Good morning students .
XIIB Computer Science :

Teacher : BIPLAB DAS
 Study materials for (18th May 2020) .

We have finished the first and second chapters . Now from today we will start the 3rd chapter of Reeta Sahoo .

Go through the pages from 119 to 127 upto solved problems (13 to 34) before review questions .

There will be no homework for today .

Thanks .

12:55 am ✓

13. Rewrite the following code after removing the syntactical errors (if any). Underline each correction. [*CBSE Sample Paper 2016-17*]

```
def chksum:
    x=input("Enter a number")
    if (x%2 = 0):
        for i range(2*x):
            print i
        loop else:
            print "#"
```

Ans. The underlined corrections are: (# File name: ...\\MyPythonXII\PyChap03\SamPy171c.py)

```
def chksum():
    x=int(input("Enter a number"))
    if (x%2 == 0):
        for i in range(2*x):
            print (i, end = ' ')
        else:
            print ("#", end = ' ')
```

14. What will be the output of the following programs?

(*a*)
```
def display():
    print("program")
def main():
    print ("This is Python")
    display();
main()
```

(*b*)
```
def add(j):
    if (j >= 4):
        j = j * j
        return j
    else:
        j = j*2;
        return j
def main():
    i=4
    a=add(4)
    print("The value of a is: %d" %a)
main()
```

(*c*)
```
i=100
def abc():
    i=8
    print("First = %d" %( i))
def main():
    i = 2
    abc()
    print("Second = %d" %( i))
main()
```

(d) def sum_list (list):
         for I in list :
             sum =i
             return sum
     def main():
         list =[45 ,2 ,10 , -5 ,100]
         print (sum_list (list))
     main()

Ans. (a) This is Python
         program
     (b) The value of a is: 16
     (c) First = 8
         Second = 2
     (d) 45

15. **Correct the following code:**
    def count_to_ten ():
        for I in range [10]:
        print (I)
    count_to_ten ()

Ans. The corrected code is:
    def count_to_ten ():
        for i in range (10): # Correction range (10)
            print (i)
    count_to_ten()

16. **Find out the error, if any, in the following program and write the correct line of code.**
    def sum(arg1, arg2):
        total = arg1 + arg2;
        print ("Inside the function local total : ", total)
        return total;
    def main():
        n1=int(input("First value is:"))
        n2=int(input("Second value is :"))
        sum(n1);
        print ("The sum is:", total)
    main()

Ans. There is a called: TypeError: sum() missing 1 required positional argument: 'arg2'.
    The called function should be sum(n1, n2).

17. **What will be the output of the following program?**
    def execute(x, y = 200):
        temp = x + y
        x = x + temp
        if (y != 200):
            print("%d \t %d \t %d" % (temp, x, y))

```
def main():
    a, b = 50, 20
    execute(b);
    print("%d \t %d" % (a, b))
    execute(a, b)
    print("%d \t %d" % (a, b))
main()
```

Ans. # File name: ...\MyPythonXII\PyChap03\OutP1.py

The output is:

```
50            240
290  340      240
340  240
```

18. Write the output of the following program:

```
def func(x, y = 10):
    if ( x % y == 0):
        x=x+1
        return x
    else:
        y=y-1
        return y
def main():
    p, q = 20, 23
    q = func (p, q)
    print("%d \t %d" % (p, q))
    p = func(q);
    print("%d \t %d" % (p, q))
    q = func(p);
    print("%d \t %d" % (p, q))
main()
```

Ans. # File name: ...\MyPythonXII\PyChap03\OutPa.py

The output of the given program is:

```
20      22
9       22
9       9
```

19. Write the output of the following program:

```
a = 3
def demo(x,y,z):
    d = 3
    d =d+(x+y)
    z = a+y
    y =y+x
    print("%d%d%d" % (y, z, a))
def main():
    a, b = 2, 5
```

```
        demo(a, a, b)
        print("%d%d" % (a, b))
        demo(a, a, b)
    main()
```
Ans. # File name: ...\MyPythonXII\PyChap03\outp2.py

The output of the given program is:

453

25

453

20. Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. **[AI 2015]**

```
    def Sum(Count)        #Method to find sum
        S=0
        for I in Range(1, Count+1):
            S+=1
        RETURN S
    print Sum[2]          #Function Calls
    print Sum[5]
```

Ans. The underlined correction code is:

```
    def Sum(Count) :        #Method to find sum
        S=0
        for I in range(1, Count+1):
            S+=1
        return S
    print Sum(2)    #Function Calls
    print Sum(5)
```

21. Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction: **[CBSE Sample Paper 2015-16]**

```
    def checkval:
        x = input("Enter a number")
        if x % 2 = 0 :
            print (x,"is even")
        else if x<0 :
            print (x,"should be positive")
        else ;
            print x,"is odd"
```

Ans. The underlined corrections are: (# File name: ...\\MyPythonXII\PyChap03\SamPy161c.py)

```
    def checkval():
        x = int(input("Enter a number "))
        if x % 2 == 0 :
            print (x,"is even")
        elif x < 0 :
            print (x,"should be positive")
        else:
            print (x,"is odd")
```

22. Find the output of the following program:

```python
def calcresult() :
    i = 9
    while i> 1 :
        if (i % 2 == 0):
            x = i%2
            i = i−1
        else :
            i = i−2
            x = i
        print (x**2)
```

Ans. The output is: (# File name: ...\\MyPythonXII\PyChap03\SamPy161e.py)

```
49
25
9
1
```

23. Write a function that interchanges the value of two integers a and b without using any extra variable.

Ans.
```python
# File name: ...\MyPythonXII\PyChap03\SwapF.py
# Function to swap A and B without using third variable
def swap(a,b):
    a = a + b
    b = a − b
    a = a − b
    print("After swapping the first value is ->", a)
    print("After swapping the second value is ->", b)
```

24. Write a function which will take the height of a person in inches and return the height in feet.

Ans.
```python
# File name: ...\MyPythonXII\PyChap03\FtoInch.py
// Function to convert the inch to feet
# Function to convert the inch to feet
def feet_inch(inch):
    # 1 foot = 12 inch
    feet=0.0
    feet = inch / 12
    return feet
```

25. Write a program to calculate GCD of two numbers using recursive function.

Ans.
```python
# File name: ...\MyPythonXII\PyChap03\GcdFun.py
# Function to find GCD
def gcd(x ,y):
    r = x % y
    if ( r == 0):
        return y
    else:
        gcd(y, r )
```

26. Write a function to find the sum of the series.

$$1 + 2 + 3 + 4 + 5 + 6 + \ldots\ldots\ldots \text{ up to N terms.}$$

Ans.
```
# File name: ...\MyPythonXII\PyChap03\SumN.py
# Function to find the sum of series 1 + 2 + 3 + ......+ N
def sumseries(n):
    sum = 0
    for i in range(1, n+1):
        sum=sum+i
    return sum
```

27. Write a function to find the sum of the series.

$$(1) + (1+2) + (1+2+3) + (1+2+3+4) \ldots\ldots\ldots \text{ up to N terms.}$$

Ans.
```
# File name: ...\MyPythonXII\PyChap03\ASumN.py
# Function to find the sum of series (1) + (1+2) + (1+2+3) + ......+ (1+2+3+...+N)
def sumseries(n):
    sum = 0
    sum1 = 0
    for i in range(1,n+1):
        sum = 0
        for j in range(1,i+1):
            sum = sum + j
        sum1 = sum1 + sum
    return(sum1)
```

28. Write a program to a pattern as given below:

```
                    ^
                   ^^^
                  ^^^^^
                 ^^^^^^^
                ^^^^^^^^^
               ^^^^^^^^^^^
              ^^^^^^^^^^^^^
             ^^^^^^^^^^^^^^^
            ^^^^^^^^^^^^^^^^^
           ^^^^^^^^^^^^^^^^^^^
```

Ans.
```
# File name: ...\MyPythonXIIPyChap03\PatnA.py
# Program to print a triangle pattern using function
def triangle(pattern, n):
    maxwidth = n * len(pattern) * 2
    for i in range(1, n * 2 + 1, 2):
        print ('{0}'.format(pattern * i).center(maxwidth))
triangle('^', 10)
triangle('^', 10)
```

29. Write a function seqsum( ) with two arguments, x and n. The function should return a value of type double and it should find the sum of the following series:

$$1 + \frac{x}{2!} + \frac{x^2}{4!} + \frac{x^3}{6!} + \frac{x^4}{8!} + \frac{x^5}{10!} \cdots + \frac{x^n}{(2n)!} .$$

Ans.
```
# File name: ...\MyPython\PyChap03\SeriesA.py
# Function to find sequence sum
def seqsum(x, n):
        Ssum = 1
        for i in range (1, n+1):
                num = i*2
                # Factorial
                fact = 1
                for j in range(1, num+1):
                        fact = fact * j
                fraction = math.pow(x, i)/fact
                Ssum = Ssum + fraction
        return Ssum
```

30. Write a program to a pattern as given below:

```
^^^^^^^^^^^^^^^^^^^^
 ^^^^^^^^^^^^^^^^^^
  ^^^^^^^^^^^^^^^^
   ^^^^^^^^^^^^^^
    ^^^^^^^^^^^^
     ^^^^^^^^^^
      ^^^^^^^^
       ^^^^^^
        ^^^^
         ^^
          ^
```

Ans.
```
# File name: ...\MyPythonXII\PyChap03\PatnB.py
# Program to print a triangle pattern using function
def triangle(pattern, n):
        maxwidth = n * len(pattern) * 2
        for i in range(n * 2 + 1, −1, −2):
                print ('{0}'.format(pattern * i).center(maxwidth))
triangle('^', 10)
```

31. Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called power that takes two arguments, a double value for n and an int value for p and returns the result as double value. Use default argument of 2 for p, so that if this argument is omitted the number will be squared. Write the main function that gets value from the user to test power function.

Ans.
```
# File name: ...\MyPython\Unit3\PyChap07\Power.py
# Developing a power function
# The functions use default parameter
def power(n, p = 2):
        s = 1
        for i in range(1,p+1) :
                s = s*n;
        return(s)
```

```
def main():
    num = int(input("Enter the number: "))
    p = int(input("Enter the power to be calculated: "))
    result = power(num, p)
    print("Result when the power is given:", result)
    result = power(num)
    print("Result when the power is not given:", result)
main()
```

32. Write a method in Python to find and display the prime numbers between 2 to N. Pass N as argument to the method. [Delhi 2016]

Ans. The method is: (# File name: ...\\MyPythonXII\PyChap03\PyDL20163d.py)

```
# Method to find the prime numbers between 2 and N
def check_PrimeAll(N):
    print ("Prime nos. between 2 to %d are:" % N, end=' ')
    for num in range(2, N+1):           #to iterate between 2 to N+1
        for i in range(2, num):         #to iterate on the factors of the number
            if num%i == 0:              #to determine the first factor
                j=num/i                 #to calculate the second factor
                break                   #to move to the next number, the #first FOR
        else:                   # else part of the loop
            # loop fell through without finding a factor
            print (num, end=' ')
```

33. Write definition of a method ZeroEnding(SCORES) to add all those values in the list of SCORES, which are ending with zero (0) and display the sum. [Delhi 2018]

For example,

If the SCORES contain [200,456,300,100,234,678]

The sum should be displayed as 600

Ans. The method is: (# File name: ...\\MyPythonXII\PyChap03\PyDL20183b.py)

```
# Function to add all those values in the list, which are ending with zero (0) and display the sum.
def ZeroEnding(SCORES):
    SZero=0
    for i in SCORES:
        if i%10==0:
            SZero=SZero+i
    print ('Sum of numbers ending with zero:', SZero)
```

34. Write definition of a Method COUNTNOW(PLACES) to find and display those place names, in which there are more than 5 characters. [Delhi 2018]

For example:

If the list PLACES contains

["DELHI","LONDON","PARIS","NEW YORK","DUBAI"]

The following should get displayed

LONDON

NEW YORK