

Questions : Class XI Computer Science/ IP

Getting Started with Python

- 1 Who has developed Python programming Language? In which year it was developed? 1
- 2 On what basis python has been named? 1
- 3 Explain any three merits of Python. 3
- 4 Explain any three demerits of Python. 3
- 5 Why Python is called a cross-platform language? 1
- 6 Give full form of Python's IDLE. 1
- 7 What do you mean by IDE? Explain. 2
- 8 Name a few Python IDEs. 2
- 9 Why Python is called an interpreted language? 1

Python Fundamentals

- 1 Does Python support UNICODE? 1
- 2 What are tokens? List all tokens in Python. 2
- 3 What are keywords? Explain. List a few keywords available in Python. 2
- 4 What do you mean by identifiers? Give any four rules to define an identifier. 3
- 5 What are literals? List all literals in Python. 2
- 6 How do you form string literals in Python? 1
- 7 Explain how you can use single line and multiline strings in Python. 2
- 8 What do you mean by complex literal? How will you write a complex value, explain with an example? 2
- 9 How can you write a floating point value using exponent form? Give an example. 1
- 10 List Boolean literal? 1
- 11 What is "None"? 1
- 12 What do you mean by comments? How will you add inline, single line or multiline comments in Python? 2
- 13 What is a block in python? How is a block created in Python, explain with example? 2
- 14 How many spaces are used to define an indentation level? 1
- 15 Define variable in Python? How a variable does created? 2
- 16 What will happen if variable holding a value of integer type assigned another value of string type? 1
- 17 What do you mean by lvalue and rvalue? Give an example. 2
- 18 Give an example each of following: 1
 - i. Assigning same value to multiple variables.
 - ii. Assigning multiple values to multiple variables.
- 19 What is dynamic typing? (datatyping) 1
- 20 Explain the use of input() function with an example. 2
- 21 What type value is returned by input() function? If the integer or float values are to be input write an example statement how will you use input() function? 2
- 22 Explain with example how to use print() function to:
 - i. Print Single string or variable's value. 1
 - ii. Print multiple strings or variable's value or combination of both. 1
 - iii. Specify the separator in between multiple output strings. 1
 - iv. Specify end character after string output. 1
- 23 Consider following code: 1

```
print("Kendriya")
print("Vidyalaya")
```

its current output is :
Kendriya
Vidyalaya

- Modify only one line of the above code to print “Kendriya Vidyalaya” in same line.
- 24 Identify the types of following literals: 3
- 23.789
 - False
 - “True”
 - 34.71E-4
 - None
 - 4+3j
- 25 Identify valid or invalid identifiers: 3
- True
 - Student-Name
 - IF
 - PRINT
 - 1stAge
 - Number1
- 26 Find out the error in following code: 1
- ```
Salary= input(“Salary :”)
Bonus=10/100 * Salary
Print (“Bonus”, Bonus)
```
- 27 Find out the error in following code: 1
- ```
Name=input (“What is your Name”)
print(“Hi”,Name)
```
- 28 What will be the output of following code : 2
- ```
a, b = 10, 2
a, b, a= a +5, b+2, a+4
print(a, b)
```
- 29 What will be the output of following code: 2
- ```
print(“Hi”, “Manoj!”, “Good Morning”, sep=“#”, end=“$$>”)
print(“its”, “a pleasant day.”)
print(“Do something good for society”)
```
- 30 Find the error in the following code: 1
- ```
print(“Current GDP of India is =”, GDP)
```
- 31 State with justification whether following code contains any error (if Hindi text is in Unicode): 1
- ```
print(“ये हमारा केन्द्रीय विद्यालय है”)
```

Data Handling

- 1 What are the core data types in Python?
- 2 Explain Boolean and complex data types with example. 2
- 3 Write the output of following code 2
- ```
DValue= 3.59 + 4j
DValue += 2 + 4j
print(DValue.real)
print(DValue.imag)
```
- 4 Following code has one error, identify the error and explain the reason: 1
- ```
Word= “Nagpur”
Word[3]=’K’
```
- 5 “Strings are not mutable”. Explain. 1
- 6 Do you agree that “Individual characters of a string can be accessed by using negative index”? 2
If yes than explain how?
- 7 Compare strings, lists and tuples. 3

- 8 How does dictionary different than strings, lists, and tuples? 2
- 10 What are mutable and immutable data types? Classify the data type available in python in mutable and immutable categories. 3
- 11 How will you identify the type of a variable in a Python program? Explain with an example. 2
- 12 What is the **id** of an object in Python? How can you identify the **id** of an object explain with an example. 3
- 13 "If the IDs of two objects are same than they must have same value, but if any two objects have same value they may not have same ID". Explain with an example. 3
- 14 Write an example program where two string having same values have different IDs. 2
- 15 What will be value of x after evaluation of each of following separately: 2
- $x = 29 / 5$
 - $x = 39 // 4 * 2$
 - $x = 3 ** 2 ** 2$
 - $x = 2 ** 5 \% 3 - 5$
- 16 How will you identify that two objects have same **ids** without using == operator. Explain with example. 2
- 17 Differentiate equality (==) and identity (**is**) operators with example. 2
- 18 What do you mean by chained comparison operators? Explain with example. 3
- 19 What do you mean by precedence of operators? Explain with example. 2
- 20 What do you mean by associativity of operators? Explain with example. 2
- 21 List operators which have right to left associativity in Python. 1
- 22 Which operators are used make decisions after combining multiple conditions? What do you call such operators? Give names of these operators. 2
- 23 What will be the type of final evaluated value of following expressions: 2
- `print (type (5*2))`
 - `print (type (3 * 32 // 16))`
 - `print (type (14 * 5.0 *2))`
 - `print (type (50/2 + 5))`
- 24 What will be the final output of following logical expression : 2
- (17 >4) or (3 <5) and not (3 < 2) and not 17 < 18
- 25 What do you mean by implicit type conversion? Explain with an example. 2
- 26 What do you mean by type casting? Explain with example. 2
- 27 What functions are available in Python for type casting? Explain. 2
- 28 Identify the data type of rvalue of following: 2
- X= "Great India"
 - Y= { 1: "Monday", 3: "Wednesday", 5: "Friday", 7: "Sunday" }
 - Z= ("a","e","i","o","u")
 - W= ["Rakesh", "Rajesh", "Ravindra", "Pawan", "Santosh"]
- 29 Identify each of the following whether mutable and immutable : 2
- X= "Great India"
 - Y= { 1: "Monday", 3: "Wednesday", 5: "Friday", 7: "Sunday" }
 - Z= ["a","e","i","o","u"]
 - W= ("Rakesh", "Rajesh", "Ravindra", "Pawan", "Santosh")
- 30 Why is Boolean considered a subtype of integer? 2
- 31 How to use math module in Python script? 1
- 32 Explain the use of following math library functions available in Python with example (any two): 4
- `ceil()`
 - `sqrt()`

- iii. floor()
 - iv. log()
 - v. pow()
- 33 Explain the use of following math library constants with syntax and example: 2
- i. pi
 - ii. e
- 34 What will be the output of following code: 2
- ```
A= 3 + int (5/2)
B= A/2
print(A, B)
```
- 35 What will be the output of following code: 2
- ```
A=True
B= 0<5
print(A==B)
print (A is B)
```

Conditional and Iterative Statements

- 1 Explain following with syntax and example: 2
- i. Empty Statement 2
 - ii. Simple Statement 2
 - iii. Compound Statement 2
- 2 Differentiate Selection and iteration. 2
- 3 Explain algorithm. 1
- 4 Explain flowcharts with its major symbols. 2
- 5 Explain Pseudocode with example. 2
- 6 Explain Decision Trees with example. 2
- 7 An organization wants to give its employees bonus based on following conditions: 2
- if the employee is male
 - bonus will be 10 % of salary where salary is less than 50000 otherwise
 - bonus will be 15 %
 - if the employee is female
 - bonus will be 20 % of salary where salary is less than 50000 otherwise
 - bonus will be 25 %
- Develop following for to calculate bonus:
- i. Algorithm 2
 - ii. Flow Chart 2
 - iii. Pseudocode 2
 - iv. Decision Tree (to deal make the decision about bonus calculation) 2
- 8 Explain if...else statement with syntax and example. 3
- 9 Explain if...elif statement with syntax and example. 3
- 10 Write a program to find out the largest number out of given three numbers. 3
- 11 Write a program to calculate simple interest using formula $SI=P*R*T/100$. Rate will be 5% if the principal amount is less than 25000 otherwise rate will be 8 %. 3
- 12 Write a program to find out whether a given year is leap year. 2
- 13 Write a program to find out whether a number is odd or even. 2
- 14 Write a program to calculate bonus for employees based on following conditions: 3
- if the employee is male
 - bonus will be 10 % of salary where salary is less than 50000 otherwise
 - bonus will be 15 %
 - if the employee is female

bonus will be 20 % of salary where salary is less than 50000 otherwise
 bonus will be 25 %

- 15 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. 4
- 16 Write a program to accept an integer and display the corresponding day of week i.e. 1 for Monday, 2 for Tuesday and so on. If the number is not in 1 to 7 it should display a message "Invalid Day Number". 3
- 17 Write a program to find out the grade of student based on his obtained percent as per following conditions: 4

Percent	Grade
<33	F
33 to 44	E
45 to 59	D
60 to 74	C
75 to 89	B
90 and above	A

- 18 Write a program to calculate electricity charges based on number of consumed electricity units as per following conditions: 4

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

- 19 Write a program to print whether a given character is an uppercase or a lowercase letter or a digit or any other character. 3
- 20 Write a program to input three angles and determine if they form a triangle or not. (Hint : sum of triangles all three angle is 180) 2
- 21 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 : 3

Nutritional Status	WHO criteria BMI cut-off
Underweight	less than 18.5
Normal	18.5 to 24.9
Overweight	25 – 29.9
Obese	30 or above

Formula to calculate $BMI = \text{weight in Kgms.} / (\text{height in meter})^2$

- 22 Explain with example one advantage of using if...elif statement over using if statement multiple times. 2
- 23 Write a program to arrange three numbers in ascending order. 3
- 24 Rewrite the following code after removing errors. Underline each correction. 2

```

smonth = int (input ("Please enter name of a month"))
if smonth= "January" :
print("Beginning of the Year")
elif (smmonth=="April") :
    print("Beginning of Financial Year")
elif (smmonth=="July")
    print("Begining of acadmic activities in colleges")
  
```

- 25 Rewrite the following code after removing errors. Underline each correction. 2

```

If n==0
    print("Zero")
  
```

```

elif : n==1
    print("One")
elif
    n==2
    print("Two")
else n == 3
    print("Three")

```

- 26 What is a loop? 1
- 27 What is range() function? Explain with syntax and example. 2
- 28 Explain operators **in** and **not in** with example. 2
- 29 Differentiate counting and conditional loops. Give the names of one conditional loop and one counting loop available in Python. 3
- 30 Explain **for** loop with syntax and example. 3
- 31 Write a program to print table of a given number. 2
- 32 Explain while loop with syntax and example. 3
- 33 Explain break statement with syntax and example. 2
- 34 Explain continue statement with syntax and example. 2
- 35 Explain loop's else statement used with syntax and example. 2
- 36 What do you mean by named conditions or stored conditions explain with example. 3
- 37 Write a program to find out the value of X^Y . 3
- 38 Write a program to find the value of $X!$.(Factorial of X) 3
- 39 Write a program to find out the largest number out of given n numbers. 3
- 40 Write a program to find out the sum of first n terms of following series: 4
 $1 + X + X^2 + X^3 + X^4 + \dots + X^{n-1}$
- 41 Write a program to find out the sum of first n terms of following series: 4
 $1 - X + X^2 - X^3 + X^4 - \dots (+|-) X^{n-1}$
- 43 Write a program to find out the sum of first n terms of following series: 4
 $1 + X + X^2 / 2! + X^3 / 3! + X^4 / 4! + \dots + X^{n-1} / (n-1)!$
- 44 Write a program to find out the sum of first n terms of following series: 4
 $1 - X + X^2 / 2! - X^3 / 3! + X^4 / 4! - \dots (+|-) X^{n-1} / (n-1)!$
- 45 Write a program to print the n terms of Fibonacci series: 3
0 1 1 2 3 5 8 13 21
- 46 Write a program to print the following pattern (using only one * in a print statement) 3

```

*
**
***
****
*****

```

- 47 Write a program to print the following pattern (using only one * in a print statement) 3

```

*****
****
***
**
*

```

- 48 Write a program to print the following pattern (print only one value at a time) 3

```

1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

```

- 49 Write a program to find out whether it is a prime number or not. 4
- 50 Write a program to find out the reverse of a given number. 4
- 51 Write a program to find whether a number is palindrome. (A palindrome is a number that is same of its reverse) 4
- 52 Write a program to count the number of digits in a given number. 4
- 53 Write a program to find the sum of all digits of a given number. 4
- 54 Write a program to find the sum of all even digits and odd digits separately. 4
- 55 Write a program to print first 10 Mersenne numbers. (Mersenne number are in the form of (2^n-1)) 3
- 56 Write a program to find the LCM of three integers. 3
- 57 Write a program to find the HCF of three integers. 3
- 58 Rewrite the following code fragment that saves on the number of comparisons: 3

```

if(a==0):
    print("Zero")
if (a==1):
    print("One")
if(a==2):
    print("Two")
if(a=="Three"):
    print("Three")

```

- 57 Rewrite the following code fragment remove **and** operator and use chaining of comparison operators. Logic of program should not change. 3

```

if(score <33 ):
    grade= "F"
if(score >=33 and score < 45 ):
    grade= "E"
if(score >=45 and score < 60 ):
    grade= "D"
if(score >=60 and score <75 ):
    grade= "C"
if(score >=75 and score <90 ):
    grade= "B"
if(score >= 90 ):
    grade= "A"
print (grade)

```

- 58 What will be the output of the following code if the input is 3 2

```

n = int ( input( "Enter an integer "))
if n < 1 :
    print("invalid value")
else :
    for i in range(1,n+1) :
        print( i * i)

```

- 59 Rewrite the following code fragment using for loop: 2

```

num = 10
while num> 0:
    sum += num
    num -= 2
print( sum)

```

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

3

```
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)
```

61 Rewrite the following code fragment using while loop:

2

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

62 Rewrite the following code fragment using while loop :

2

```
for i in range( 1,16 ):
    if i%3==0:
        print (i)
```