

<https://swayam.gov.in>https://swayam.gov.in/nc_details/NPTEL

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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » The Joy of Computing using Python (course)Course
outlineAbout
NPTEL ()How does an
NPTEL
online
course
work? ()

Week 0 ()

Week 1 ()

Week 2 ()

Week 3 ()

week 4 ()

Week 5 ()

Week 6 ()

- ☐ Substitution
Cipher -The
science of
secrecy (unit?
unit=124&less
on=125)

Week 6: Assignment 6

The due date for submitting this assignment has passed.

Due on 2024-09-04, 23:59 IST.

Assignment submitted on 2024-08-24, 13:08 IST

- 1) If n is a positive integer, what is the output of the function given input n ,

1 point

```
def mystery(n):  
    if n <= 0:  
        return 0  
    else:  
        return 1 + mystery(n - 1)
```

- ☐ Sum of numbers from 1 to n
☐ Sum of numbers from 1 to $n-1$
☐ $n-1$
☒ n

Yes, the answer is correct.

Score: 1

Accepted Answers:

 n

- 2) Which of the following are true about recursion?

1 point

- ☒ Recursion is a process in which a function calls itself as a subroutine.
☐ Recursion is a better alternative for performing repetitive tasks compared to iteration.

☐ Substitution Cipher -The science of secrecy 01 (unit? unit=124&less on=126)

☐ Substitution Cipher -The science of secrecy 02 (unit? unit=124&less on=127)

☐ Substitution Cipher -The science of secrecy 03 (unit? unit=124&less on=128)

☐ Tic Tac Toe - Down the memory Lane (unit? unit=124&less on=129)

☐ Tic Tac Toe - Down the memory Lane 01 (unit? unit=124&less on=130)

☐ Tic Tac Toe - Down the memory Lane 02 (unit? unit=124&less on=131)

☐ Tic Tac Toe - Down the memory Lane 03 (unit? unit=124&less on=132)

☐ Tic Tac Toe - Down the memory Lane 04 (unit? unit=124&less on=133)

☒ Recursion requires more resources compared to iteration.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Recursion is a process in which a function calls itself as a subroutine.

Recursion requires more resources compared to iteration.

3) What is the output of following code ?

1 point

```
def func(x):  
    return x * 2  
  
def func(x, y=3):  
    return x + y  
  
print(func(5))
```

- ☐ 10
☒ 8
☐ 5
☐ Error

Yes, the answer is correct.

Score: 1

Accepted Answers:

8

4) The letter 'e' is the most frequently occurring letter in the English language.

1 point

Suppose we apply a Substitution Cipher where 'e' is mapped to 'a', and all other letters are uniquely mapped to different letters. If we encrypt a very long English storybook using this cipher, will the frequency of 'a' be the highest in the encrypted text?

Hint: Search the internet for more info, if needed

- ☐ Yes, it would be same as 'e' in the original text
☐ Yes, it would be higher than 'e' in the original text.
☒ No, it would be lower than 'e' in the original text.
☐ No, we cannot predict

No, the answer is incorrect.

Score: 0

Accepted Answers:

Yes, it would be same as 'e' in the original text

5) Could we check frequency of letters in a long ciphertext and map them to frequency of letters in English to decrypt the message? **1 point**

☐ Tic Tac Toe -
Down the
memory Lane
05 (unit?
unit=124&less
on=134)

☐ Recursion
(unit?
unit=124&less
on=135)

☐ Recursion 01
(unit?
unit=124&less
on=136)

☐ Recursion 02
(unit?
unit=124&less
on=137)

☐ Recursion 03
(unit?
unit=124&less
on=138)

☐ Recursion 04
(unit?
unit=124&less
on=139)

☐ Recursion 05
(unit?
unit=124&less
on=140)

☐ Recursion 06
(unit?
unit=124&less
on=141)

☒ **Quiz: Week 6:
Assignment 6
(assessment?
name=467)**

☒ Week 6:
Programming
Assignment 1
(/noc24_cs113
/progassignme
nt?name=468)

☒ Week 6:
Programming
Assignment 2
(/noc24_cs113
/progassignme
nt?name=470)

Hint: Search the internet for more info, if needed.

- ☒ Yes, it is possible.
☐ No, it is not possible.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Yes, it is possible.

6) What are drawbacks of using frequency analysis to decrypt a message that has been encrypted using Substitution Cipher? **1 point**

- ☐ It will not work if the cipher text is too small.
☐ It works flawlessly.
☒ It will not work if the encrypted text was previously encrypted using a different cipher, which could have removed patterns in common English.
☒ The frequency analysis method doesn't work at all for Substitution Cipher

No, the answer is incorrect.
Score: 0

Accepted Answers:

It will not work if the cipher text is too small.

It will not work if the encrypted text was previously encrypted using a different cipher, which could have removed patterns in common English.

7) If variable **dict_name** is a non-empty dictionary, what does dict_name.keys() return? **1 point**

- ☐ Returns nothing, but prints all the keys in the dictionary.
☒ Returns a list of all the keys in the dictionary.
☐ Returns a list of all the values in the dictionary.
☐ Returns a list of all the items in the dictionary

Yes, the answer is correct.
Score: 1

Accepted Answers:

Returns a list of all the keys in the dictionary.

8) Is Ceaser Cipher a type of Substitution Cipher? **1 point**

- ☒ Yes
☐ No

Yes, the answer is correct.
Score: 1

Accepted Answers:

Yes

9) What is the consequence of not having a base case in a recursive function? **1 point**

- ☒ The function will run infinitely.
☐ The function will run only once.
☐ The function will not run at all.

● Week 6:
Programming
Assignment 3
(/noc24_cs113
/progassignment?name=471)

○ Week 6
Feedback
Form: The Joy
of Computing
using Python
(unit?
unit=124&less
on=142)

Week 7 ()

Week 8 ()

**Text
Transcripts
()**

**Download
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Books ()

**Problem
Solving
Session -
July 2024 ()**

○ The function will run only for a fixed number of times.

Yes, the answer is correct.

Score: 1

Accepted Answers:

The function will run infinitely.

10) What are the number of possible final lines when someone wins, in a game of TicTac-Toe?

1 point

○ 3

● 8

○ 9

○ 4

Yes, the answer is correct.

Score: 1

Accepted Answers:

8