

## 1. Prepare NOTES for Chapter- 1,2,3 and 4 of IP Book - Sumita Arora

### Important Question and Answer

#### Chapter – 1: GETTING STARTED WITH PYTHON

**Q.1 Who developed Python?**

**Ans-** Python was developed by Guido Van Rossum.

**Q.2 Which two languages contributed to Python as a Programming Language?** Ans- ABC language and Modula 3.

**Q.3 Is Python an Object Oriented Language?**

Ans- Yes, Python is an object oriented language.

**Q.1 Which of the following are not valid strings in Python?**

(a) ||Hello| (b) \_Hello' (c) ||Hello' (d) \_Hello| (e)

{Hello} Ans- String (c) , (d) and (e ) are not valid strings.

**Q.1 „Python is an interpreted language“. What does it mean to you?**

Ans- It means that the Python installation interprets and executes the code line by line at a time.

**Q.2 What does a cross platform language mean?**

Ans- it means a language can run equally on variety of platforms-Windows, Linux/UNIX,

Macintosh, Supercomputers, Smart phones etc.

**Q.3 Python is a Free and Open Source language. What do you understand by this feature?**

Ans- It means Python is freely available without any cost. Its source code is also available. One can modify, improve/extend an open source software.

**Q.4 In how many ways, can you work in Python?**

Ans- In two ways we can work in Python-

(i) Interactive mode

(ii) Script Mode

**Q.5 What is the difference between Interactive mode and Script Mode in Python?**

Ans- In interactive mode, one command can run at a time and commands are not saved.

Whereas in Scriptmode, we can save all the commands in the form of a program file and can see output of all lines together.

**Q.6 What are the advantages of Python?**

Ans- Advantages-

i. Easy to use OO Language.

ii. Expressive Language.

iii. Interpreted Language.

iv. It is complete.

v. Cross-Platform Language.

vi. Free and Open Source.

vii. Variety of Usage/ Applications

**Q.7 What are the limitations of Python?**

Ans- limitations-

i. Not the fastest language.

- ii. Lesser Libraries than C, Java, Perl.
- iii. Not strong on Type Binding.
- iv. Not easily convertible.

## Chapter – 2: PYTHON FUNDAMENTALS

### Very Short answer Type Questions

**Q.1** What is None literal in Python?

**Ans:** Python has one special literal, which is **None**. The None literal is used to indicate absence of value. It is also used to indicate the end of lists in Python. It means –There is nothing here!

**Q.2** What is the error in following code: `x, y = 7` ?

**Ans:** The following error comes - 'int' object is not iterable. Which means an integer object i.e. cannot be repeated for x and y. one more integer object is required after 7.

**Q.3** what will the following code do: `a=b=18` ?

**Ans:** This code will assign 18 to a and b both.

**Q.4** Following code is creating problem `X = 0281`, find reason. **Ans:** 0281

is an invalid token.

**Q.5** Find the error in the following code:

(a) `temp=90`  
`Print temp`

(b) `a=12`  
`b = a + b`  
`print( a And b)`

(c) `print("x="x)`

(d) `a, b, c=2, 8, 4`  
`print(a, b, c)`  
`c, b, a = a, b, c`  
`print(a; b; c)`

(e) `x = 23`  
`4 = x`

(f) `else = 21-4`

**Ans:** (a) Missing parentheses in call to 'print'.  
(b) Name '\_b' is not defined.  
(c) Invalid Syntax.  
(d) Invalid Syntax in second print statement.  
(e) can't assign to literal in second line.  
(f) Invalid Syntax.

**Q.6** Find the error in the following code:

(a) `y = x + 5`  
`print(x,y)`

(b) `a=input("Value: ")`  
`b = a/2`  
`print( a, b)`

(c) `print(x = y = 5)`

**Ans:** (a) Name 'x' is not defined.  
(b) Unsupported operand type(s) for /: 'str' and 'int'.  
(c) Invalid Syntax.

### Short Answer Type Questions

**Q.1** What is the difference between a keyword and an identifier?

**Ans: Difference between Keyword and Identifier:** Every language has keywords and identifiers, which are only understood by its compiler. Keywords are predefined reserved words, which possess special meaning. An identifier is a unique name given to a particular variable, function or label of class in the program.

## Q.2 What are literals in Python? How many types of Literals allowed in Python?

**Ans: Literals:** Python comes with some built-in objects. Some are used so often that Python has a quick way to make these objects, called literals.

The literals include the string, Unicode string, integer, float, long, list, tuple and dictionary types.

## Q.3 How many types of sequences are supported in Python?

**Ans:** Three Types of Sequences are supported in python:

- (i) String
- (ii) List
- (iii) Tuple

## Q.4 What factors guide the choice of identifiers in program?

- Ans:**
- (i) An identifier must start with a letter or underscore followed by any number of digits and/or letters.
  - (ii) No reserved word or standard identifier should be used.
  - (iii) No special character (Other than underscore) should be included in the identifier.

## Q.5 What is the difference between an expression and a statement in Python?

**Ans:** A statement is an instruction that the Python interpreter can execute. We have only seen the assignment statement so far. Some other kinds of statements that we'll see shortly are while statements, for statements, if statements, and import statements. (There are other kinds too!)

An expression is a combination of values, variables, operators, and calls to functions. Expressions need to be evaluated. If you ask Python to print an expression, the interpreter evaluates the expression and displays the result.

**Q.6 What are tokens in Python? How many types of tokens allowed in Python?** **Ans:** Tokens are the smallest unit of the program. There are following tokens in Python:

- Reserved words or Keywords
- Identifiers
- Literals
- Operators
- Punctuators

*Definition of all tokens may come. Which is not given in this question bank.*

## Q.7 What are operators? What is their function? Give examples of some unary and binary operators.

**Ans:** Operators are those symbols used with operands, which tells compiler which operation is to be done on operands. In other words - operators are tokens that trigger some computation/action when applied to variables and other objects in an expression.

Operators are of following types:

- **Unary operators** like (+) Unary Plus, (-) Unary Minus, not etc.
- **Binary Operators** like (+) addition, (\*) multiplication, and etc.

## Q.8 What is block/code block/suit in Python?

**Ans:** Sometimes a group of statements is part of another statement of function. Such a group of one or more statements is called **block** or **code-block** or **suit** in python. e.g.

```
if a>b:
    print("A is greater")
    print("Value of A is : ",a)
else:
    print("B is greater")
    print("Value of A is : ",b)
```

Here both the sections are separate code-blocks

### Q.9 What is the role of indentation in Python?

**Ans:** Indentation plays a very important role in Python. Python uses indentation to create blocks of code. Statements at same indentation level are part of same block/suit. You cannot unnecessarily indent a statement; python will raise an error for that.

**Q.10 How many types of strings are supported by Python?****Ans:** Python supports two types of strings:

- (i) Single-line string That terminates in single line.
- (ii) Multi-line String That stores multiple lines of text.

### Skill Based Questions

#### Q.1 How can you create multi-line strings in Python?

**Ans:** We can create multi-line string by putting a backslash (\) at the end of line which allows you to continue typing in next line in same string.

```
>>> Text1="Hello\  
World"  
>>> Text1  
'HelloWorld'
```

#### Q.2 Which of the following are syntactically correct strings? State reason.

- (a) "Python is nice Language"
- (b) „He called me "Friend!" when he came"
- (c) "Very Good"
- (d) „This is a good book"
- (e) "Namaste
- (f) "I liked „Harry Potter" very much"

**Ans:** (a) Correct (b) Correct (c) Incorrect (d) Correct (e) Incorrect (f) Correct

#### Q.3 Predict the output of the following:

```
x,y=7,2  
x,y,x=x+1,y+3,x+10  
print(x,y)
```

**Ans:** Output: 17 5

#### Q.4 Write a Program to obtain temperature in Celsius and convert it into Fahrenheit using formula –

$$C \times \frac{9}{5} + 32 = F$$

```
c=int(input("Enter the value in Celsius"))  
f=(c * 9/5) + 32
```

**Ans:** `print("Temperature in fahrenheit is : ",f)`

#### Q.5 Predict output:

```
a,b,c=2,3,4  
a,b,c=a*a,a*b,a*c  
print(a,b,c)
```

**Ans:** Output: 4 6 8

#### Q.6 WAP to print the area of circle when radius of the circle is given by user.

**Q.7 Ans:**

```
r=int(input("Enter the radius : "))  
area= 3.14*r*r  
print("Area of circle is : ",area)
```

**Q.8** WAP to print the volume of a cylinder when radius and height of the cylinder is given by user.

**Ans:**

```
r=int(input("Enter the radius : "))
h=int(input("Enter the height : "))
vol=3.14*r*r*h
print("Volume of Cylinder is : ",vol)
```

**Q.9** WAP that asks your height in centimeters and converts it into foot and inches.**Ans:**

```
cm=int(input("Enter height in Centimeters : "))
foot=cm//30
rcm=cm%30
```

**Q.10** WAP to find area of a triangle.

**Ans:**

```
import math
print("Height is : " foot " Foot " inches," Inches ")
a=int(input("Enter side 1 on triangle : "))
b=int(input("Enter side 2 on triangle : "))
c=int(input("Enter side 3 on triangle : "))
s=(a+b+c)/2
area=s*math.sqrt((s-a)*(s-b)*(s-c))
print("Area of Triangle is : ",area)
```

**Q.11** WAP to calculate simple interest.

**Ans:**

```
p=int(input("Enter Principal : "))
r=int(input("Enter Rates : "))
t=int(input("Enter Time :"))
si=(p*r*t)/100
print("Simple Interest is :",si)
```

**Q.12** WAP to read a number in n and prints  $n^2$ ,  $n^3$ ,  $n^4$

**Ans:**

```
n=int(input("Enter value of n : "))
print("n^2 : ",n*n)
print("n^3 : ",n*n*n)
print("n^4 : ",n*n*n*n)
```

## Chapter – 3: DATA HANDLING

### Very Short answer Type Questions

**Q.1** Identify the data types of the following values given below -3, 3j, 13.0,

„12“,„14“, 2+0j,19, [1,2,3], (3,4,5)

**Ans:** 3 – int      3j – complex      13.0 – float      „12“ – string      -14| –  
string 2+0j – complex      19 – int      [1,2,3] – list      (3,4,5) – tuple

**Q.2** What will be the output of the following?

(a)12/4 (b)14//14 (c)14%4 (d) 14.0/4 (e) 14.0//4 (f)14.0%4

**Ans:** (a) 3.0 (b) 1 (c) 2 (d) 3.5 (e) 3.0 (f) 2.0

**Q.3** What will be the output of the following?

```
print(17//4)
print(17/4)
print(len(str(17//4)))
print(len(str(17/4)))
```

---

<b>Q.5</b>	<b>What will be the output of the following?</b>	
------------	--	--

**(a) 87//5**

**(b) (87//5.0) == (87//5)**

**(c) 87//5.0**

**(d) 17%5.0**

**Ans:** (a) 17

(b) True

(c) 17.0

(d) 2.0

---

## Short Answer Type Questions

**Q.1** What are data types? What are Python's built-in core data types?

**Ans:** Every value in Python has a datatype. Since everything is an object in Python programming, data types are actually classes and variables are instance (object) of these classes.

There are various data types in Python. Some of the important types are listed below.

(i) Numbers    (ii) String    (iii) List    (iv) Tuple    (v) Dictionary

**Q.2** Which data types of Python handle Numbers?

**Ans:** It is cleared by name that Number data types are used to store numeric value in Python. The Numbers in Python have following core data types:

- (i) Integers
  - a. Integers (signed)
  - b. Booleans
- (ii) Floating-Point Numbers
- (iii) Complex Numbers

**Q.3** What are mutable and immutable types in Python? List both of them.

**Ans:** **Mutable types** means those data types whose values can be changed at the time of execution.

They are as follows:

- Lists
- Dictionaries
- Sets

Immutable types are those data types that can never change their value in place. In Python the following types are immutable:

- integers
- floating-point numbers
- Booleans
- Strings
- Tuples

## Skill Based Questions

**Q.1** WAP to calculate compound simple interest after taking the principle, rate and time. Ans:

```
#Compound Interest
p=int(input("Enter the Principal"))
r=int(input("Enter the Interest Rate"))
t=int(input("Enter the Tenure"))
temp=1+r/100
f=1
for i in range(1,t+1):
    f=f*temp
Amount=p*f
```

---

**Q.2 WAP to check the given year is leap year or not.**

**Q.3 Ans:**

```
year = int(input("Enter year"))
if (year % 4) == 0:
    if (year % 100) == 0:
        if (year % 400) == 0:
            print("{0} is a leap year".format(year))
        else:
            print("{0} is not a leap year".format(year))
    else:
        print("{0} is a leap year".format(year))
else:
    print("{0} is not a leap year".format(year))
```

**Q.4 WAP to take two numbers and check that the first number is fully divisible by second number or not.**

```
a=int(input("Enter First Number : "))
b=int(input("Enter Second Number : "))
if a%b==0:
    print(a, " is fully divisible by ",b)
else:
    print(a, " is not fully divisible by ",b)
```

**Q.5 What will be the output of the following?**

```
a=5-4-3
b=3**2**3
print(a)
print(b)
```

Ans: -2

6561

**Q.6 What will be the output of the following?**

```
x,y=4,8
z=x/y*y
print(z)
```

Ans: 4.0

**Q.7 WAP to take value of x,y,z from the user and calculate the equation  $4x^4 + 3y^3 + 9z^2 + 6\pi$**

```
x=int(input("Enter x : "))
y=int(input("Enter y : "))
z=int(input("Enter z : "))
f=4*pow(x,4)+3*pow(y,3)+9*pow(z,2)+6*3.14
print("The Answer is : ",f)
```