Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 2_MCQ

Attempt : 1
Total Mark : 15
Marks Obtained : 8

Section 1 : MCQ

1. What will be the output of the following Python code?

```
i = 0
while i < 5:
    print(i)
    i += 1
    if i == 3:
        break
else:
    print(0)
```

Answer

012

Status : Correct ***Marks : 1/1***

2. What will be the output of the following Python code?

```
i = 5
while True:
   if i%0O11 == 0:
      break
   print(i)
   i += 1
```

Answer

Error

Status : Wrong ***Marks : 0/1***

3. How many times will the inner for loop be executed in the below code?

```
i=0
while(True):
  for j in range(4,0,-2):
    print(i*j)
    print('')
    i=i+1
  if(i%2==0):
    break
```

Answer

02

Status : Correct ***Marks : 1/1***

4. What is the output of the following?

```
i=0
while(1):
 i++
 print i
 if(i==4):
  break
```

Answer

1 2 3 4

Status : Wrong ***Marks : 0/1***

5. What will be the output of the following Python code?

```
i = 5
while True:
    if i%0O11 == 0:
        break
    print(i, end = " ")
    i += 1
```

Answer

Compile Time Error

Status : Wrong ***Marks : 0/1***

6. What will be the output of the following Python code?

```
i = 1
while True:
    if i % 2 == 0:
        i += 1
        continue
    if i > 10:
        break
    print(i, end = " ")
    i += 2
```

Answer

1 3 5 7 9

Status : Correct ***Marks : 1/1***

7. What will be the output for the following code snippet?

```
i = 0
for i in range(10):
    break
print(i)
```

Answer

10

Status : Wrong ***Marks : 0/1***

8. What will be the output of the following Python code?

```
i = 1
while False:
    if i%2 == 0:
        break
    print(i)
    i += 2
```

Answer

The code runs successfully but does not print anything

Status : Correct ***Marks : 1/1***

9. What is the output of the following?

```
True = False
while True:
  print(True)
  break
```

Answer

True

Status : Wrong ***Marks : 0/1***

10. What is the output of the following?

```
i = 2
```

```
while True:
  if i%3 == 0:
    break
  print(i)
  i += 2
```

Answer

error

Status : Wrong ***Marks : 0/1***

11. Which keyword is used to immediately terminate a loop?

Answer

break

Status : Correct ***Marks : 1/1***

12. What will be the output of the following code?

```
i = 1
while True:
    if i%0O7 == 0:
        break
    print(i)
    i += 1
```

Answer

none of the mentioned

Status : Wrong ***Marks : 0/1***

13. What is the output of the following code?

```
for i in range(5):
    if i == 5:
        break
    else:
```

```
    print(i)
else:
    print("Here")
```

Answer

0 1 2 3 4 Here

Status : Correct ***Marks : 1/1***

14. What is the output of the following?

```
for i in range(10):
    if i == 5:
        break
    else:
        print(i, end=' ')
else:
    print("Here")
```

Answer

0 1 2 3 4

Status : Correct ***Marks : 1/1***

15. What is the output of the following code?

```
i = 5
while True:
    if i%0O9 == 0:
        break
    print(i)
    i += 1
```

Answer

Compile Time Error

Status : Correct ***Marks : 1/1***

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 1_COD

Attempt : 1
Total Mark : 5
Marks Obtained : 5

Section 1 : Coding

1. Problem Statement

A company has hired two employees, Alice and Bob. The company wants to swap the salaries of both employees. Alice's salary is an integer value and Bob's salary is a floating-point value.

Write a program to swap their salaries and print the new salary of each employee.

Input Format

The first line of input consists of an integer N, representing Alice's salary.

The second line consists of a float value F, representing Bob's salary.

Output Format

The first line of output displays "Initial salaries:"

The second line displays "Alice's salary = N", where N is Alice's salary.

The third line of output displays "Bob's salary = F", where F is Bob's salary.

After a new line space, the following line displays "New salaries after swapping:"

The next line displays "Alice's salary = X", where X is the swapped salary.

The last line displays "Bob's salary = Y", where Y is the swapped salary.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 10000
15400.55
Output: Initial salaries:
Alice's salary = 10000
Bob's salary = 15400.55

New salaries after swapping:
Alice's salary = 15400.55
Bob's salary = 10000

Answer

```
N=int(input())
F=float(input())
print("Initial salaries:")
print("Alice's salary =",N)
print("Bob's salary=",F)
print("\n\nNew salaries after swapping:")
W=N
N=F
F=W
print("Alice's salary =",N)
print("Bob's salary =",F)
```

Status : Correct ***Marks : 1/1***

2. Problem Statement

Bob, the owner of a popular bakery, wants to create a special offer code for his customers. To generate the code, he plans to combine the day of the month with the number of items left in stock.

Help Bob to encode these two values into a unique offer code.

Note: Use the bitwise operator to calculate the offer code.

Example

Input:

15

9

Output:

Offer code: 6

Explanation:

Given the day of the month 15th day (binary 1111) and there are 9 items left (binary 1001), the offer code is calculated as 0110 which is 6.

Input Format

The first line of input consists of an integer D, representing the day of the month.

The second line consists of an integer S, representing the number of items left in stock.

Output Format

The output displays "Offer code: " followed by an integer representing the encoded offer code.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 15
9
Output: Offer code: 6

Answer

```
# You are using Python
D=int(input())
S=int(input())
print("Offer code:",D^S)
```

Status : Correct ***Marks : 1/1***

3. Problem Statement

A science experiment produces a decimal value as the result. However, the scientist needs to convert this value into an integer so that it can be used in further calculations.

Write a Python program that takes a floating-point number as input and converts it into an integer.

Input Format

The input consists of a floating point number, F.

Output Format

The output prints "The integer value of F is: {result}", followed by the integer number equivalent to the floating point number.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 10.36
Output: The integer value of 10.36 is: 10

Answer

```
# You are using Python
n=float(input())
print("The integer value of",n,"is:",int(n))
```

Status : Correct ***Marks : 1/1***

4. Problem Statement

In a family, two children receive allowances based on the gardening tasks they complete. The older child receives an allowance rate of Rs.5 for each task, with a base allowance of Rs.50. The younger child receives an allowance rate of Rs.3 for each task, with a base allowance of Rs.30.

Your task is to calculate and display the allowances for the older and younger children based on the number of gardening tasks they complete, along with the total allowance for both children combined.

Input Format

The first line of input consists of an integer n, representing the number of chores completed by the older child.

The second line consists of an integer m, representing the number of chores completed by the youngest child.

Output Format

The first line of output displays "Older child allowance: Rs." followed by an integer representing the allowance calculated for the older sibling.

The second line displays "Younger child allowance: Rs." followed by an integer representing the allowance calculated for the youngest sibling.

The third line displays "Total allowance: Rs." followed by an integer representing the sum of both siblings' allowances.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 10
5
Output: Older child allowance: Rs.100
Younger child allowance: Rs.45
Total allowance: Rs.145

Answer

```
# You are using Python
n=int(input())
m=int(input())
older_base=50
older_rate=5
younger_base=30
younger_rate=3
older_allowance=older_base+(n*older_rate)
younger_allowance=younger_base+(m*younger_rate)
total_allowance=older_allowance+younger_allowance
print(f"Older child allowance:Rs.{older_allowance}")
print(f"Younger child allowance:Rs.{younger_allowance}")
print(f"Total allowance:Rs.{total_allowance}")
```

Status : Correct ***Marks : 1/1***

5. Problem Statement

Quentin, a mathematics enthusiast, is exploring the properties of numbers. He believes that for any set of four consecutive integers, calculating the average of their fourth powers and then subtracting the product of the first and last numbers yields a constant value.

To validate his hypothesis, check if the result is indeed constant and display.

Example:

Input:

5

Output:

Constant value: 2064.5

Explanation:

Find the Average:

Average: (625 + 1296 + 2401 + 4096)/4 = 2104.5

Now, we calculate the product of a and (a + 3):

Product = 5 × (5 + 3) = 5 × 8 = 40

Final result: 2104.5 - 40 = 2064.5

Input Format

The input consists of an integer a, representing the first of four consecutive integers.

Output Format

The output displays "Constant value: " followed by the computed result based on Quentin's formula.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5
Output: Constant value: 2064.5

Answer

```
# You are using Python
n=int(input())
a=n**4
b=(n+1)**4
c=(n+2)**4
d=(n+3)**4
avg=(a+b+c+d)/4
p=n*(n+3)
con=avg-p
print("Constant value:",con)
```

Status : Correct *Marks : 1/1*

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 2_PAH_Updated

Attempt : 1
Total Mark : 60
Marks Obtained : 60

Section 1 : Coding

1. Problem Statement

Aarav is fascinated by the concept of summing numbers separately based on their properties. He plans to write a program that calculates the sum of even numbers and odd numbers separately from 1 to a given positive integer.

Aarav wants to input an integer value to represent the upper limit of the range. Help Aarav by developing a program that computes and displays the sum of even and odd numbers separately.

Input Format

The input consists of a single integer N, where N is the upper limit of the range.

Output Format

The output consists of two lines:

- The first line displays the sum of even numbers from 1 to N.
- The second line displays the sum of odd numbers from 1 to N.

Refer to the sample output for the exact format.

Sample Test Case

Input: 10

Output: Sum of even numbers from 1 to 10 is 30
Sum of odd numbers from 1 to 10 is 25

Answer

```
# You are using Python
n=int(input())
e=0
o=0
for i in range(1,n+1):
    if(i%2==0):
        e=e+i
    else:
        o=o+i
print("Sum of even numbers from 1 to",n,"is",e)
print("Sum of odd numbers from 1 to",n,"is",o)
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Kamali recently received her electricity bill and wants to calculate the amount she needs to pay based on her usage. The electricity company charges different rates based on the number of units consumed.

For the first 100 units, there is no charge. For units consumed beyond 100 and up to 200, there is a charge of Rs. 5 per unit. For units consumed beyond 200, there is a charge of Rs. 10 per unit.

Write a program to help Kamali calculate the amount she needs to pay for her electricity bill based on the units consumed.

Input Format

The input consists of an integer, representing the number of units.

Output Format

The output prints the total amount of the electricity bill, an integer indicating the amount Kamali needs to pay in the format "Rs. amount".

Refer to the sample output for the exact format.

Sample Test Case

Input: 350

Output: Rs. 2000

Answer

```
u=int(input())
if u<=100:
   print("Rs.0")
elif u<=200:
   b=(u-100)*5
   print("Rs.",b)
else:
   b=(100*5)+(u-200)*10
   print("Rs.",b)
```

Status : Correct ***Marks : 10/10***

3. Problem Statement

As a software engineer, your goal is to develop a program that facilitates the identification of leap years in a specified range. Your task is to create a program that takes two integer inputs, representing the start and end years of the range and then prints all the leap years within that range.

Input Format

The first line of the input consists of an integer, which represents the start year.

The second line consists of an integer, which represents the end year.

Output Format

The output displays the leap years within the given range, separated by lines.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 2000
2053

Output: 2000
2004
2008
2012
2016
2020
2024
2028
2032
2036
2040
2044
2048
2052

Answer

```
# You are using Python
s=int(input())
e=int(input())
for i in range(s,e+1):
    if (i%4==0 and i%100!=0) or (i%400==0):
        print(i)
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Rajesh wants to design a program that simulates a real-time scenario based on a mathematical concept known as the Collatz Conjecture. This concept involves the repeated application of rules to a given starting number until the number becomes 1. The rules are as follows:

If the number is even, divide it by 2.If the number is odd, multiply it by 3 and add 1.

Your task is to write a program that takes a positive integer as input, applies the Collatz Conjecture rules to it, counts the number of steps taken to reach 1, and provides an output accordingly. If the process exceeds 100 steps, the program should print a message indicating so and use break to exit.

Input Format

The input consists of a single integer, n.

Output Format

The output displays the total number of steps taken to reach 1 if it's under 100.

If it's more than 100, it displays "Exceeded 100 steps. Exiting...".

Refer to sample output for the formatting specifications.

Sample Test Case

Input: 6
Output: Steps taken to reach 1: 8

Answer

```
# You are using Python
def generator(n):
    count=0
    while n!=1:
        if n%2 == 0 and count <= 100:
            n//=2
```

```
        count += 1
    elif n%2 == 1 and count <= 100:
        n=(n*3)+1
        count += 1
    else:
        print("Exceeded 100 steps. Exiting...")
        return
print(f"steps taken to reach 1 : {count}")
return

num=int(input())
generator(num)
```

Status : Correct **Marks : 10/10**

5. Problem Statement

Sophia, a primary school teacher, wants to calculate the sum of numbers within a given range, excluding those that are multiples of 3.

Write a program to help Sophia compute the sum of all numbers between start and end (inclusive) that are not divisible by 3 using the continue statement.

Input Format

The first line of input consists of an integer, representing the starting number of the range.

The second line of input consists of an integer, representing the ending number of the range.

Output Format

The output prints a single integer, representing the sum of numbers in the range that are not multiples of 3.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1
10
Output: 37

Answer

```
def generator(n1 , n2):
    tot = 0
    for i in range(n1 , n2+1):
        if i % 3 != 0:
            tot += i
    print(tot)
    return

num1 = int(input())
num2 = int(input())
generator(num1 , num2)
```

Status : Correct ***Marks : 10/10***

6. Problem Statement

Imagine being entrusted with the responsibility of creating a program that simulates a math workshop for students. Your task is to develop an interactive program that not only calculates but also showcases the charm of factorial values.Your program should efficiently compute and present the sum of digits for factorial values of only odd numbers within a designated range. This approach will ingeniously keep even factorials at bay, allowing students to delve into the intriguing world of mathematics with enthusiasm and clarity.

Input Format

The input consists of a single integer, n.

Output Format

The output displays the factorial and sum of digits of the factorial of odd numbers within the given range.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 6

Output: 1! = 1, sum of digits = 1
3! = 6, sum of digits = 6
5! = 120, sum of digits = 3

Answer

```
def fact(f_n):
    if f_n == 1 or f_n == 0:
        return 1
    return f_n*fact(f_n-1)

def sumofdig(s_n):
    s_n = str(s_n)
    digitSum = sum(int(i) for i in s_n)
    return digitSum

def generator(n):
    for i in range(1 , n+1):
        if i % 2==1:
            factorial = fact(i)
            digit_sum = sumofdig(factorial)
            print(F"{i}! = {factorial}, sum of digits = {digit_sum}")
    return

num = int(input())
generator(num)
```

Status : Correct ***Marks : 10/10***

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 2_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 37.5

Section 1 : Coding

1. Problem Statement

Alex is practicing programming and is curious about prime and non-prime digits. He wants to write a program that calculates the sum of the non-prime digits in a given integer using loops.

Help Alex to complete his task.

Example:

Input:

845

output:

12

Explanation:

Digits: 8 (non-prime), 4 (non-prime), 5 (prime)

The sum of Non-Prime Digits: 8 + 4 = 12

Output: 12

Input Format

The input consists of a single integer X.

Output Format

The output prints an integer representing the sum of non-prime digits in X.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 845

Output: 12

Answer

```
# You are using Python
def isprime(num):
    if num<2:
        return False

    for i in range(2 , int(num**0.5) + 1):
        if num%i==0:
            return False
    return True

def generator(n):
    tot=0
    while n!=0:
        if not isprime(n%10):
            tot=tot+(n%10)
        n=n//10
    print(tot)
```

```
n=int(input())
generator(n)
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Taylor is tasked with a mathematical challenge that requires finding the smallest positive number divisible by all integers from 1 to n.

Help Taylor to determine the smallest positive number that is divisible by all integers from 1 to n. Make sure to employ the break statement to ensure efficiency in the program.

Input Format

The input consists of a single integer, n.

Output Format

The output displays the smallest positive number that is divisible by all integers from 1 to n.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 10

Output: 2520

Answer

```
# You are using Python
import math

def generator(n):
    lcm=1
    for i in range(1,n+1):
        lcm=lcm*i // math.gcd(lcm , i)
    print(lcm)
```

```
n=int(input())
generator(n)
```

Status : Correct ***Marks : 10/10***

3. Problem Statement

Max is fascinated by prime numbers and the Fibonacci sequence. He wants to combine these two interests by creating a program that outputs the first n prime numbers within the Fibonacci sequence.

Your task is to help Max by writing a program that prints the first n prime numbers in the Fibonacci sequence using a while loop along with the break statement to achieve the desired functionality.

Input Format

The input consists of an integer n, representing the number of prime Fibonacci numbers to generate.

Output Format

The output displays space-separated first n prime numbers found in the Fibonacci sequence.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 5

Output: 2 3 5 13 89

Answer

```
# You are using Python
n=int(input())
f1,f2=0,1
count=0
```

```
while count<n:
    f1,f2=f2,f1+f2
    if f1>1:
        p=True
        for i in range(2,f1):
            if f1%i==0:
                p=False
                break
            i+=1
        if p:
            print(f1,end=" ")
            count+=1
```

Status : Partially correct **Marks : 7.5/10**

4. Problem Statement

John is tasked with configuring the lighting for a high-profile event, where different lighting modes affect the ambiance of the venue. He can choose from three distinct lighting modes, each requiring a specific adjustment to the initial light intensity:

Ambient Lighting (Mode 1): The intensity level is multiplied by 1.5.Stage Lighting (Mode 2): The intensity level is multiplied by 2.0.Spotlight (Mode 3): The intensity level is multiplied by 1.8.

In the event that an invalid mode is provided, the program should output an error message indicating the invalid selection.

Your task is to write a program that reads the selected lighting mode and the initial intensity level, applies the appropriate adjustment, and prints the final intensity.

Input Format

The first line of input is an integer n, representing the lighting mode.

The second line is a floating value m, representing the initial intensity level of the light.

Output Format

The output displays "Intensity: " followed by a float representing the adjusted intensity level, formatted to two decimal places, if the mode is valid.

If the mode is invalid, the output should display "Invalid".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1
10.0
Output: Intensity: 15.00

Answer

```
# You are using Python
n=int(input())
m=float(input())
if n==1:
   print("Intensity:",format(m*1.5,".2f"))
elif n==2:
   print("Intensity:",format(m*2.0,".2f"))
elif n==3:
   print("Intensity:",format(m*1.8,".2f"))
else:
   print("Invalid")
```

Status : Correct ***Marks : 10/10***