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1. Which operator is used to calculate the remainder of a division?

   a. %

   b. //

   c. /

   d. **

Answer: a. %

Explanation: The % operator in Python is used to calculate the remainder of a division operation. For example, 10 % 3 results in 1 because 10 divided by 3 equals 3 with a remainder of 1.

2. What is the result of the expression 4 < 5 and 5 < 6?

   a. True

   b. False

   c. Error

   d. None of the above

Answer: a. True

Explanation: The expression 4 < 5 and 5 < 6 evaluates to True because both conditions are true. In Python, the and operator returns True only if both conditions on its left and right are true.

3. What will be the output of the following code?

print(3 ** 3)

   a. 9

   b. 27

   c. 81

   d. 6

Answer: b.27

Explanation: The code 3 ** 3 calculates 3 raised to the power of 3, which is equal to 27. Therefore, the output will be 27.

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4. What does the expression not (10 == 10) evaluate to?

   a. True
   b. False
   c. Error
   d. None of the above

Answer: b. False

Explanation: The expression 10 == 10 evaluates to True because 10 is indeed equal to 10. The not operator negates this result, so not(10 == 10) evaluates to False.

5. Which operator is used to perform floor division?

   a. %
   b. //
   c. /
   d. **

Answer: b. //

Explanation: The // operator in Python is used to perform floor division, which returns the largest integer less than or equal to the quotient of the division.

6. What will be the output of the following code? print(9 % 4)

   a. 1
   b. 2
   c. 3
   d. 0

Answer: a. 1

Explanation: The % operator calculates the remainder of the division operation. Here, 9 % 4 results in 1 because 9 divided by 4 equals 2 with a remainder of 1.

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7. What does the expression 3 != 3 or 5 > 4 evaluate to?

a. True
b. False
c. Error
d. None of the above

Answer: a. True

Explanation: The expression 3 != 3 evaluates to False because 3 is indeed equal to 3. However, 5 > 4 evaluates to True. Since it is connected by or, if either condition is True, the whole expression evaluates to True.

8. What will be the output of the following code?

```
print(7 // 2)
```

a. 3.5
b. 4
c. 3
d. 2

Answer: c. 3

Explanation: The // operator performs floor division, returning the largest integer less than or equal to the quotient of the division. Here, 7 // 2 results in 3.

9. What does the expression not (3 < 2) evaluate to?

a. True
b. False
c. Error
d. None of the above

Answer: a. True

Explanation: The expression 3 < 2 evaluates to False because 3 is not less than 2. The not operator negates this result, so not (3 < 2) evaluates to True.

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10. Which operator is used to perform logical AND operation?

a. &
b. &&
c. and
d. AND

Answer: c. and

Explanation: The and keyword is used in Python to perform logical AND operation between two operands.

11. What will be the output of the following code?

```
print(2 ** 0)
```

a. 1
b. 0
c. 2
d. 3

Answer: a. 1

Explanation: Any number raised to the power of 0 equals 1. So, 2 ** 0 results in 1.

12. What does the expression 10 == 10 and 5 > 6 evaluate to?

a. True
b. False
c. Error
d. None of the above

Answer: b. False

Explanation: The expression 10 == 10 evaluates to True because 10 is equal to 10. However, 5 > 6 evaluates to False. Since it is connected by and, both conditions must be True for the whole expression to be True.

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13. Which operator is used to perform logical OR operation?

a. |

b. ||

c. or

d. OR

Answer: c. or

Explanation: The or keyword is used in Python to perform logical OR operation between two operands.

14. What does the expression (5 != 5) or (6 >= 6) evaluate to?

a. True

b. False

c. Error

d. None of the above

Answer: a. True

Explanation: The expression (5 != 5) evaluates to False because 5 is equal to 5. However, (6 >= 6) evaluates to True. Since it is connected by or, if either condition is True, the whole expression evaluates to True.

15. Which operator is used to perform bitwise XOR operation?

a. ^

b. ^^

c. xor

d. XOR

Answer: a. ^

Explanation: The ^ operator in Python is used to perform bitwise XOR operation between two operands.

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16. Which operator is used to perform left shift?

a. <<
b. >>
c. <<>>
d. LSH

Answer: a. <<

Explanation: The << operator in Python is used to perform left shift operation on the binary representation of a number.

17. What does the expression (6 > 5) or (7 <= 7) evaluate to?

a. True
b. False
c. Error
d. None of the above

Answer: a. True

Explanation: Both conditions (6 > 5) and (7 <= 7) are True, and since they are connected by or, the whole expression evaluates to True.

18. What is the result of the following expression in Python?

```
10 * (3 + 5) // 2
```

a. 40
b. 35
c. 20
d. 25

Answer: a. 40

Explanation: Parentheses have higher precedence than multiplication, which has higher precedence than floor division, so the expression is evaluated as 10 * (3 + 5) // 2, resulting in 40.

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19. What is the result of the following expression in Python?

8 / 2 + 2 * 3

a. 14
b. 10.0
c. 12
d. 16

Answer: b.10.0

Explantion: Multiplication and division have the same precedence and are evaluated from left to right, so the expression is evaluated as 8 / 2 + 2 * 3, resulting in 10.0.

20. What is the result of the following expression in Python?

5 + 2 * 3 ** 2

a. 35
b. 23
c. 25
d. 17

Answer: b.23

Explanation: Exponentiation has higher precedence than multiplication, which has higher precedence than addition, so the expression is evaluated as 5 + (2 * 3 ** 2), resulting in 23.

21. What is the result of the following expression in Python?

10 > 5 < 2

a. True
b. False
c. 7
d. Error

Answer: b. False

Explanation: Chained comparison operators are evaluated left to right, so 10 > 5 < 2 evaluates to False.

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22. What is the result of the following expression in Python?

-5 // 2

a. -2
b. -3
c. 2
d. 3

Answer: b. -3

Explanation: Floor division always rounds towards negative infinity, so -5 // 2 equals -3.

23. What will be the result of the following expression?

8 % 3 + 2 ** 2 * (2 + 2)

a. 21
b. 20
c. 19
d. 18

Answer: d. 18

Explanation: First, 8 % 3 results in 2. Then, 2 ** 2 results in 4. Next, (2 + 2) results in 4. So, the expression becomes 2 + 4 * 4, which equals 18.

24. What does the following expression evaluate to?

(3 + 2) * 4 / 2 ** 2

a. 12.0
b. 5.0
c. 10.0
d. 6.0

Answer: b. 5.0

Explanation: Parentheses are evaluated first, so (3 + 2) becomes 5. Then, 2 ** 2 is 4. After that, 5 * 4 is 20, and finally, 20 / 4 equals 5.0.

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25. What will be the output of the following code snippet?

```
x = 5
y = x * 2 if x < 10 else x / 2
print(y)
```

a. 10
b. 2.5
c. 5
d. 25

Answer: a. 10

Explanation: Since x is less than 10, the expression x * 2 is evaluated, resulting in 10.

26. What does the expression bool(0) evaluate to?

a. True
b. False
c. None
d. Error

Answer: b. False

Explanation: In Python, 0 is considered as False when converted to a boolean using the bool() function.

27. What does the expression len('Python') return?

a. 7
b. 6
c. 8
d. 5

Answer: b. 6

Explanation: The len() function returns the length of a string, so len('Python') returns 6.

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28. What will be the value of y after executing the following code snippet?

```
x = 5
y = x if x != 5 else x + 2
```

a. 5
b. 7
c. 10
d. Error

Answer: b.7

Explanation: Since x is equal to 5, the value of y will be x + 2, which is 7.

29. 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]
b. [10, 20, 30, 40]
c. [10, 20]
d. [10, 30,20,40]

Answer: b. [10,20,30,40]

Explanation: The '+=' operator for lists performs an in-place modification of the list. Since b was assigned to a, they both reference the same list object. When b is modified with +=, the modification affects the list that both a and b reference. Thus, both a and b will output the modified list [10, 20, 30, 40].

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30. 4 is 100 in binary and 11 is 1011. What is the output of the following bitwise operators?

```
a = 4
b = 11
print(a | b)
print(a >> 2)
```

a. 15
   1

b. 14
   1

c. 12
   2

d. 11
   0

Answer: a.15
1

Explanation: Bitwise OR Operation (a | b):

a = 4 which is 0100 in binary.

b = 11 which is 1011 in binary.

Result: 1111 in binary, which is 15 in decimal.

Right Shift Operation (a >> 2):

a = 4 which is 0100 in binary.

Performing the right shift operation by 2 positions:

```
  0100   (4 in binary)
>> 2
--------------
  0001   (1 in binary)
```

Result: 0001 in binary, which is 1 in decimal.

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31. What is the output of the following code

```
x = 100
y = 50
print(x and y)
```

a. True
b. 100
c. False
d. 50

Answer: d.50

Explanation: x is 100, which is True.

Since x is True, the and operator evaluates and returns y.

y is 50, so the expression x and y returns 50.

32. What is the output of the expression print(-18 // 4)?

a. -4
b. 4
c. -5
d. 5

Answer: c.-5

Explanation: First, perform the division: −18÷4

−18÷4=−4.5.

Since floor division rounds down towards negative infinity, we round

−−4.5 down to −5.

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33. 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

Answer: b. False True True True

Explanation:

bool(0):0 is considered False.

bool(3.14159):3.14159 is a non-zero floating-point number, which is considered True.

bool(-3):-3 is a non-zero integer, which is considered True.

bool(1.0+1j):1.0+1j is a complex number, which is considered True.

34. What is the output of the following assignment operator

```
y = 10
x = y += 2
print(x)
```

a. 12
b. 10
c. Syntax Error
d. 15

Answer: c. Syntax Error

Explanation: Assignment Operator Chaining: In Python, you cannot chain an assignment operation (+=) directly within another assignment operation (=). The += operation modifies the variable y in place, and it is not designed to return a value that can be directly assigned to another variable in the same expression

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35. Which is the correct operator for power(xy)?
    a. x^y
    b. x**y
    c. x^^y
    d. None of the mentioned

Answer: b. xy**

Explanation: In python, power operator is x**y i.e. 2**3=8.

36. Which one of these is floor division?
    a. /
    b. //
    c. %
    d. None of the mentioned

Answer: b.//

Explanation: When both of the operands are integer then python chops out the fraction part and gives you the round off value, to get the accurate answer use floor division. This is floor division. For ex, 5/2 = 2.5 but both of the operands are integer so answer of this expression in python is 2. To get the 2.5 answer, use floor division.

37. What is the order of precedence in python?

i) Parentheses

ii) Exponential

iii) Multiplication

iv) Division

v) Addition

vi) Subtraction

    a. i,ii,iii,iv,v,vi
    b. ii,i,iii,iv,v,vi
    c. ii,i,iv,iii,v,vi
    d. i,ii,iii,iv,vi,v

Answer: a. i, ii, iii, iv, v, vi

Explanation: I operation on string even if the string is in the form: '1234…'.

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38. What is the output of this expression, 3*1**3?

a. 27
b. 9
c. 3
d. 1

Answer: c.3

Explanation: First this expression will solve 1**3 because exponential has higher precedence than multiplication, so 1**3 = 1 and 3*1 = 3. Final answer is 3.

39. Which one of the following has the same precedence level?

a. Addition and Subtraction
b. Multiplication, Division and Addition
c. Multiplication, Division, Addition and Subtraction
d. Addition and Multiplication

Answer: a. Addition and Subtraction

Explanation: "Addition and Subtraction" are at the same precedence level. Similarly, "Multiplication and Division" are at the same precedence level. However, Multiplication and Division operators are at a higher precedence level than Addition and Subtraction operators.

40. Which one of the following has the highest precedence in the expression?

a. Exponential
b. Addition
c. Multiplication
d. Parentheses

Answer: d. Parentheses

Explanation: Just remember: PEMDAS, that is, Parenthesis, Exponentiation, Division, Multiplication, Addition, Subtraction. Note that the precedence order of Division and Multiplication is the same. Likewise, the order of Addition and Subtraction is also the same.

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41 . Which of the following operators has its associativity from right to left?

a) +

b) //

c) %

d) **

Answer: d.**

Explanation: All of the operators shown above have associativity from left to right, except exponentiation operator (**) which has its associativity from right to left.

42.What will be the value of x in the following Python expression?

x = int(43.55+2/2)

a. 43
b. 44
c. 22
d. 23

Answer: b.44

Explanation: The expression shown above is an example of explicit conversion. It is evaluated as int(43.55+1) = int(44.55) = 44. Hence the result of this expression is 44.

43.Which of the following is the truncation division operator?

a. /
b. %
c. //
d. |

Answer: c. //

Explanation: // is the operator for truncation division. It is called so because it returns only the integer part of the quotient, truncating the decimal part. For example: 20//3 = 6.

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44.What is an operator?

a. A special symbol that performs operations on values and variables
b. A type of variable
c. A built-in function
d. A string literal

Answer: a. A special symbol that performs operations on values and variables

45.What is an operand?

a. A type of operator
b. A keyword
c. The variables or constants on which the operators work
d. A comment

Answer: c. The variables or constants on which the operators work

46.What is an expression?

a. A command-line argument
b. A standalone variable
c. A built-in constant
d. A combination of values, variables, and operators that evaluates to a single value

Answer: d. A combination of values, variables, and operators that evaluates to a single value

47.How many operators are there in this expression?

a=b+c∗d−e/f

a. 6
b. 5
c. 3
d. 2

Answer: b. 5

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48.How many operators are there in this expression?

3+5∗(2−8)/4

a. 4
b. 5
c. 6
d. 3

Answer: a. 4

49.How many operands are there in this expression?

m=n∗(p+q/r)−s

a. 5
b. 6
c. 7
d. 3

Answer: b. 6

50.What is an unary operator?

a. It takes only one operand and performs an operation.
b. It requires two operands.
c. This operator requires three operands
d. It doesn't perform any operation

Answer: a. It takes only one operand and performs an operation

51.What is a binary operator?

a. It takes two operands and performs a specific operation
b. It takes only one operand and performs an operation.
c. This operator requires three operands
d. Shift the bit position one bit to the left.

Answer: a. It takes two operands and performs a specific operation

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52.What kind of operator is '**'?

a. exponentiation operator
b. Bitwise operator
c. Relational operator
d. Logical Operator

Answer: a. exponentiation operator

53.Which is not an arithmetic operator?

a. Plus(+)
b. Minus(-)
c. Multiplication
d. And

Answer: d. And

54.Which is not a relational operator?

a. Less than(<)
b. Greater than(>)
c. Equal to(==)
d. Bitwise or(|)

Answer: d. Bitwise or(|)

55.Which is not a logical operator?

a. And
b. Or
c. Not
d. XOR

Answer: d. XOR

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56.Which is not an assignment operator?

a. (+=)
b. (-=)
c. (*=)
d. (//)

Answer: d. (//)

57.What kind of an operator is 'in' operator?

a. Membership Operator
b. Arithmetic Operator
c. Bitwise Operator
d. Relational operator

Answer: a. Membership Operator

58.What kind of an operator is 'not in' operator?

a. Membership Operator
b. Arithmetic Operator
c. Bitwise Operator
d. Relational operator

Answer: a. Membership Operator

59.What does the '%' operator return?

a. Remainder
b. Quotient
c. 0
d. 1

Answer: a. Remainder

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60.What is the result of 12345%10?

a. 1234
b. 5
c. 1
d. 0

Answer: b.5

61.What is the result of the relational operation?

a. True/False
b. Integer
c. Float
d. Complex

Answer: a. True/False

62.What is the purpose of the '==' operator?

a. It checks if the values on both sides are equal
b. It checks if the values on both sides are not
c. It is used to assign values to variables.
d. It compares memory addresses rather than values

Answer: a. It checks if the values on both sides are equal

63.What is the purpose of 1's complement?

a. To invert all the bits in a binary number
b. To convert a binary number to its decimal equivalent
c. To round off a binary number to the nearest integer
d. To represent negative numbers in binary

Answer: a. To invert all the bits in a binary number

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64.Which of the following statements about 1's complement is false?

a. It has two representations for zero: positive zero and negative zero.
b. Adding two 1's complement numbers can result in a carry-out bit.
c. The highest positive number is one less than the highest negative number.
d. 1's complement arithmetic has issues with overflow and underflow.

Answer: c. The highest positive number is one less than the highest negative number.

65.What is the result of taking the 1's complement of the binary number 10110110?

a. 01001001
b. 01001010
c. 01001000
d. 01001011

Answer: b. 01001010

66.What is the result of the bitwise AND operation between 1010 and 1100?

a. 1000
b. 1010
c. 1100
d. 1110

Answer: a. 1000

67.What is the result of the bitwise OR operation between 1011 and 1100?

a. 1011
b. 1100
c. 1111
d. 0101

Answer: c. 1111

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68.What is the result of the bitwise XOR operation between 1010 and 1100?

a. 0110
b. 1010
c. 1100
d. 1110

Answer: a. 0110

69.Which bitwise operation is used to shift bits to the left by a specified number of positions?

a. AND
b. OR
c. XOR
d. Shift Left

Answer: d. Shift Left

70.What is the result of the bitwise NOT operation on the binary number 0101?

a. 1010
b. 1011
c. 1100
d. 1110

Answer: a.1010

71.In most programming languages, which symbol represents the less than relational operator?

a. =
b. ==
c. <
d. <=

Answer: c.<

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72.What is the result of the expression: 5 > 3?

a. True
b. False
c. Undefined
d. Error

Answer: a.True

73.Which relational operator is used to check if two values are not equal to each other?

a. =
b. ==
c. !=
d. <=

Answer: c. !=

74.In the expression "x <= y", what does the relational operator "<=" signify?

a. x is less than y
b. x is less than or equal to y
c. x is greater than y
d. x is greater than or equal to y

Answer: b. x is less than or equal to y

75.What is the result of the expression: 10 == 10.0?

a. True
b. False
c. Undefined
d. Error

Answer: a.True

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76.Which relational operator is used to check if one value is greater than another?

a. >
b. >=
c. <
d. <=

Answer: a. >

77.If x = 5 and y = 7, what is the result of the expression "x != y"?

a. True
b. False
c. Undefined
d. Error

Answer: a. True

78.In most programming languages, which symbol represents the logical AND operator?

a. &&
b. ||
c. !
d. &

Answer: a. &&

79.What is the result of the expression: true && false?

a. true
b. false
c. undefined
d. error

Answer: b. false

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80.Which logical operator is used to check if at least one of two conditions is true?

a. &&
b. ||
c. !
d. &

Answer: b.||

81.In the expression "x > 5 && y < 10", what does the logical operator "&&" signify?

a. Both x and y are greater than 5
b. Either x or y is greater than 5
c. Both x and y are less than 10
d. Both x and y are true

Answer: c. Both x and y are less than 10

82.What is the result of the expression: !(5 > 3)?

a. true
b. false
c. undefined
d. error

Answer: b. false

83.Which logical operator is used to check if both conditions are false?

a. &&
b. ||
c. !
d. &

Answer: c.!

84.If x = 5 and y = 7, what is the result of the expression "x > 3 || y < 6"?

a. True
b. False
c. Undefined
d. Error

Answer: a. True