

Course outline

How does an NPTEL online course work?

Prerequisite Assignment

Week 1

- Installation of Python
- Getting Started with Python
- Python as an advanced calculator
- Lists in Python
- Tuple, Sets and Dictionaries in Python
- Functions and Branching
- For loop in Python
- While loop in Python
- Week 1 handouts
- Week 1 Practice problem solutions
- Quiz : Assignment 1
- Computational Mathematics with SageMath : Week 1 Feedback Form

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

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Assignment 1

The due date for submitting this assignment has passed.

Due on 2021-02-03, 23:59 IST.

As per our records you have not submitted this assignment.

1) What is the output of the following code snippet? 1 point

```
if 'b' in {'a':1, 'b':2, 'c':3}:
    print(1)
    print('x')
    if 'a' in 'quiz':
        print('a')
    print(3)
1x3
1
x
a
3
1
'x'
3
1
x
3
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

1
x
32) What signifies the end of a statement block in Python? 1 point

- }
- end
- A comment
- A line that is less indented than the previous line

No, the answer is incorrect.
Score: 0Accepted Answers:
A line that is less indented than the previous line3) What is the output of this code? 1 point

```
x = 3
def testfn():
    x = 7
    print(f'x = {x}')
testfn()
print(f'x = {x}')
```

- x = 7
- x=3
- x = 7
- x=7
- x = 3
- x = 7

No, the answer is incorrect.
Score: 0Accepted Answers:
x = 7
x=34) Suppose we have A to be a 10 X 4 array of numbers. How do you access the 3rd column and 6th row of A? 1 point

- A[3:], A[:6]
- A[:,3], A[6,:]
- A[:,2], A[5,:]
- A[2:], A[:5]

No, the answer is incorrect.
Score: 0Accepted Answers:
A[:,2], A[5,:]5) Making use of the isPrime() function covered in the lecture, compute the number of primes between 1000 and 1500 0 points

- 981
- 1000
- 1891
- 1110

No, the answer is incorrect.
Score: 0Accepted Answers:
11106) What happens on executing the following piece of code? 1 point

```
def add(x,y):
    z = x+y
    def mul(z):
        z = 5*z
        print(z)
    mul(z)
    print(z)
add(-4,8)
```

- The output of the inner function gets displayed, followed by the output of the outer function.
- The output of the outer function gets displayed, followed by the output of the inner function.
- Only one output, which is the output of the inner function, gets displayed
- None of these

No, the answer is incorrect.
Score: 0Accepted Answers:
The output of the inner function gets displayed, followed by the output of the outer function.7) Three integers a , b and c are said to form a Pythagorean triplet, if $a^2 + b^2 = c^2$. Using appropriate Python commands, compute the number of Pythagorean triplets between 125 and 450 1 point

- 251
- 132
- 189
- 175

No, the answer is incorrect.
Score: 0Accepted Answers:
1328) Considering that the rate of interest takes only integer values, what should the rate of interest be, for a sum of Rs. 20000 to double itself, if it is compounded quarterly, for 5 years? 1 point

- 12%
- 20%
- 15%
- 33%

No, the answer is incorrect.
Score: 0Accepted Answers:
15%9) What do the keywords **continue** and **break** do in the following code? 1 point

```
for letter in 'python':
    if letter == 'h':
        continue
    elif letter == 'n':
        break
    print(letter)
```

- continue** makes the program skip the letter **h** and move on to the next letter, and **break** makes the program skip the letter **n**. Since **n** is the last letter, the program stops.
- continue** makes the program skip the letter **h**, and **break** stops the program from executing further once the letter **n** is reached
- continue** acts as a null statement, and the program doesn't do any operation, whereas the **break** statement makes the program skip the letter **n**.
- None of these

No, the answer is incorrect.
Score: 0Accepted Answers:
continue makes the program skip the letter **h**, and **break** stops the program from executing further once the letter **n** is reached10) What do the functions **pop** and **insert** do to the list L in the following code? 1 point

```
L = [1,-1,3,10,14]
L.pop(3)
L.insert(3,4)
```

- pop** takes out the element 3 from the list, and **insert** inserts the element 3 at the 4th position in the list
- pop** takes out the 3rd element from the list, and **insert** inserts the element 3 at the 4th position in the list.
- pop** takes out the 4th element from the list, and **insert** inserts the element 4 at the 3rd position in the list
- pop** takes out the 4th element from the list, and **insert** inserts the element 4 at the 4th position in the list

No, the answer is incorrect.
Score: 0Accepted Answers:
pop takes out the 4th element from the list, and **insert** inserts the element 4 at the 4th position in the list11) The function `str()` is used to convert a specified value into a string. Using appropriate functions and commands compute the number of trailing zeros (sequence of zeros after which no other non-zero integers follow) in 14352!. You may use factorial from the math module. 1 point

- 3751
- 3584
- 3585
- 3752

No, the answer is incorrect.
Score: 0Accepted Answers:
358412) Consider the function $f(x) = 3x^3 - \exp(-2x) + \cos(x^2) - 2$. Importing `exp` and `cos` from the `math` module, apply the Newton Raphson Method on the function $f(x)$ 1 point

- 0.7732519668006296
- 0.7731448061694187
- 0.7634512348762310
- 1.0

No, the answer is incorrect.
Score: 0Accepted Answers:
0.773144806169418713) Identify the correct option: 1 point

- The literal syntax of tuples is shown by curly brackets `{ }` whereas the literal syntax of lists is shown by parentheses `()`
- Tuple is mutable, list is immutable
- Once defined, the length of a list can be varied, whereas that of a tuple cannot.
- Tuple has more functionality than a list.

No, the answer is incorrect.
Score: 0Accepted Answers:
Once defined, the length of a list can be varied, whereas that of a tuple cannot.14) In how many ways can the word 'COMPUTATION' be arranged such that the vowels never come together? You may use factorial from the math module to compute the answer. 0 points

- 9957600
- 21600
- 43200
- 9979200

No, the answer is incorrect.
Score: 0Accepted Answers:
995760015) In how many ways can a group of 15 girls and 10 boys be made to stand in a line such that no two boys stand together? You may use factorial, perm or comb from the math module to solve the question. 1 point

- 10471856338944000
- 14250102106034995200000
- 38000272282759987200000
- 3926946127104000

No, the answer is incorrect.
Score: 0Accepted Answers:
38000272282759987200000