

Good morning students .
XIIB Computer Science :
Teacher : BIPLAB DAS Study materials
for (08th May 2020) .

Go through the solved exercises
questions of the second chapter of
Reeta Sahoo . The questions number
from 01 to 26 of pages 89 to 95 . This
reference book will help you to enhance
your's practical skills .

Tomorrow (2nd Sat) and day after
tomorrow are holidays .

So go through the solved questions, to
enhance your practical skills .

According to the Delhi government
circular summer vacation will start from
11th May (Monday) .

But due to this emergency lockdown
situation I want to continue this online
classes for another few days . May be I
will reduce the frequency of the classes
from 6 days per week to 3 days per
week .

Please bear with me for some few
days .

Thanks .

22. An infinite loop can be stopped by pressing Ctrl + C key.
23. When the break is used with nested for loops, then it jumps from the for loop in which block scope is encountered.
24. break, continue and pass are the three loop control statements.

SOLVED EXERCISES

1. Differentiate between break and continue statements.

Ans. The break statement provides immediate termination of the entire loop body whereas continue statement forces the next iteration of the loop to take place, skipping any code following continue statement in the loop body.

2. What is the purpose of break statement?

Ans. The break statement is used to terminate the loop in between the execution.

3. When does the break statement cause an exit?

(a) If you are using nested loops (i.e., one loop inside another loop), the break statement will stop the execution of the innermost loop.

(b) If you are using nested loops (i.e., one loop inside another loop), the break statement will stop the execution of the outer loop.

Ans. (a)

4. What is the difference between 'return' and 'break' statement?

Ans. **return.** The return statement is used to return from a function i.e. break out of the function. We can optionally return a value from the function as well.

break. The break statement when executed in one of the repetition structure, it terminates the body of the structure when the condition is met.

5. Find the output of the following:

```
for odd in [1, 3, 5, 7, 9]:
    print (odd * odd, end='')
```

Ans. The output is: 1 9 25 49 81

6. Write an appropriate for or while loop for the situations described below:

(a) A loop is to be repeated 20 times.

(b) A loop is to be repeated 100 times, except the loop is to be terminated if the value of the variable P becomes 50.

(c) A loop is to be processed till 200 starting from 100. Print all even numbers between the loop.

Ans. (a) for i in range(0, 20):

(b) for P in range(0, 100):

```
    if P == 50:
```

```
        break; # Terminates the loop
```

(c) ctr=100

```
while ctr <= 200:
```

```
    print (ctr)
```

```
    ctr+=2
```

7. Find the output of the following codes:

```
(a) y=1
    x = 7
    x+=2
    if x == 9:
        print ("Now, the value of x is 9")
    else:
        print ("The value of x never achieve 9")
```

```
(b) i = 1
    while i < 5:
        print("%d" % (i))
        i=i*2
```

```
(c) total =0
    sum1=0
    for i in range(0,10):
        sum1 = sum1 + i;
        print("%d" % (total))
```

Ans. (a) Now, the value of x is 9

(b) 1 2 4

(c) 0

8. Give the output for the program segment given below:

```
for i in range(-8, -5):
    print (" %d" % (i+1))
```

Ans. The output is: -7 -6 -5

9. Find syntax error (s), if any, in the following program:

```
MAX = '4'
a = int(input("Enter the value of a: "))
b = int(input("Enter the value of b: "))
if (a>b)
    MAX = 5
    for x in range(0,MY_MESSAGE):
        print("%d" %(x))
```

Ans. The errors are:

```
MAX = '4'           #Error 1
a = int(input("Enter the value of a: "))
b = int(input("Enter the value of b: "))
if (a>b)           #Error 2
    MAX = 5
    for x in range(0, MAX): #Error 3
        print("%d" %(x))
```

The correct program is:

```
MAX =4             # Correction1
a = int(input("Enter the value of a: "))
b = int(input("Enter the value of b: "))
```

```

if (a>b):
    for x in range(0, MAX):
        print("%d" %x)

```

Correction1 : constant defined as integer not string

Correction2 : use colon.

Correction3 : The constant MAX cannot reassign a value.

10. Will the following program execute successfully? If not, state the reason(s).

```

s1=s2=0
for x in range(0, 5):
    num = int("Enter the value of num: ")
    if(num>0):
        s1=s1+num
    else:
        s2 /= num
print("%d %d" % (s1, s2))

```

Ans. No.

Correction 1 : input keyword is missing with line, num = int("Enter the value of num: ")

Correction 2 : Expression syntax at line, s2 /= num

The correct program is:

```

s1=s2=0
for x in range(0,5):
    num = int(input("Enter the value of num: "))
    if(num>0):
        s1 = s1 + num
    else:
        s2 = s2 / num
print("%d %d" % (s1, s2))

```

11. Rewrite the below given program using for () loop

```

sum = 0;
i = 1;
while (i <= 10):
    sum = sum + i;
    i+=1;
print("Sum = ", sum)

```

Ans. The for loop is:

```

sum = 0
for i in range(1,11):
    sum = sum + i;
print("Sum = ", sum)

```

12. What will be the value of a, after executing the above code?

```

a=0
for i in range (10) :
    a=a+1
print (a)

```

Ans. The value of a is: 10

13. What will be the value of a, after executing the following code?

```
a=0
for i in range (10) :
    a=a+1
for j in range (10) :
    a=a+1
print (a)
```

Ans. The value of a is: 20

14. What will be the value of a, after executing the following code?

```
a=0
for i in range (10) :
    a=a+1
    for j in range (10) :
        a=a+1
print (a)
```

Ans. The value of a is: 110

15. Write a while loop until the user wants to quit.

```
Ans. quit = "n"
while quit == "n":
    quit = input ("Do you want to quit ? ")
```

16. Find the output of the following and justify the answer.

```
for i in range (2) :
    print (i, end=' ')
for i in range(4,6):
    print (i, end=' ')
```

Ans. The output is: 0, 1, 4, 5

If only 1 number is supplied to range it is the end of the range. The default beginning of the range is 0. The range will include the beginning of the range and all numbers up to but not including the end of the range.

17. Construct logical expressions to represent the following conditions:

- (a) Weight is greater than or equal to 115 but less than 125.
- (b) x is even.
- (c) Donation is in the range 4000–5000 or guest is 1.

Ans. (a) if Weight >= 115 and Weight < 125:

(b) if x % 2 == 0 :

```
print ("even")
```

(c) if (donation > 4000 and donation < 5000) or guest == 1:

18. Write a program to find the sum of series:

$$1 + \frac{x}{2!} + \frac{x^2}{3!} + \frac{x^3}{4!} + \frac{x^4}{5!} + \dots + \frac{x^n}{(n+1)!}$$

Ans. The program is: (# File name: ...\\MyPythonXII\\PyChap02\\sseries.py)

```
# This program finds the sum of series
import math
x = int(input("Enter the value of x => "))
n = int(input("Enter the value of n => "))
```

```
Ssum = 1
If n>1:
    for i in range(1, n+1):
        fact = 1
        xpower = math.pow(x, i)
        for j in range(1, i+2):
            fact = fact * j
        fraction = xpower / fact
        Ssum = Ssum + fraction;
print ("Sum of series is -> %3.2f " %(Ssum))
```

19. Write a program to compute the sum of the following series:

$$x - \frac{x^2}{2!} + \frac{x^3}{3!} - \frac{x^4}{4!} + \frac{x^5}{5!} - \dots - \frac{x^n}{n!}$$

Ans. The program is: (# File name: ...\\MyPythonXII\\PyChap02\\Ssum.py)

```
# Program to find the sum of series
import math
x = int(input("Enter the value of x: "))
n = int(input("Enter the value of n: "))
SSum = x
if n>1:
    for i in range(2, n+1):
        fact = 1
        for j in range(1, i+1):
            fact = fact * j
        fraction = math.pow(x, i)/fact
        if i % 2 == 0:
            SSum = SSum - fraction # adding negative fraction
        else:
            SSum = SSum + fraction # adding positive fraction
print ("The sum of the series is: %0.2f" %SSum)
```

20. Write a program to check print perfect numbers in between 1 to 500.

Ans. The program is: (# File name: ...\\MyPythonXII\\PyChap02\\perfect.py)

```
# Program to find the perfect numbers between 1 and 500
i, u, sum = 1, 1, 0
while i<=500 : #start of first loop.
    while u<=500 : #start of second loop.
        if u<i:
            if i%u == 0 :
                sum = sum + u; # End of if statement
            u+=1 #End of second loop
        if(sum==i):
            print ("%d is a perfect number." % i)
        i+=1
    u, sum =1, 0
```

21. Write a program to enter your name and phone number. Notice that the name should only accept characters, spaces and period (.) (except digits) while phone number should accept only numbers, parentheses, spaces or hyphen (no letters).

Ans. The program is: (# File name: ...\\MyPython\\PyChap06\\Vcheck.py)

```
import re
n_check = re.compile(r"^[A-Za-zs .]")
name = input ("Please, enter your name: ")
while n_check.search(name):
    print ("Please enter your name correctly!")
    name = input ("Please, enter your name: ")
p_check = re.compile(r"^[0-9 ()]")
phone = input ("Please, enter your phone: ")
while p_check.search(phone):
    print ("Please enter your phone correctly!")
    phone = input ("Please, enter your phone: ")
```

22. What are the possible outcome(s) executed from the following code? Also specify the maximum and minimum values that can be assigned to variable COUNT. [AI 2015]

```
TEXT="CBSEONLINE"
COUNT=random.randint(0,3)
C=9
```

```
while TEXT[C]!='L':
```

```
    print (TEXT[C]+TEXT[COUNT]+'*', end = "")
```

```
    COUNT=COUNT+1
```

```
    C=C-1
```

(i) EC*NB*IS*

(ii) NS*IE*LO*

(iii) ES*NE*IO*

(iv) LE*NO*ON*

Ans. # File name: ...\\MyPythonXII\\PyChap02\\PyAI2015q1f.py

The possible outcomes are: (i) and (iii)

Minimum value of count is 0.

Maximum value of count is 3.

23. Observe the following Python code and find out, which out of the given options (i) to (iv) are the expected correct output(s). Also assign the maximum and minimum value that can be assigned to the variable 'Go'. [CBSE Sample Paper 2015-16]

```
import random
```

```
X =[100,75,10,125]
```

```
Go = random.randint(0,3)
```

```
for i in range(Go):
```

```
    print (X[i],"$$", end="")
```

(i) 100 \$\$75 \$\$10 (ii) 75\$\$10\$\$125\$\$ (iii) 75\$\$10\$\$ (iv) 0\$\$125\$\$100

Ans. No option is matching from (i) to (iv). The correct answer is: 100 \$\$75 \$\$10 \$\$ or 100 \$\$75 \$\$ or 100 \$\$

(# File name: ...\\MyPythonXII\\PyChap02\\SamPy161f.py)

24. Observe the following program and answer the questions that follow:

```
import random
```

[CBSE Sample Paper 2016-17]

```
X=3
N = random.randint(1,X)
for i in range(N):
```

```
    print (i, '#', i+1)
```

- (a) What is the minimum and maximum number of times the loop will execute?
 (b) Find out, which line of output(s) out of (i) to (iv) will not be expected from the program?
 (i) 0#1 (ii) 1#2 (iii) 2#3 (iv) 3#4

Ans. (a) Minimum times the loop will execute 1.
 Minimum times the loop will execute 3.

(b) Line (iv) is not expected to be a part of the output.

26. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. [Delhi 2018]

```
Val = int(input("Value:"))
Adder = 0
for C in range(1,Val,3)
    Adder+=C
    if C%2=0:
        print (C*10)
    Else:
        print (C*)
    print Adder
```

Ans. # File name: ...\\MyPythonXII\\PyChap02\\PyDL20181c.py

```
Val = int(input("Value:"))
Adder = 0
for C in range(1,Val,3):       # Error 1
    Adder+=C
    if C%2==0:               # Error 2
        print (C*10)
    else:                   # Error 3
        print (C)           # Error 4
    print (Adder)
```

REVIEW QUESTIONS

1. Define any five conditional operators.
2. What are the statements used for branching?
3. What is the difference between conditional and unconditional branching?
4. How many different kinds of looping statements does Python support?
5. Differentiate between count-controlled and event-controlled loop.
6. What is iteration? Give an example.
7. Find the output of the following:

(a) for i in range (5) :
 print (i +1)

(b) for i in range (5) :
 print (i)
 i=i+1