c) (1, 2)
d) (2, 5)

Answer: a) (1, 10)

QUIZ

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What does the following code output?

```
ages = [25, 30, 35]
names = ["Alice", "Bob", "Charlie"]
data = zip(names, ages)
print(max(data, key=lambda x: x[1]))
```

a) ("Alice", 25)
b) ("Charlie", 35)
c) ("Bob", 30)
d) Error

Answer: b) ("Charlie", 35)

QUIZ

What is the output?

```
from itertools import zip_longest
list1 = [1, 2, 3]
list2 = ['a', 'b']
result = list(zip_longest(list1, list2, fillvalue='*'))
print(result)
```

a) [(1, 'a'), (2, 'b'), (3, '*')]
b) [(1, '*'), (2, '*'), ('*', '*')]
c) [(1, 'a'), (2, 'b'), ('*', '*')]
d) [(1, 'a'), (2, 'b'), (3, None)]

Answer: a) [(1, 'a'), (2, 'b'), (3, '*')]

QUIZ

Fill up the blank space to get the expected output.

```
numbers = [10, 20, 30, 40]
result = [_____   for n in numbers if n > 25]
print(result)
```

Expected output: [35, 45]

a) n+5
b) n-5
c) n = n+5
d) n+=5

Answer: a) n+5

QUIZ

Fill up the blank space to get the expected output.

```
class Book:
    def __init__(self, title, author):
        self.year = title
        self.author = author
    def __str__(self):
        _____________________________
book = Book("1984", "George Orwell")
print(book)
```

Expected output: 1984-- George Orwell

a) int(self.year)+”--”+self.author

b) return int(self.year)+”--”+self.author

c) return self.year+”--”+self.author

d) self.year+”--”+self.author

Answer: c) return self.year+”--”+self.author

QUIZ

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What is the output of following code?

```
nums = [3, 1, 4, 1, 5]
result = min(nums, key=lambda x: -x)
print(result)
```

a) -5
b) 1
c) -1
d) 5

Answer: d) 5

QUIZ

Which of the following expressions correctly combines two lists into a list of tuples and finds the tuple with the largest sum of elements?

a = [1, 3, 5]
b = [2, 4, 6]

a) max(zip(a, b), key=lambda x: x[0] + x[1])
b) max(zip(a, b), key=lambda x: x[1])
c) max(a, b, key=sum(x))
d) zip(max(a), max(b))

Answer: a) max(zip(a, b), key=lambda x: x[0] + x[1])

QUIZ

Which of the following list comprehensions creates a list of squares of numbers in nums greater than 2?
nums = [1, 2, 3, 4]

a) [x**2 for x in nums if x > 2]
b) [x for x in nums if x**2 > 2]
c) [x**2 for x in nums] if x > 2
d) [x for x in nums if x > 2**2]

Answer: a) [x**2 for x in nums if x > 2]

QUIZ

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What is the output of the following code?
[x + y for x in range(3) for y in range(3) if x != y]

a) [1, 2, 3]
b) [1, 2, 3, 2, 3, 4]
c) [1, 2, 1, 3, 2, 3]
d) None of these

Answer: c) [1, 2, 1, 3, 2, 3]

QUIZ

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Which of these will output a list of tuples containing numbers and their squares, but only for odd numbers?
nums = range(5)

a) [(x, x**2) for x in nums]
b) [(x, x**2) for x in nums if x % 2 == 1]
c) [(x, x**2) for x in nums if x % 2 == 0]
d) None of the above

Answer: b) [(x, x**2) for x in nums if x % 2 == 1]

QUIZ

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What will be the output of the following code?
[x for x in range(10) if x % 3 == 0 and x % 2 == 0]

a) [0, 6]
b) [3, 6, 9]
c) [2, 4, 6, 8]
d) [0, 3, 6, 9]

Answer: a) [0, 6]

QUIZ

Which list comprehension will produce a list of tuples where each tuple contains a number from 1 to 3 and its square?

a) None of these
b) [x**2 for x in range(1, 3)]
c) [(x, x+2) for x in range(1, 4)]
d) [(x, x**2) for x in range(1, 4)]

Answer: d) [(x, x**2) for x in range(1, 4)]

QUIZ

What will be the output of the following code?

```
class Animal:
    def __init__(self, name):
        self.name = name
class Dog(Animal):
    def speak(self):
        return f"{self.name} says Woof!"
dog = Dog("Buddy")

print(dog.speak())
```

a) Buddy says Woof!
b) speak
c) Error: Dog does not inherit from Animal
d) Woof!

Answer: a) Buddy says Woof!

QUIZ

Given the following code, which statement about print(obj1 is obj2) is correct?

```
class MyClass:
    pass
obj1 = MyClass()
obj2 = MyClass()
```

a) True, because obj1 and obj2 reference the same instance
b) False, because obj1 and obj2 reference the different instances
c) SyntaxError due to duplicate class creation
d) None of the above

Answer: b) False, because obj1 and obj2 reference the different instances

QUIZ

Which statement about inheritance is correct?

```
class A:
    def method(self):
        return "Class A"
class B(A):
    pass
```

a) B cannot access method without redefinition
b) B has access to method through inheritance
c) A and B types are not identical
d) None of the statements are True

Answer: b) B has access to method through inheritance

QUIZ

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In the following code, what will be the result of print(obj.value)?

```
class Test:
    def __init__(self, value=10):
        self.value = value
obj = Test(20)
```

a) 10
b) 20
c) None
d) Error due to missing value

Answer: b) 20

QUIZ

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Which of the following statements about polymorphism is true?

a) Polymorphism allows different classes to have different methods of the same name if there is parent child relation between the classes.
b) Polymorphism only applies to built-in classes
c) Polymorphism means a class can only inherit from one parent class
d) Polymorphism applies to only operators in python

Answer: a) Polymorphism allows different classes to have different methods of the same name if there is parent child relation between the classes.

QUIZ

What will be the output of the following code?

```
class A:
    def show(self):
        return "A"
class B(A):
    def show(self):
        return "B"
obj = B()
print(obj.show())
```

a) A
b) B
c) Error
d) None of the above

Answer: b) B

QUIZ

What will be the output of the following code?

```
try:
    result = 10 / 0
except ZeroDivisionError:
    print("Divide by zero error!")
finally:
    print("End of operation")
```

a) Divide by zero error!
   End of operation
b) End of operation
c) Divide by zero error!
d) Nothing gets printed

Answer: a) Divide by zero error!
End of operation

QUIZ

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In which part of the following code should the line print("Operation Complete") be placed to ensure it always executes, regardless of any errors?

```
try:
    result = int("abc")
except ValueError:
    print("Value Error occurred")
```

a) Inside try block
b) Inside except block
c) Inside a finally block
d) None of the above

Answer: c) Inside a finally block

QUIZ

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What type of error will be raised by the following code?

```
try:
    value = [1, 2, 3]
    print(value[5])
except Exception as e:
    print(type(e).__name__)
```

a) IndexError
b) ValueError
c) TypeError
d) KeyError

Answer: a) IndexError

QUIZ

Given the following code, what will the output be?

```
def raise_exception():
    try:
        raise ValueError("Invalid value!")
    except ValueError as e:
        print("Caught ValueError")
        raise
    except Exception:
        print("Caught generic exception")
try:
    raise_exception()
except ValueError:
    print("Outer catch")
```

a) Caught ValueError
b) Caught ValueError
   Outer catch
c) Caught generic exception
d) None of the these

Answer: b) Caught ValueError
Outer catch

QUIZ

Which of the following options are true about below code?

```
try:
    result = 5 / 0
except ZeroDivisionError as e:
    print(e)
    raise
except:
    print("General exception caught")
print("bad code")
```

a) The code will break after ZeroDivisionError
b) The code will break after General exception caught is printed
c) The code results in No output
d) None of the these

Answer: a) The code will break after ZeroDivisionError

QUIZ

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What will be the output of the following code?

```
try:
    value = int("hello")
except ValueError:
    print("Error occurred")
```

a) Error occurred
b) Error occurred followed by a traceback
c) ValueError: invalid literal
d) None

Answer: a) Error occurred

QUIZ

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What does the __dict__ attribute represent in a Python object?
a) A method that returns the attributes of an object as a dictionary.
b) A dictionary or mapping object containing an object's (writable) attributes.
c) A built-in function to serialize an object into a dictionary format.
d) A reserved keyword to access Python's global namespace.

Answer: b) A dictionary or mapping object containing an object's (writable) attributes.

QUIZ

Given s1 = "CHOCOLATE"
Choose the expression using list comprehension for the creation of the list of consonants from this string s1.

a) print([x[-1] for x in s1 if x not in "AEIOU"])
b) print([x for x in s1])
c) print([x[0] for x in s1 if x in "AEIOU"])
d) print([x[-1] for x in s1 if x in "AEIOU"])

Answer: a) print([x[-1] for x in s1 if x not in "AEIOU"])

QUIZ

Having multiple types as parent for any new type is known as

a) Multiple inheritance
b) Diamond shaped inheritance
c) Single Level inheritance
d) Multi Level inheritance

Answer: a) Multiple inheritance

QUIZ

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Choose the distructor function in python.

a) __DISTRUCTOR__
b) __init__
c) __del__
d) __DEL__

Answer: c) __del__

QUIZ

class A: pass
class B(A): pass
class C(B): pass
The above hierarchy results in _____

a) Error
b) Hybrid inheritance
c) Multi-level Inheritance
d) Multiple inheritance

Answer: c) Multi-level Inheritance

QUIZ

```
try:
    print("Try block")
    x = 1 / 0
    print("This won't execute")
except (ValueError, ZeroDivisionError) as e:
    if isinstance(e, ValueError):
        print("Caught ValueError")
    elif isinstance(e, ZeroDivisionError):
        print("Caught ZeroDivisionError")
else:
    print("Else block")
finally:
    print("Finally block")
```

a)
Try block
Caught ZeroDivisionError
Finally block

b)
Try block
Else block
Finally block

c)
Try block
Caught ValueError
Finally block

Answer: a)

QUIZ

```
try:
    print("Try block")
    x = 5 // 0  # Integer division by zero
    print("This won't execute")
except ArithmeticError:
    print("Caught an ArithmeticError:")
except ZeroDivisionError:
    print("Caught ZeroDivisionError")
else:
    print("Else block")
finally:
    print("Finally block")
```

a)
Try block
Caught ZeroDivisionError
Finally block

b)
Try block
Caught an ArithmeticError:
Finally block

c)
Try block
Else block
Finally block

Answer: b)

QUIZ

```
class CustomError(Exception):
    pass
try:
    print("Try block")
    raise CustomError("Something went
      wrong")
    print("This won't execute")
except CustomEror as e:
    print(f"Caught CustomError: {e}")
except Exception:
    print("Caught a generic exception")
else:
    print("Else block")
finally:
    print("Finally block")
```

a)
Try block
Caught CustomError: Something went wrong
Finally block

b)
Try block
Caught a generic Exception
Finally block

c)
Try block
Else block
Finally block

Answer: b)

QUIZ

```
class Counter:
    def __init__(self, start, end):
        self.current = start
        self.end = end
    def __iter__(self):
        print("Calling __iter__")
        return self
    def __next__(self):
        if self.current >= self.end:
            raise StopIteration
        else:
            self.current += 1
            return self.current – 1
counter = Counter(3, 6)
for num in counter:
    print(num, end=" ")
```

What gets printed?

a) Calling __iter__

b) 3 4 5

c) Calling __iter__
3 4 5

d) 3
4
5

Answer: c)

THANK YOU

If any queries, contact **sindhurpai@pes.edu**

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