



# Autumn Break Assignment 2021-2022

## XI - IP & CS



कोरोना से बचें



हाथ धोएं बार बार



सही से मास्क पहनें



निभाएं दो गज की दूरी



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## Python Basics Assignment

1. Explain any four features of Python.
2. What is IDLE?
3. What are the two modes of Python. Name them.
4. Name any four application areas of Python
5. What is print() in Python?
6. What are the Python tokens? Name them.
7. Identify the keywords from the following:  
(i) from (ii) AND (iii) continue (iv) import (v) elif (vi) IN (vii) else  
(viii) true
8. Consider the following Python code:  

```
>>>print("Hello World")
```

Write a statement in Python to insert a comment for the above.
9. Identify the type of constants from the following:  
(i) "Hello" (ii) 24 (iii) "Good Morning" (iv) "90.90" (v) "##\$\$" (vi) 40.89
10. Write Python command to display a message on the screen
11. What are Escape Sequences in Python. Give examples

## ANSWERS

1. Four features of Python:
  - a. Open Source:** Python is open source and free. Source code is easily accessible and can be freely modified and re-distributed
  - b. Portable:** Python is platform independent. It can run on Windows, Mac OS and Linux alike
  - c. Powerful:** Supports dynamic data typing. It has a large standard library that supports many common programming tasks
  - d. Easy to Use & Learn:** Its easy to download and install Python. Also the structure and syntax are very simple and easy to understand
2. IDLE is the default IDE of Python. It stands for Integrated Development and Learning Environment.
3. Two modes of working with IDLE are: Interactive mode and Script mode.
4. Four application areas of Python:
  - a. Web development
  - b. Machine Learning
  - c. Artificial Intelligence
  - d. Data Science
5. The print() is a function to display the specified content on screen.
6. Python has some basic building blocks, called tokens. These are

- a. Python character set
- b. Keywords
- c. Comments
- d. Constants
- e. Operators
- f. Variables
- g. Data Types

7. . The keywords are : (i)from , (iii) continue , (iv) import , (v) elif and (vii) else

8. >>>print("Hello World") #This is a comment

9. (i)"Hello" Character constant  
(ii) 24 Integer constant  
(iii) "Good Morning" Character constant  
(iv)"90.90" Character constant  
(v)"##\$\$" Character constant  
(vi) 40.89 Decimal constant

10. print("Good Morning")

11. These are special constants which have a special functionality attached to them. Example, '\n' for newline , '\t' for eight spaces in output

## WORKSHEET WITH SOLUTION

### PYTHON – REVISION TOUR

1	'Welcome' is _____ literals
Ans.	string
2	\$ symbol can be used in naming an identifier (True/False)
Ans.	False
3	Write any 2 data types available in Python
Ans.	int, bool
4	'Division by zero' is an example of _____ error.
Ans.	Runtime Error
5	<b>range(1,10)</b> will return values in the range of _____ to _____
Ans.	<b>1 to 9</b>
6	<b>randint(1,10)</b> will return values in the range of _____ to _____
Ans.	<b>1 to 10</b>
7	"Computer Science"[0:6] = _____ "Computer Science"[3:10] = _____ "Computer Science"[:-1] = _____ "Computer Science"[-8:] = _____
Ans.	"Computer Science"[0:6] = Comput "Computer Science"[3:10] = puter S "Computer Science"[:-1] = ecneicS retupmoC "Computer Science"[-8:] = Science
8	<b>Output of</b> : <code>print("Ok"*4 + "Done")</code>
Ans.	<b>OkOkOkOkDone</b>
9	<b>Output of</b> : <code>print(print("Why?"))</code>
Ans.	<b>Why?</b> <b>None</b>
10	Raj was working on application where he wanted to divide the two number (A and B) , he has written the expression as $C = A/B$ , on execution he entered 30 and 7 and expected answer was 4 i.e. only integer part not in decimal, but the answer was 4.285 approx, help Raj to correct his expression and achieving the desired output. <b>Correct Expression</b> : _____
Ans.	$C = A//B$
11	<b>Can you guess the output?</b> <code>C = -11%4</code> <code>print(C)</code>
Ans.	<b>1</b>

12	Write 2 advantages and disadvantages of Python programming language
Ans.	<p>Advantages</p> <p>1) Easy to Use</p> <p>2) Expressive Language</p> <p>Disadvantages</p> <p>1) Slow because of interpreted</p> <p>2) Not strong on type binding</p>
13	<b>Identify the valid and Invalid identifiers names:</b> Emp-Code, bonus, While, SrNo., for, #count, Empl, 123Go, Bond007
Ans.	<b>Valid: _bonus, While, Empl, Bond007</b> <b>Invalid : Emp-code, SrNo., for, #count, 123Go</b>
14	<b>Identify the type of literals for each:</b> (i) 123 (ii) 'Hello' (iii) 'Bye\nSee You' (iv) 'A' (v) 345.55 (vi) 10+4j (vii) 0x12
Ans.	<b>(i) Int</b> <b>(ii) String</b> <b>(iii) String</b> <b>(iv) String</b> <b>(v) Float</b> <b>(vi) Complex</b> <b>(vii) Int</b>
15	<b>What is the size of each string?</b> (i) 'Python' (ii) 'Learning@\nCS' (iii) '\table'
Ans.	<b>(i) 6</b> <b>(ii) 12</b> <b>(iii) 5</b>
16	<b>Output of :</b> (i) True + True = (ii) 100 + False = (iii) -1 + True = (iv) bool(-1 + True) =
Ans.	<b>(i) 2</b> <b>(ii) 100</b> <b>(iii) 0</b> <b>(iv) False</b>
17	<b>Output of</b> (i) 2 * 7 = _____ (ii) 2 ** 7 = _____ (iii) 2**2**3 = _____ (iv) 17 % 20 = _____ (v) not(20>6) or (19>7) and (20==20) = _____
Ans.	<b>(i) 14</b> <b>(ii) 128</b> <b>(iii) 256</b> <b>(iv) 17</b> <b>(v) True</b>

18	<b>Output of :</b> <pre>a,b,c = 20,40,60 b+=10 c+=b print(a,b,c)</pre>
Ans.	<b>20 50 110</b>
19	Write a program to enter 2 number and find sum and product
Ans.	<pre>n1 = int(input('Enter num1 ')) n2 = int(input('Enter num2 ')) s = n1 + n2 p = n1 * n2 print('Sum=',s) print('Product =',p)</pre>
20	Write a program to enter temperature in Fahrenheit and convert it in Celsius
Ans.	<pre>f = int(input('Enter temperature (Fahrenheit) ')) c = (f-32)*5/9 print('Celcius =',c)</pre>
21	<p>Write a program to enter any money and find out number of denominations can be used to make that money. For e.g. if the money entered is 2560 Then output should be</p> <pre>2000 = 1 500 = 1 200 = 0 100 = 0 50 = 1 20 = 0 10 = 1 5 = 0 2 = 0 1 = 0</pre> <p>Hint : use % and // operator (Without Loop / Recursion)</p>
Ans.	<pre>amount = int(input('Enter Amount ')) n2000 = amount//2000 amount = amount % 2000 n500 = amount//500 amount = amount % 500 n200 = amount//200 amount = amount %200 n100 = amount//100 amount = amount %100 n50 = amount//50 amount = amount %50 n20 = amount//20 amount = amount %20 n10 = amount // 10 amount = amount %10 n5 = amount // 5 amount = amount % 5 n2 = amount//2 amount = amount % 2</pre>

	<pre>n1 = amount//1 amount = amount % 1  print('2000=',n2000) print('500=',n500) print('200=',n200) print('100=',n100) print('50=',n50) print('20=',n20) print('10=',n10) print('5=',n5) print('2=',n2) print('1=',n1)</pre>
22	<p><b>Consider a list:</b>  MyFamily = ["Father", "Mother", "Brother", "Sister", "Jacky"]</p> <p>a) write statement to print "Brother"  b) write statement to print all items of list in reverse order  c) write statement to check "Sister" is in MyFamily or not  d) write statement to update "Jacky" with "Tiger"  e) write statement remove "Jacky" from MyFamily and also print it  f) write statement to add "Tommy" in MyFamily at the end</p>
Ans.	<p>a) <code>print(MyFamily[2])</code>  b) <code>print(MyFamily[::-1])</code>  c) <code>'Sister' in MyFamily</code>  d) <code>MyFamily[len(MyFamily)-1]='Tiger'</code>  <code>MyFamily[4]='Tiger'</code>  e) <code>MyFamily.pop()</code>  f) <code>MyFamily.append('Tommy')</code></p> <p style="text-align: right;"><b>OR</b></p>
23	<p><b>Consider a Tuple:</b>  Record = (10,20,30,40)  Raj wants to add new item 50 to tuple, and he has written expression as  Record = Record + 50, but the statement is giving an error, Help Raj in writing correct expression.  <b>Correct Expression :</b> _____</p>
Ans.	<b>Record = Record + (50,)</b>
24	What is the difference between List and Tuple?
Ans.	List is mutable type whereas Tuple is Immutable.
25	What is the difference between List and String?
Ans.	List is mutable type whereas String is immutable. List can store elements of any type like-string, list, tuple, etc. whereas String can store element of character type only.
26	What is ordered and unordered collection? Give example of each
Ans.	Ordered collection stores every elements at index position starts from zero like List, Tuples, string whereas unordered collection stores elements by assigning key to each value not by index like dictionary
27	<p>Consider a Dictionary  Employee = {'Empno':1, 'Name': 'Snehil', 'Salary':80000}</p>

	Write statements: (i) to print employee name (ii) to update the salary from 80000 to 90000 (iii) to get all the values only from the dictionary
Ans.	(i) print(Employee['Name']) (ii) Employee['Salary']=90000 (iii) print(Employee.values())
28	Num = 100 Isok = False print(type(Num)) = _____ print(type(Isok)) = _____
Ans.	<class 'int'> <class 'bool'>
29	<b>Name the Python Library module which need to be imported to invoke the following function:</b> a) floor() b) randrange() c) randint() d) sin()
Ans.	<b>a) math b) random c) random d) math</b>
30	<b>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.</b> 30=To for K in range(0,To) IF k%4==0: print (K*4) Else: print (K+3)
Ans.	<b><u>To=30</u> for K in range(0,<u>To</u>):     <u>if</u> <u>K</u>%4==0:         print(K*4)     <u>else</u>:         print(K+3)</b>
31	<b>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</b> a=5 work=true b=hello c=a+b FOR i in range(10) if i%7=0: continue
Ans.	<b>a=5 work=<u>True</u> b=<u>'hello'</u></b>



	<pre>c = a + b <u>for</u> i in range(10):     if i%7==0:         continue</pre>
32	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</p> <pre>for Name in [Ramesh,Suraj,Priya]     IF Name[0]='S':         print(Name)</pre>
Ans.	<pre>for Name in [<u>'Ramesh'</u>,<u>'Suraj'</u>,<u>'Priya'</u>]:     <u>if</u> Name[0]==<u>'S'</u>:         print(Name)</pre>
33	<p><b>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</b></p> <pre>a=b=10 c=a+b While c=&lt;20:     print(c,END="*")     c+=10</pre>
Ans.	<pre>a=b=10 c=a+b <u>while</u> c&lt;=20:     print(c,<u>end</u>="*")     c+=10</pre>
34	<p><b>Choose the correct possible answer(s)</b></p> <pre>a = random.randint(1,5) b = random.randint(1,3) c = random.randint(2,6) print(a,b,c)</pre> <p>(i) 2 1 3            (ii) 4 4 4            (iii) 3 2 1            (iv) 5 3 5</p>
Ans.	<p><b>(i)            (iv)</b></p>
35	<p>What is type conversion in Python? What are different types of conversion? Illustrate with example.</p>
Ans.	<p>Type conversion refers to conversion of one data type to another data type for e.g. string is converted to int. There are 2 types of conversion:</p> <ol style="list-style-type: none"> <li>1) <b>Implicit:</b> in this of conversion, it is automatically done by the interpreter without user intervention. <b>Example:</b>  <pre>Num = [10,20,30] print(type(Num[1]))            # int Num[1] = Num[1] + 4.5 # it will automatically convert to float Print(type(Num[1]))            # float</pre> </li> <li>2) <b>Explicit:</b> in this type of conversion, user will convert any type of value to its desired type. For example string to int. <b>Example:</b>  <pre>num = int(input('Enter number ')) #in the above code input of string type will be converted explicitly in int.</pre> </li> </ol>
36	<p><b>Fill in the blanks to execute infinite loop:</b></p> <pre>while _____:     print("spinning")</pre>

Ans.	<b>while True:</b> <b>print("spinning")</b>
37	Write a program to enter any number and check it is divisible by 7 or not
Ans.	<pre>num = int(input('Enter any number ')) if num % 7 == 0:     print('Divisible by 7') else:     print('Not divisible by 7')</pre>
38	<p><b>Fill in the blanks to execute loop from 10 to 100 and 10 to 1</b></p> <p>(i) for i in range(_____):     print(i)</p> <p>(ii) for i in range(_____):     print(i)</p>
Ans.	<p><b>(i)</b> for i in range(10,101):     print(i)</p> <p><b>(ii)</b> for i in range(10,0,-1):     print(i)</p>
39	<p><b>What will be the output if entered number (n) is 10 and 11</b></p> <pre>i=2 while i&lt;n:     if num % i==0:         break     print(i)     i=i+1 else:     print("done")</pre>
Ans.	<p><b>If n is 10 then when program control enter in loop the if condition will be satisfied and break will execute cause loop to terminate. The else part of while will also be not executed because loop terminated by break. (NO OUTPUT)</b></p> <p><b>If n is 11 it will print 2 to 10 and then it will execute else part of while loop and print 'done' because loop terminate normally without break</b></p>
40	<p><b>What will be the difference in output</b></p> <p>(i) for i in range(1,10):     if i % 4 == 0:         break     print(i)</p> <p>(ii) for i in range(1,10):     if i % 4 == 0:</p>

	<pre>                 continue             print(i)         </pre>					
Ans.	<pre> (i) 1 2 3 (ii) 1 2 3 5 6 7 9 10         </pre>					
41	<p>What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO.</p> <pre> import random AR=[20,30,40,50,60,70]; FROM=random.randint(1,3) TO=random.randint(2,4) for K in range(FROM,TO+1):     print (AR[K],end="#")         </pre> <p>(i) 10#40#70#                      (ii) 30#40#50#          (iii) 50#60#70#                      (iv) 40#50#70#</p>					
Ans.	<p>Maximum Value of FROM = 3          Maximum Value of TO = 4          Output : (ii)</p>					
42	<p>What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum value that can be assigned to the variable PICKER.</p> <pre> import random PICKER=random.randint(0,3) COLORS=["BLUE","PINK","GREEN","RED"] for I in COLORS:     for J in range(1,PICKER):         print(I,end="")     print()         </pre> <table border="1" data-bbox="219 1564 1307 1837"> <tr> <td>(i) BLUE PINK GREEN RED</td> <td>(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED</td> </tr> <tr> <td>(iii) PINK PINKGREEN PINKGREENRED</td> <td>(iv) BLUEBLUE PINKPINK GREENGREEN REDRED</td> </tr> </table>		(i) BLUE PINK GREEN RED	(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED	(iii) PINK PINKGREEN PINKGREENRED	(iv) BLUEBLUE PINKPINK GREENGREEN REDRED
(i) BLUE PINK GREEN RED	(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED					
(iii) PINK PINKGREEN PINKGREENRED	(iv) BLUEBLUE PINKPINK GREENGREEN REDRED					
Ans.	<p>Minimum Value of PICKER = 0          Maximum Value of PICKER = 3          Output: (i) and (iv)</p>					
43	<p><b>What are the correct ways to generate numbers from 0 to 20</b></p>					

	range(20)      (ii) range(0,21)      (iii) range(21)      (iv) range(0,20)
Ans.	<b>(ii)      And      (iii)</b>
44	<b>Which is the correct form of declaration of dictionary?</b> (i) Day={1:'monday',2:'tuesday',3:'wednesday'} (ii) Day=(1;'monday',2;'tuesday',3;'wednesday') (iii) Day=[1:'monday',2:'tuesday',3:'wednesday'] (iv) Day={1'monday',2'tuesday',3'wednesday'}
Ans.	<b>(i)</b>
45	<b>Choose the correct declaration from the following code:</b> Info = ({'roll':[1,2,3],'name':['amit','sumit','rohit']}) List              (ii) Dictionary      (iii) String      (iv) Tuple
Ans.	<b>(iv) Tuple</b>
46	<b>Which is the valid dictionary declaration?</b> i)      d1={1:'January',2='February',3:'March'} ii)      d2=(1:'January',2:'February',3:'March') iii)      d3={1:'January',2:'February',3:'March'} iv)      d4={1:January,2:February,3:March}
Ans.	<b>(iii)</b>
47	<b>What is/are not true about Python's Dictionary?</b> (i) Dictionaries are mutable (ii) Dictionary items can be accessed by their index position (iii) No two keys of dictionary can be same (iv) Dictionary keys must be of String data type
Ans.	<b>(ii)      and      (iv)</b>
48	<pre>x="abAbcAba" for w in x:     if w=="a":         print("*")     else:         print(w)</pre>
Ans.	* b A b c A b *
49	<b>Convert the following 'for' loop using 'while' loop</b> <pre>for k in range (10,20,5):     print(k)</pre>
Ans.	<pre>k = 10 while k&lt;=20:     print(k)     k+=5</pre>
50	<b>Give Output</b> <pre>colors=["violet", "indigo", "blue", "green", "yellow", "orange", "red"] del colors[4]</pre>

	<pre>colors.remove("blue") p=colors.pop(3) print(p, colors)</pre>
Ans.	<b>orange ['violet', 'indigo', 'green', 'red']</b>
51	<b>Output of following code:</b> <pre>A=10 B=15 S=0 while A&lt;=B:     S = A + B     A = A + 10     B = B + 10     if A&gt;=40:         A = A + 100 print(S)</pre>
Ans.	<b>65</b>
52	<b>Output of the following code:</b> <pre>X = 17 if X&gt;=17:     X+=10 else:     X-=10 print(X)</pre>
Ans.	<b>27</b>
53	<b>How many times loop will execute:</b> <pre>P=5 Q=35 while P&lt;=Q:     P+=6</pre>
Ans.	<b>6 times</b>
54	<b>Find and write the output of the following python code:</b> <pre>Msg="CompuTer" Msg1='' for i in range(0, len(Msg)):     if Msg[i].isupper():         Msg1=Msg1+Msg[i].lower()     elif i%2==0:         Msg1=Msg1+'*'     else:         Msg1=Msg1+Msg[i].upper() print(Msg1)</pre>
Ans.	<b>cO*P*t*R</b>
55	<pre>A=10 B=10 print( A == B)           = ? print(id(A) == id(B))   = ? print(A is B)           = ?</pre>
Ans.	True True True

1. Explain any three merits and three demerits of Python.
2. Give full form of Python's IDLE.
3. What do you mean by identifiers? Give any four rules to define an identifier.

What do you mean by comments? How will you add inline, single line or multiline comments in Python?

4. What is a block in python? How is a block created in Python, explain with example?
5. What do you mean by lvalue and rvalue? Give an example.
6. What are the core data types in Python?
7. "Strings are not mutable". Explain.
8. Compare strings, lists and tuples.
9. Differentiate Selection and iteration.
10. Write a program to find out whether a given year is leap year.
11. Write a program to calculate and print the roots of quadratic equation  $ax^2+bx+c=0$ . The program should display suitable message whether roots are real, equal, different or imaginary.
12. Write a program to calculate electricity charges based on number of consumed electricity units as per following conditions:

Units	Charges
Upto 100	Rs. 2 per unit
101 - 200	Rs. 200 + Rs. 3.5 per unit for units exceeding 100
201 - 300	Rs. 550 + Rs. 7.5 per unit for units exceeding 200
301 & above	Rs. 1300 + Rs. 9 per unit for units exceeding 300

13. Write a program to calculate BMI of a person after inputting its weight in kgs and height in meters and then print the nutritional status as per following table :

14. Nutritional Status	15. WHO criteria BMI cut-off
16. Underweight	17. less than 18.5
18. Normal	19. 18.5 to 24.9
20. Overweight	21. 25 – 29.9
22. Obese	23. 30 or above

Formula to calculate **BMI = weight in Kgms./ (height in meter)<sup>2</sup>**

14. Rewrite the following code fragment using while loop:

```
min = 0
max= num
if num < 0 :
    min = num
    max = 0
    for i in range(min, max +1):
        sum +=i
```

15. Predict the output of the following code if value of a is entered as 5:

```
a = int( input("Enter break code ")) # line first
num = 10
while num> 0:
    sum += num
    num -= 2
    if num < a :
        break;
else :
    sum+= num
print( sum)
```

16. Write a program in Python with the help of loops to find out the substrings of a given string.

For eg, input of 'Cat' should display:

C Ca Cat a at t

## Number Conversions Assignment

Convert the following numbers to base 10-

1.  $(10010)_2$
2.  $(254)_8$
3.  $(AC)_{16}$
4.  $(10010.101)_2$
5.  $(254.7014)_8$
6.  $(AC.FBA5)_{16}$
7.  $(0.1402)_8$
8.  $(0.ABDF)_{16}$

Convert the following numbers from base 10 to base 2-

1.  $(18)_{10}$
2.  $(18.625)_{10}$
3.  $(172)_{10}$
4.  $(172.878)_{10}$

Convert the following numbers from base 10 to base 8-

1.  $(1032)_{10}$
2.  $(1032.6875)_{10}$
3.  $(172)_{10}$
4.  $(172.878)_{10}$

Mixed Problems:

1. Convert  $(1056)_{16}$  to  $(?)_8$
2. Convert  $(11672)_8$  to  $(?)_{16}$
3. Convert  $(2724)_8$  to  $(?)_2$
4. Convert  $(3211)_{16}$  to  $(?)_2$

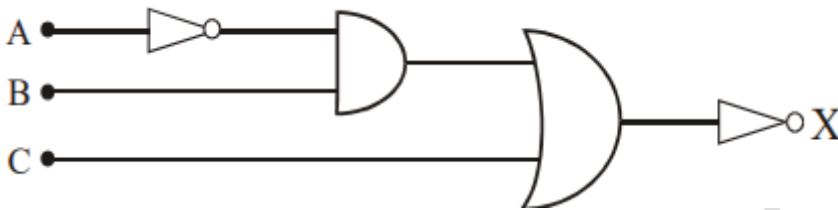


## Assignment on Boolean Expressions and Logic Circuits

1. Given the following Boolean function:

$$F = x y 'z + x' y z + w x 'y + w' x y$$

- Draw the truth table of the function.
  - Draw the logic diagram using the Boolean expression.
2. Given the following logic diagram:



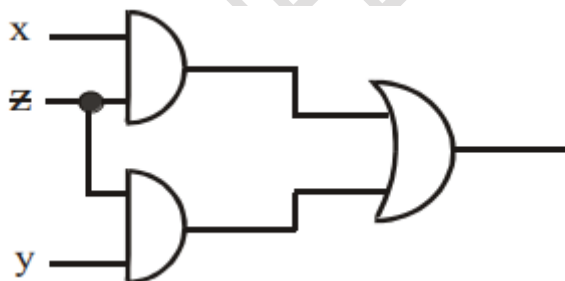
- Write the equivalent expression for the logic diagram.
- Draw the truth table of the expression obtained in part (a).

3. Given the following Boolean function:

$$F = A(B + C')$$

- Draw the truth table of the function.
- Draw the logic diagram using the Boolean expression.

4. Given the following logic diagram:



- Write the equivalent expression for the logic diagram.
- Draw the truth table of the expression obtained in part (a).

5. Draw the truth tables for the following:

- $XYZ + X' Y' Z'$

(ii)  $ABC + A' B' C + A' B' C'$

(iii)  $(A + D)(B + C)$

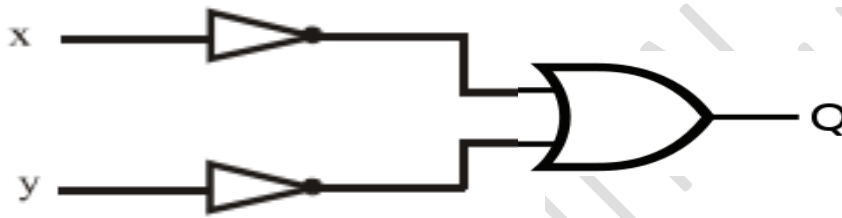
(iv)  $(A + B)(A + C)(A' + B')$

6. Obtain boolean expression for the following logic circuits:

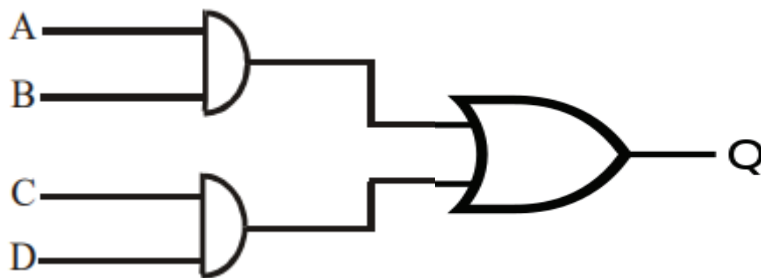
a.



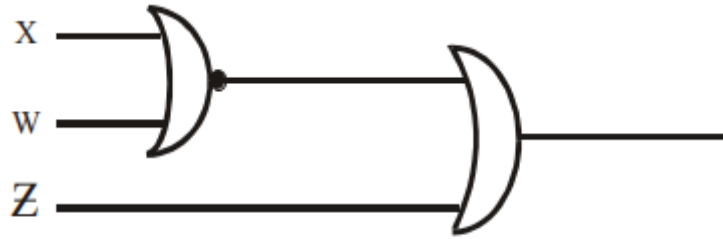
b.



c.



d.



7. Construct a logic diagram for expressions

- a.  $A \cdot B + C$
- b.  $A'B + A' \cdot B'$
- c.  $A \cdot B + B \cdot C$
- d.  $B \cdot (A + C)$
- e.  $X + Y = Y + X$
- f.  $XY = YX$
- g.  $X(X + Y) = X$
- h.  $X + XZ' = X$

CS BY NEERU MITTAL, SRDAV

**KENDRIYA VIDYALAYA NO.1 ARMAPUR, KANPUR**

**AUTUMN BREAK 2020-21**

**CLASS-XI , SUBJECTS- ECONOMICS**

Q.1 Write three limitations of Statistics.

Q.2 Draw PPC and show the followings: -

- (a) Full employment of resources,
- (b) Underutilization of resources, and
- (c) Growth of resources

**Q.3 Why is there a need for economizing of resources?**

**Q.4 Explain the relationship between marginal utility and total utility.**

**Q.5 Why more amount of a commodity is demanded at a lower price.? Explain.**

Q.6 Define MRT. Explain MRT with the help of a numerical example.

Q.7 Economic slowdown in some parts of the world has adversely affected demand for Indian exports. What will be its effect on the production possibilities frontier of India? Explain.

Q.8 What is the difference between change in demand and change in quantity demanded. .Use Diagram.

Q.9 A consumer consumes only two goods? Why consumer in equilibrium when he buys only that combination of the two goods that is shown at the point of tangency of the budget line with an indifference curve? Explain.

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# Autumn Break Assignment 2020-2021 XI-COMPUTER SCIENCE / IP



कोरोना से बचें



हाथ धोएं बार बार



सही से मास्क पहनें



निभाएं दो गज की दूरी



जब तक दवाई नहीं  
तब तक ढिलाई नहीं

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## Python Basics Assignment

1. Explain any four features of Python.
2. What is IDLE?
3. What are the two modes of Python. Name them.
4. Name any four application areas of Python
5. What is print() in Python?
6. What are the Python tokens? Name them.
7. Identify the keywords from the following:  
(i) from (ii) AND (iii) continue (iv) import (v) elif (vi) IN (vii) else  
(viii) true
8. Consider the following Python code:  

```
>>>print("Hello World")
```

Write a statement in Python to insert a comment for the above.
9. Identify the type of constants from the following:  
(i) "Hello" (ii) 24 (iii) "Good Morning" (iv) "90.90" (v) "##\$\$" (vi) 40.89
10. Write Python command to display a message on the screen
11. What are Escape Sequences in Python. Give examples

## ANSWERS

1. Four features of Python:
  - a. Open Source:** Python is open source and free. Source code is easily accessible and can be freely modified and re-distributed
  - b. Portable:** Python is platform independent. It can run on Windows, Mac OS and Linux alike
  - c. Powerful:** Supports dynamic data typing. It has a large standard library that supports many common programming tasks
  - d. Easy to Use & Learn:** Its easy to download and install Python. Also the structure and syntax are very simple and easy to understand
2. IDLE is the default IDE of Python. It stands for Integrated Development and Learning Environment.
3. Two modes of working with IDLE are: Interactive mode and Script mode.
4. Four application areas of Python:
  - a. Web development
  - b. Machine Learning
  - c. Artificial Intelligence
  - d. Data Science
5. The print() is a function to display the specified content on screen.
6. Python has some basic building blocks, called tokens. These are

- a. Python character set
- b. Keywords
- c. Comments
- d. Constants
- e. Operators
- f. Variables
- g. Data Types

7. . The keywords are : (i)from , (iii) continue , (iv) import , (v) elif and (vii) else

8. >>>print("Hello World") #This is a comment

9. (i)"Hello" Character constant  
(ii) 24 Integer constant  
(iii) "Good Morning" Character constant  
(iv)"90.90" Character constant  
(v)"##\$\$" Character constant  
(vi) 40.89 Decimal constant

10. print("Good Morning")

11. These are special constants which have a special functionality attached to them. Example, '\n' for newline , '\t' for eight spaces in output

## WORKSHEET WITH SOLUTION

### PYTHON – REVISION TOUR

1	'Welcome' is _____ literals
Ans.	string
2	\$ symbol can be used in naming an identifier (True/False)
Ans.	False
3	Write any 2 data types available in Python
Ans.	int, bool
4	'Division by zero' is an example of _____ error.
Ans.	Runtime Error
5	<b>range(1,10)</b> will return values in the range of _____ to _____
Ans.	<b>1 to 9</b>
6	<b>randint(1,10)</b> will return values in the range of _____ to _____
Ans.	<b>1 to 10</b>
7	"Computer Science"[0:6] = _____ "Computer Science"[3:10] = _____ "Computer Science"[:-1] = _____ "Computer Science"[-8:] = _____
Ans.	"Computer Science"[0:6] = Comput "Computer Science"[3:10] = puter S "Computer Science"[:-1] = ecneicS retupmoC "Computer Science"[-8:] = Science
8	<b>Output of</b> : <code>print("Ok"*4 + "Done")</code>
Ans.	<b>OkOkOkOkDone</b>
9	<b>Output of</b> : <code>print(print("Why?"))</code>
Ans.	<b>Why?</b> <b>None</b>
10	Raj was working on application where he wanted to divide the two number (A and B) , he has written the expression as $C = A/B$ , on execution he entered 30 and 7 and expected answer was 4 i.e. only integer part not in decimal, but the answer was 4.285 approx, help Raj to correct his expression and achieving the desired output. <b>Correct Expression</b> : _____
Ans.	$C = A//B$
11	<b>Can you guess the output?</b> <code>C = -11%4</code> <code>print(C)</code>
Ans.	<b>1</b>



12	Write 2 advantages and disadvantages of Python programming language
Ans.	<p>Advantages</p> <p>1) Easy to Use</p> <p>2) Expressive Language</p> <p>Disadvantages</p> <p>1) Slow because of interpreted</p> <p>2) Not strong on type binding</p>
13	<b>Identify the valid and Invalid identifiers names:</b> Emp-Code, bonus, While, SrNo., for, #count, Empl, 123Go, Bond007
Ans.	<b>Valid: _bonus, While, Empl, Bond007</b> <b>Invalid : Emp-code, SrNo., for, #count, 123Go</b>
14	<b>Identify the type of literals for each:</b> (i) 123 (ii) 'Hello' (iii) 'Bye\nSee You' (iv) 'A' (v) 345.55 (vi) 10+4j (vii) 0x12
Ans.	<b>(i) Int</b> <b>(ii) String</b> <b>(iii) String</b> <b>(iv) String</b> <b>(v) Float</b> <b>(vi) Complex</b> <b>(vii) Int</b>
15	<b>What is the size of each string?</b> (i) 'Python' (ii) 'Learning@\nCS' (iii) '\table'
Ans.	<b>(i) 6</b> <b>(ii) 12</b> <b>(iii) 5</b>
16	<b>Output of :</b> (i) True + True = (ii) 100 + False = (iii) -1 + True = (iv) bool(-1 + True) =
Ans.	<b>(i) 2</b> <b>(ii) 100</b> <b>(iii) 0</b> <b>(iv) False</b>
17	<b>Output of</b> (i) 2 * 7 = _____ (ii) 2 ** 7 = _____ (iii) 2**2**3 = _____ (iv) 17 % 20 = _____ (v) not(20>6) or (19>7) and (20==20) = _____
Ans.	<b>(i) 14</b> <b>(ii) 128</b> <b>(iii) 256</b> <b>(iv) 17</b> <b>(v) True</b>

18	<b>Output of :</b> <pre>a,b,c = 20,40,60 b+=10 c+=b print(a,b,c)</pre>
Ans.	<b>20 50 110</b>
19	Write a program to enter 2 number and find sum and product
Ans.	<pre>n1 = int(input('Enter num1 ')) n2 = int(input('Enter num2 ')) s = n1 + n2 p = n1 * n2 print('Sum=',s) print('Product =',p)</pre>
20	Write a program to enter temperature in Fahrenheit and convert it in Celsius
Ans.	<pre>f = int(input('Enter temperature (Fahrenheit) ')) c = (f-32)*5/9 print('Celcius =',c)</pre>
21	<p>Write a program to enter any money and find out number of denominations can be used to make that money. For e.g. if the money entered is 2560 Then output should be</p> <pre>2000 = 1 500 = 1 200 = 0 100 = 0 50 = 1 20 = 0 10 = 1 5 = 0 2 = 0 1 = 0</pre> <p>Hint : use % and // operator (Without Loop / Recursion)</p>
Ans.	<pre>amount = int(input('Enter Amount ')) n2000 = amount//2000 amount = amount % 2000 n500 = amount//500 amount = amount % 500 n200 = amount//200 amount = amount %200 n100 = amount//100 amount = amount %100 n50 = amount//50 amount = amount %50 n20 = amount//20 amount = amount %20 n10 = amount // 10 amount = amount %10 n5 = amount // 5 amount = amount % 5 n2 = amount//2 amount = amount % 2</pre>

	<pre>n1 = amount//1 amount = amount % 1  print('2000=',n2000) print('500=',n500) print('200=',n200) print('100=',n100) print('50=',n50) print('20=',n20) print('10=',n10) print('5=',n5) print('2=',n2) print('1=',n1)</pre>
22	<p><b>Consider a list:</b>  MyFamily = ["Father", "Mother", "Brother", "Sister", "Jacky"]</p> <p>a) write statement to print "Brother"  b) write statement to print all items of list in reverse order  c) write statement to check "Sister" is in MyFamily or not  d) write statement to update "Jacky" with "Tiger"  e) write statement remove "Jacky" from MyFamily and also print it  f) write statement to add "Tommy" in MyFamily at the end</p>
Ans.	<p>a) <code>print(MyFamily[2])</code>  b) <code>print(MyFamily[::-1])</code>  c) <code>'Sister' in MyFamily</code>  d) <code>MyFamily[len(MyFamily)-1]='Tiger'</code>  <code>MyFamily[4]='Tiger'</code>  e) <code>MyFamily.pop()</code>  f) <code>MyFamily.append('Tommy')</code></p> <p style="text-align: right;"><b>OR</b></p>
23	<p><b>Consider a Tuple:</b>  Record = (10,20,30,40)  Raj wants to add new item 50 to tuple, and he has written expression as  Record = Record + 50, but the statement is giving an error, Help Raj in writing correct expression.  <b>Correct Expression :</b> _____</p>
Ans.	<b>Record = Record + (50,)</b>
24	What is the difference between List and Tuple?
Ans.	List is mutable type whereas Tuple is Immutable.
25	What is the difference between List and String?
Ans.	List is mutable type whereas String is immutable. List can store elements of any type like-string, list, tuple, etc. whereas String can store element of character type only.
26	What is ordered and unordered collection? Give example of each
Ans.	Ordered collection stores every elements at index position starts from zero like List, Tuples, string whereas unordered collection stores elements by assigning key to each value not by index like dictionary
27	<p>Consider a Dictionary  Employee = {'Empno':1, 'Name': 'Snehil', 'Salary':80000}</p>

	Write statements: (i) to print employee name (ii) to update the salary from 80000 to 90000 (iii) to get all the values only from the dictionary
Ans.	(i) print(Employee['Name']) (ii) Employee['Salary']=90000 (iii) print(Employee.values())
28	Num = 100 Isok = False print(type(Num)) = _____ print(type(Isok)) = _____
Ans.	<class 'int'> <class 'bool'>
29	<b>Name the Python Library module which need to be imported to invoke the following function:</b> a) floor() b) randrange() c) randint() d) sin()
Ans.	<b>a) math b) random c) random d) math</b>
30	<b>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.</b> 30=To for K in range(0,To) IF k%4==0: print (K*4) Else: print (K+3)
Ans.	<b><u>To=30</u> for K in range(0,<u>To</u>):     <u>if</u> <u>K</u>%4==0:         print(K*4)     <u>else</u>:         print(K+3)</b>
31	<b>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</b> a=5 work=true b=hello c=a+b FOR i in range(10) if i%7=0: continue
Ans.	<b>a=5 work=<u>True</u> b=<u>'hello'</u></b>

	<pre>c = a + b <u>for</u> i in range(10):     if i%7==0:         continue</pre>
32	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</p> <pre>for Name in [Ramesh,Suraj,Priya]     IF Name[0]='S':         print(Name)</pre>
Ans.	<pre>for Name in [<u>'Ramesh'</u>,<u>'Suraj'</u>,<u>'Priya'</u>]:     <u>if</u> Name[0]==<u>'S'</u>:         print(Name)</pre>
33	<p><b>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</b></p> <pre>a=b=10 c=a+b While c=&lt;20:     print(c,END="*")     c+=10</pre>
Ans.	<pre>a=b=10 c=a+b <u>while</u> c&lt;=20:     print(c,<u>end</u>="*")     c+=10</pre>
34	<p><b>Choose the correct possible answer(s)</b></p> <pre>a = random.randint(1,5) b = random.randint(1,3) c = random.randint(2,6) print(a,b,c)</pre> <p>(i) 2 1 3            (ii) 4 4 4            (iii) 3 2 1            (iv) 5 3 5</p>
Ans.	<p><b>(i)            (iv)</b></p>
35	<p>What is type conversion in Python? What are different types of conversion? Illustrate with example.</p>
Ans.	<p>Type conversion refers to conversion of one data type to another data type for e.g. string is converted to int. There are 2 types of conversion:</p> <ol style="list-style-type: none"> <li>1) <b>Implicit:</b> in this of conversion, it is automatically done by the interpreter without user intervention. <b>Example:</b>  <pre>Num = [10,20,30] print(type(Num[1]))            # int Num[1] = Num[1] + 4.5 # it will automatically convert to float Print(type(Num[1]))            # float</pre> </li> <li>2) <b>Explicit:</b> in this type of conversion, user will convert any type of value to its desired type. For example string to int. <b>Example:</b>  <pre>num = int(input('Enter number ')) #in the above code input of string type will be converted explicitly in int.</pre> </li> </ol>
36	<p><b>Fill in the blanks to execute infinite loop:</b></p> <pre>while _____:     print("spinning")</pre>

Ans.	<b>while True:</b> <b>print("spinning")</b>
37	Write a program to enter any number and check it is divisible by 7 or not
Ans.	<pre>num = int(input('Enter any number ')) if num % 7 == 0:     print('Divisible by 7') else:     print('Not divisible by 7')</pre>
38	<p><b>Fill in the blanks to execute loop from 10 to 100 and 10 to 1</b></p> <p>(i) for i in range(_____):     print(i)</p> <p>(ii) for i in range(_____):     print(i)</p>
Ans.	<p><b>(i)</b> for i in range(10,101):     print(i)</p> <p><b>(ii)</b> for i in range(10,0,-1):     print(i)</p>
39	<p><b>What will be the output if entered number (n) is 10 and 11</b></p> <pre>i=2 while i&lt;n:     if num % i==0:         break     print(i)     i=i+1 else:     print("done")</pre>
Ans.	<p><b>If n is 10 then when program control enter in loop the if condition will be satisfied and break will execute cause loop to terminate. The else part of while will also be not executed because loop terminated by break. (NO OUTPUT)</b></p> <p><b>If n is 11 it will print 2 to 10 and then it will execute else part of while loop and print 'done' because loop terminate normally without break</b></p>
40	<p><b>What will be the difference in output</b></p> <p>(i) for i in range(1,10):     if i % 4 == 0:         break     print(i)</p> <p>(ii) for i in range(1,10):     if i % 4 == 0:</p>

	<pre>                 continue             print(i)         </pre>					
Ans.	<pre> (i) 1 2 3 (ii) 1 2 3 5 6 7 9 10         </pre>					
41	<p>What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO.</p> <pre> import random AR=[20,30,40,50,60,70]; FROM=random.randint(1,3) TO=random.randint(2,4) for K in range(FROM,TO+1):     print (AR[K],end="#")         </pre> <p>(i) 10#40#70#                      (ii) 30#40#50#                  (iii) 50#60#70#              (iv) 40#50#70#</p>					
Ans.	<p>Maximum Value of FROM = 3                  Maximum Value of TO = 4                  Output : (ii)</p>					
42	<p>What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum value that can be assigned to the variable PICKER.</p> <pre> import random PICKER=random.randint(0,3) COLORS=["BLUE","PINK","GREEN","RED"] for I in COLORS:     for J in range(1,PICKER):         print(I,end="")     print()         </pre> <table border="1" data-bbox="219 1564 1307 1837"> <tr> <td>(i) BLUE PINK GREEN RED</td> <td>(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED</td> </tr> <tr> <td>(iii) PINK PINKGREEN PINKGREENRED</td> <td>(iv) BLUEBLUE PINKPINK GREENGREEN REDRED</td> </tr> </table>		(i) BLUE PINK GREEN RED	(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED	(iii) PINK PINKGREEN PINKGREENRED	(iv) BLUEBLUE PINKPINK GREENGREEN REDRED
(i) BLUE PINK GREEN RED	(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED					
(iii) PINK PINKGREEN PINKGREENRED	(iv) BLUEBLUE PINKPINK GREENGREEN REDRED					
Ans.	<p>Minimum Value of PICKER = 0                  Maximum Value of PICKER = 3                  Output: (i) and (iv)</p>					
43	<p><b>What are the correct ways to generate numbers from 0 to 20</b></p>					

	range(20)      (ii) range(0,21)      (iii) range(21)      (iv) range(0,20)
Ans.	<b>(ii)      And      (iii)</b>
44	<b>Which is the correct form of declaration of dictionary?</b> (i) Day={1:'monday',2:'tuesday',3:'wednesday'} (ii) Day=(1;'monday',2;'tuesday',3;'wednesday') (iii) Day=[1:'monday',2:'tuesday',3:'wednesday'] (iv) Day={1'monday',2'tuesday',3'wednesday'}
Ans.	<b>(i)</b>
45	<b>Choose the correct declaration from the following code:</b> Info = ({'roll':[1,2,3],'name':['amit','sumit','rohit']}) List              (ii) Dictionary      (iii) String      (iv) Tuple
Ans.	<b>(iv) Tuple</b>
46	<b>Which is the valid dictionary declaration?</b> i)      d1={1:'January',2='February',3:'March'} ii)      d2=(1:'January',2:'February',3:'March') iii)      d3={1:'January',2:'February',3:'March'} iv)      d4={1:January,2:February,3:March}
Ans.	<b>(iii)</b>
47	<b>What is/are not true about Python's Dictionary?</b> (i) Dictionaries are mutable (ii) Dictionary items can be accessed by their index position (iii) No two keys of dictionary can be same (iv) Dictionary keys must be of String data type
Ans.	<b>(ii)      and      (iv)</b>
48	<pre>x="abAbcAba" for w in x:     if w=="a":         print("*")     else:         print(w)</pre>
Ans.	* b A b c A b *
49	<b>Convert the following 'for' loop using 'while' loop</b> <pre>for k in range (10,20,5):     print(k)</pre>
Ans.	<pre>k = 10 while k&lt;=20:     print(k)     k+=5</pre>
50	<b>Give Output</b> <pre>colors=["violet", "indigo", "blue", "green", "yellow", "orange", "red"] del colors[4]</pre>



	<pre>colors.remove("blue") p=colors.pop(3) print(p, colors)</pre>
Ans.	<b>orange ['violet', 'indigo', 'green', 'red']</b>
51	<p><b>Output of following code:</b></p> <pre>A=10 B=15 S=0 while A&lt;=B:     S = A + B     A = A + 10     B = B + 10     if A&gt;=40:         A = A + 100 print(S)</pre>
Ans.	<b>65</b>
52	<p><b>Output of the following code:</b></p> <pre>X = 17 if X&gt;=17:     X+=10 else:     X-=10 print(X)</pre>
Ans.	<b>27</b>
53	<p><b>How many times loop will execute:</b></p> <pre>P=5 Q=35 while P&lt;=Q:     P+=6</pre>
Ans.	<b>6 times</b>
54	<p><b>Find and write the output of the following python code:</b></p> <pre>Msg="CompuTer" Msg1='' for i in range(0, len(Msg)):     if Msg[i].isupper():         Msg1=Msg1+Msg[i].lower()     elif i%2==0:         Msg1=Msg1+'*'     else:         Msg1=Msg1+Msg[i].upper() print(Msg1)</pre>
Ans.	<b>cO*P*t*R</b>
55	<pre>A=10 B=10 print( A == B)           = ? print(id(A) == id(B))   = ? print(A is B)           = ?</pre>
Ans.	True True True

1. Explain any three merits and three demerits of Python.
2. Give full form of Python's IDLE.
3. What do you mean by identifiers? Give any four rules to define an identifier.

What do you mean by comments? How will you add inline, single line or multiline comments in Python?

4. What is a block in python? How is a block created in Python, explain with example?
5. What do you mean by lvalue and rvalue? Give an example.
6. What are the core data types in Python?
7. "Strings are not mutable". Explain.
8. Compare strings, lists and tuples.
9. Differentiate Selection and iteration.
10. Write a program to find out whether a given year is leap year.
11. Write a program to calculate and print the roots of quadratic equation  $ax^2+bx+c=0$ . The program should display suitable message whether roots are real, equal, different or imaginary.
12. Write a program to calculate electricity charges based on number of consumed electricity units as per following conditions:

Units	Charges
Upto 100	Rs. 2 per unit
101 - 200	Rs. 200 + Rs. 3.5 per unit for units exceeding 100
201 - 300	Rs. 550 + Rs. 7.5 per unit for units exceeding 200
301 & above	Rs. 1300 + Rs. 9 per unit for units exceeding 300

13. Write a program to calculate BMI of a person after inputting its weight in kgs and height in meters and then print the nutritional status as per following table :

14. Nutritional Status	15. WHO criteria BMI cut-off
16. Underweight	17. less than 18.5
18. Normal	19. 18.5 to 24.9
20. Overweight	21. 25 – 29.9
22. Obese	23. 30 or above

Formula to calculate **BMI = weight in Kgms./ (height in meter)<sup>2</sup>**

14. Rewrite the following code fragment using while loop:

```
min = 0
max= num
if num < 0 :
    min = num
    max = 0
    for i in range(min, max +1):
        sum +=i
```

15. Predict the output of the following code if value of a is entered as 5:

```
a = int( input("Enter break code ")) # line first
num = 10
while num> 0:
    sum += num
    num -= 2
    if num < a :
        break;
else :
    sum+= num
print( sum)
```

16. Write a program in Python with the help of loops to find out the substrings of a given string.

For eg, input of 'Cat' should display:

C Ca Cat a at t