INTERVIEW QUESTIONS ON PYTHON

Data Types:

1. Which of the following Python objects is immutable?
   A. set
   B. dict
   C. list
   D. str
   Ans. D. str
2. What would be the result of executing the following code?
   Code- print(True*2)

   A. TrueTrue
   B. True True
   C. 2
   D. Syntax Error

   Ans. C. 2

3. After executing the following line of code, what would be the data type of `poll_data`?
   `Code - Poll_data=7`

   `A. int`
   `B. list`
   `C. tuple`
   `D. dict`

   Ans. A. int

4. Which of the following Python's built-in functions returns the type of the object that was passed to it as a single argument?
   Ans. type()

5. Which of the following statements, when executed, raises the **TypeError**?
   A. dict(range(9))
   B. set(range(9))
   C. list(range(9))
   D. tuple(range(9))
   Ans. A. dict(9))
6. After executing the following line of code, what would be the data type of `obj_data`?
   `Code - Obj_data=()`
   `A. Set`
   `B. Dict`
   `C. Tuple`

D. List

Ans. C. tuple

7. What is the type of the following: 1
   A. Float
   B. Int
   C. Str

   Ans. B. int
8. What is the type of the following "7.1"
   A. Float
   B. Int
   C. Str

   Ans. C. str
9. What is the result of the following code segment: int(12.3)
   A. 12.3
   B. 12
   C. 13

   Ans. B. 12
10. What is the result of the following code segment: int(True)?
    A. 1
    B. 0
    C. Error

    Ans. A. 1
11. What do you call a value that doesn't have decimal values?
    A. A number
    B. An integer
    C. A string

    Ans. An integer
12. What do you call a value that does have decimal values?
    A. A float
    B. A number
    C. An integer

    Ans. A float
13. What data type can only have either a value of True or False?
    A. A string
    B. A Boolean
    C. An integer

    Ans. A Boolean
14. What code would turn the string "1" into an integer?
    A)str(1)
    B) int("1")
    C) float("1")

    Answer: int("1")
15. What character begins a single line comment?
    A)'"
    B) //
    C) #

    Answer:#

16. What do we call it when we convert from one data type to another?
    A) casting
    B) converting
    C) changing

    Answer: casting
17. What is the datatype of **np.nan**?
    A) int
    B) float
    C) str
    D) None

    Answer: float
18. Which of the following numbers is NOT a float?
    A) 1.5
    B) 2.333333
    C) 0.0
    D) 0

    Answer: 0
19. What values can the Boolean data type hold?
    A) Integers, fractions, complex numbers
    B) Unicode characters
    C) True or False values
    D) Any other data type

    Answer: True or False values
20. What does it mean that Python is a dynamically-typed language?
    A) Variables in python can implicitly change to other types when comparing. For examples you can compare a string "2" and the number 2 using ==.
    B) Python variables can be assigned to different types and changes types at will.
    C) Python is a more efficient language than C++
    D) All of the above

    Answer: Python variables can be assigned to different types and changes types at will.

Operators:

1. In the Python statement `x = a + 5 - b`:

- `a` and `b` are _____
- `a + 5 - b` is _____

A. operators, a statement
B. terms, a group
C. operands, an equation
D. operands, an expression
Ans. Operands, Expression

2. What is the value of the expression `100 / 25`?
Ans. 4.00

3. Should you use the `==` operator to determine whether objects of type `float` are equal?
Ans. Nope, not a good idea, We should Compute whether the numbers are close enough to one another to satisfy a spcificed tolerance.

4. For Following Code what is value of y?
Code – x=10.0
y= (x<100.0) and isinstance(x,float)
A. None
B. False
C. True
D. 0
Ans. True

5. Suppose the following statements are executed:
a = 100
b = 200
What is the value of expression a and b?

A. 100
B. 0
C. False
D. True
E. 200
Ans. 200

6. The function `sqrt()` from the `math` module computes the square root of a number.

   Will the highlighted line of code raise an exception?

   X = -100

   From math import sqrt

   x>0 and sqrt (x)

   Ans. No

7. For two objects `x` and `y`:

   `x is y` is `True`

   if and only if

   `id(x) == id(y)`

   `Ans. True`

8. Which of the following operators has the lowest precedence?
   A. %
   B. and
   C. +
   D. not
   E. **
   Ans. And

9. What is the value of the expression `1 + 2 ** 3 * 4`?
   A. 4097
   B. 36
   C. 108
   D. 33
   Ans. 33

10. Write Python code to:

    Create a variable `x` with the value `100`

    Increase the value of `x` fivefold using an augmented assignment operator

Ans. x = 100

x *= 5

11. What is the output of `print(10 - 4 * 2)`
    Ans. 2

12. What is the output of `print(2%6)`
    Ans. 2

13. What is the output of `print(2 ** 3 ** 2)`
    Ans. 512

14. What is the output of the following addition (+) operator
    a = [10,20]
    b = a
    b +=[30,40]
    print(a)
    print(b)
    A . [10, 20, 30, 40]
    [10, 20, 30, 40]

B. [10, 20]
[10, 20, 30, 40]
Ans. A

15. What is the output of the following code
X =100
Y =50
print (X and Y)
A. True
B. 100
C. False
D. 50
Ans. 50

16. What is the output of the following code
`print(bool(0), bool(3.14159), bool(-3), bool(1.0+1j))`

A. True True False True
B. False True True True
C. True True False True
D. False True False True

Ans. False True True True

17. What is the output of the expression `print(-18 // 4)?`
A. -4
B. 4
C. -5
D. 5
Ans . -5

18. Bitwise shift operators (`<<`, `>>`) has higher precedence than Bitwise And(`&`) operator
Ans. Bitwise shift operators (`<<`, `>>`)

19. What is the output of the following assignment operator
Y= 10
X= y +=2
Print (x)

A. 12
B. 10
C. Syntax error
Ans. C. Syntax Error

20. What is output of following code:
Print(9//4)
Ans. 2

CONDITIONAL STATEMENTS:

1. **Name the keyword which helps in writing code involves condition.**
Ans. if

2. **Write the syntax of simple if statement.**
Ans. **if < Condition>:**
Execute this

3. **Is there any limit of statement that can appear under an if block.**
Ans. No

4. **Write a program to check whether a person is eligible for voting or not. (accept age from user)**

Ans.
```
age=int(input("Enter your age"))
if age >=18:
    print("Eligible for voting")
else:
    print("not eligible for voting")
```

5. **Write a program to check whether a number entered by user is even or odd.**

Ans.
```
n=int(input("Enter any No:"))
if n%2 ==0:
    print("Number is even")
else:
    print("Number is odd")
```

6. **Write a program to check whether a number is divisible by 7 or not.**

Ans.
```
n=int(input("Enter Any Number:"))
    if n % 7 ==0:
        print("number is divisible by 7")
    else:
        print(number is not divisible by 7")
```

7. **Write a program to display "Hello" if a number entered by user is a multiple of five ,**
   otherwise print "Bye".

Ans.
```
num=int(input("Enter your age"))
 if num%5==0:
     print("Hello")
else:
     print("Bye")
```

8. **Write a program to display the last digit of a number.**

Ans.
```
num=int(input("Enter any number"))
last_no=num%10
print("Last digit of number is ", last_no)
```

9. **Write a program to check whether the last digit of a number(entered by user) is**
   divisible by 3 or not.

Ans.
```
num=int(input("Enter any number"))
ld=num%10
if ld%3==0:
        print("Last digit of number is divisible by 3 ")
else:
        print("Last digit of number is not divisible by 3 ")
```

10. Write a program to check whether an years is leap year or not.
Ans.

```
yr=int(input("Enter the year"))
if yr%100==0:
if yr%400==0:
            print("Entered year is leap year")
    else:
        print("Entered year is not a leap year")
 else:
             if yr%4==0:
                      print("Entered year is leap year")
            else:
                     print("Entered year is not a leap year")
```

LOOPING STATEMENTS:

1 . for i in "Myblog":
print (i, '?')

Ans. M ?
y ?
b ?
l ?
o ?
g ?

2. for I in range(5):
Print(i)

Ans. 0
1
2
3
4

3. for i in range(10,15):
print(i**)**

Ans. 10
11
12
13
14

4. **Write a program to print first 10 natural number.**

Ans. for I in range(1,11):
Print(i)

5. **Write a program to print first 10 even numbers.**

Ans. for i in range(2,22,2):
print(i)

6. **Write a program to print first 10 odd numbers**.

Ans. for i in range(1,21,2):

print(i)

7. **Write a program to print first 10 even numbers in reverse order.**

Ans. for i in range(20,0,-2):

print(i)

8. **Write a program to print table of a number accepted from user.**

Ans.
```
num = int(input("Enter any number")

for i in range(1,11):

    print(num*i)
```

9. **Write a program to display product of the digits of a number accepted from the user**.

Ans.
```
num=int(input("Enter any number"))
p=1
while(num):
    r=num%10
    p=p*r
    num=num//10
print("Product of digits is",p)
```

10 . **Write a program to find the factorial of a number.**

Ans.
```
num=int(input("Enter any number"))
f=1
for i in range(1,num+1):
    f=f*i
print("Factorial is",f)
```

FUNCTIONS:

1 . Write a program to create a function that takes two arguments, name and age, and print their value.

Ans.
```
def demo(name,age):
        Print(name,age)
Demo("Akash",23)
```

2. Create a function with variable length of arguments

Ans.
```
def fun1(*args):

    For i in args:

        print (i)

fun1(20,40,60)

fun1(80,100)
```

3. Return multiple values from a function

Write a program to create function `calculation()` such that it can accept two variables and calculate addition and subtraction. Also, it must **return both addition and subtraction in a single return call**.

Ans.

```
def calculations(a,b):
    Addition = a+b
    Substraction = a-b
    return Addition, Substraction
res = calculations(40,10)
print(res)
```

4. Write a function that inputs a number and prints the multiplication table of that number**?**

Ans.
```
def mul(num):
    """
    Prints the multipliaction table of a given number
    """
    for i in range(1, 11):
        print("{multiplier} * {multiplicand} = {multiplicantion}".format(
            multiplier=num, multiplicand=i, multiplicantion=num * i))

mul(9)
```

5. Write a program to print twin primes less than 1000. If two consecutive odd numbers are both prime then they are known as twin primes

Ans.
```
def checkPrime(max_num):
    """
    Check whether the given number is prime or not
    """
    for num in range (2, max_num):
        if max_num % num == 0:
            return False
    return True

def twinPrime(max_num):
    """
    Generates the list of twin primes
    """
    for first_num in range(2, max_num):
```

```
        second_num = first_num + 2
        if (checkPrime(first_num) and checkPrime(second_num)):
            print(" {0} and {1}".format(first_num, second_num))

print("Twin Prime: ")
twinPrime(1000)
```

6. Write a program to find out the prime factors of a number. Example: prime factors of 56 - 2, 2, 2, 7.

```
Ans. import math

prime_list = []

def primeFactors(num):
    """
    Returns the prime factors of a number
    """

    # for and while loop takes care of composite numbers
    while num % 2 == 0:
        prime_list.append(2)
        num = num/2

    # num will be odd by now, thus complexity can be reduced by discarding eve
n numbers
    # sqrt is used to discard composite numbers
    for i in range(3, int(math.sqrt(num))+1, 2):
        while num%i == 0:
            prime_list.append(i)
            num = num/i

    # when num is prime
    if num > 2:
        num = int(num)
        prime_list.append(num)
    return prime_list

primeFactors(56)
```

7. Write a program to implement these formulae of permutations and combinations.

Number of permutations of n objects taken r at a time: p(n, r) = n! / (n-r)!.

Number of combinations of n objects taken r at a time is: c(n, r) = n! / (r!*(n-r)!) = p(n,r) / r!

```
Ans. import operator as op

def factorial(num):
    """
    Returns the factorial of a number
    """
```

```
    if num == 1:
        return num
    return num * factorial(num-1)

def permutation(n, r):
    """
    Returns the permutation of a number
    """
    return int(factorial(n) / factorial(n-r))

def combination(n, r):
    """
    Returns the combinations of a number
    """
    return int(factorial(n) / (factorial(r) * factorial(n-r)))

print("Permutation: ", permutation(15,4))
print("Combination: ", combination(15,4))
```

8. Write a function that converts a decimal number to binary number

```
Ans. def decToBin(num):
    """
    Prints the binary number of a given decimal number using recursion
    """
    if num > 1:
        decToBin(num//2)
    print(num % 2, end="")

decToBin(11)
```

9. What will be output of following code:

Code :-

```
A = 10

def myfunc():

        a=20

        return

print('a=',a)
```

Ans. a = 10

10 . Write a Python function to find the Max of three numbers

Ans.

```
def max_of_two( x, y ):
    if x > y:
        return x
```

```
    return y
def max_of_three( x, y, z ):
    return max_of_two( x, max_of_two( y, z ) )
print(max_of_three(3, 6, -5))
```