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**NPTEL** (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Programming, Data Structures And Algorithms Using Python (course)**



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Course  
outline

How does an  
NPTEL online  
course work?

Week 1 :  
Introduction

Week 1 Quiz

● Quiz: Week 1  
Quiz  
(assessment?  
name=108)

Week 2: Basics  
of Python

Week 2 Quiz

Week 2  
Programming

## Week 1 Quiz

The due date for submitting this assignment has passed.

**Due on 2021-08-18, 23:59 IST.**

Score: 10/10=100%

### Assignment submitted on 2021-08-11, 19:26 IST

All questions carry equal weightage. All Python code is assumed to be executed using Python3. You may submit as many times as you like within the deadline. Your final submission will be graded.

1) What is the value of  $g(728)$  for the function below?

```
def g(y):  
    b = 0  
    while y >= 3:  
        (y,b) = (y/3,b+1)  
    return(b)
```

Yes, the answer is correct.  
Score: 2.5

Accepted Answers:  
(Type: Numeric) 5

**2.5 points**

**Assignment**

**Week 3: Lists, inductive function definitions, sorting**

**Week 3 Programming Assignment**

**Week 4: Sorting, Tuples, Dictionaries, Passing Functions, List Comprehension**

**Week 4 Quiz**

**Week 4 Programming Assignment**

**Week 5: Exception handling, input/output, file handling, string processing**

**Week 5 Programming Assignment**

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2) What is  $f(90) - f(89)$ , given the definition of  $f$  below?

```
def f(n):
    s = 0
    for i in range(2,n):
        if n%i == 0 and i%2 == 1:
            s = s+1
    return(s)
```

Yes, the answer is correct.

Score: 2.5

Accepted Answers:

(Type: Numeric) 5

**2.5 points**

3) Consider the following function  $h$ .

**2.5 points**

```
def h(n):
    s = True
    for i in range(1,n+1):
        if i*i == n:
            s = False
    return(s)
```

The function  $h(n)$  given above returns `False` for a positive number  $n$  if and only if:

- ☐  $n$  is an odd number.
- ☐  $n$  is a prime number.
- ☒  $n$  is a perfect square.
- ☐  $n$  is a composite number.

Yes, the answer is correct.

Score: 2.5

Feedback:

$h(n)$  sets  $s$  to `False` if there is a number  $i$  such that  $i*i == n$ .

Accepted Answers:

$n$  is a perfect square.

**2.5 points**

4) Consider the following function  $fpp$ .

```
def foo(m):
    if m == 0:
        return(0)
    else:
        return(m+foo(m-1))
```

Which of the following is correct?

- ☐ The function always terminates with  $f(n) = \text{factorial of } n$
- ☐ The function always terminates with  $f(n) = n(n+1)/2$
- ☐ The function terminates for nonnegative  $n$  with  $f(n) = \text{factorial of } n$
- ☒ The function terminates for nonnegative  $n$  with  $f(n) = n(n+1)/2$

Yes, the answer is correct.

Score: 2.5

Feedback:

*If  $m$  is negative, the function does not terminate. Otherwise, it computes  $1+2+\dots+m = m(m+1)/2$ .*

Accepted Answers:

*The function terminates for nonnegative  $n$  with  $f(n) = n(n+1)/2$*