Here's a categorized list of Python questions and practice problems based on **variables, data types, if-else statements (including nested and ladder if-else), operators, and user input**.

**Simple Questions (Basic Concepts & Syntax) gpt**

1. **Variables & Data Types**
   * Write a program to store your name, age, and favorite color in variables and print them.
   * Take two numbers as input and print their sum.
   * What is the output of the following?

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a = "10"

b = 5

print(a \* b)

* + Take user input for a number and check if it is an **integer or string** using type().
  + Convert a user-inputted string number into an integer and multiply it by 2.

1. **Operators**
   * Take two numbers as input and print the result of **all arithmetic operations** (+, -, \*, /, %, \*\*, //).
   * What is the output of print(10 > 5 and 5 < 2)?
   * Write a program to swap two numbers **without using a third variable**.
   * Take a number as input and check if it is **even or odd** using the modulus operator.
   * Predict the output:

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x = 5

y = "5"

print(x == y)

print(x != y)

print(x + int(y))

1. **If-Else Conditions**
   * Write a program to check if a number is **positive, negative, or zero**.
   * Take user input for an age and print whether they are a **child, teenager, adult, or senior citizen**.
   * Check if a user-inputted number is **divisible by 5 and 11**.
   * Ask the user for a password and print "Access Granted" if it matches "Python123", otherwise print "Access Denied".
   * Write a program to determine whether a given year is a **leap year or not**.

**Intermediate Questions (Logic Building)**

1. **Nested If-Else & Ladder If-Else**
   * Take input for marks in **three subjects** and determine if the student **passed or failed** (Pass if all subjects >= 35).
   * Modify the above question to assign **grades** (A, B, C, Fail) using ladder if-else.
   * Check if a given number is **positive, negative, or zero** and also check if it is **even or odd**.
   * Take three numbers as input and determine the **largest** among them.
   * Take input for the day number (1-7) and print the corresponding **weekday name** using if-else conditions.
   * Check whether a given **character is a vowel or consonant**.
   * Take the length and breadth of a shape as input and determine if it is a **square or rectangle**.
2. **Logical & Comparison Operators**
   * Take a username and password from the user and validate whether they are correct (using ==).
   * Take two numbers and check whether both are **positive, negative, or one of each**.
   * Take an **age and citizenship** status as input and determine if a person is eligible to vote.
   * Ask the user for their **income** and determine their **tax bracket** (No Tax, 10%, 20%, 30%).
   * Write a program to find the **smallest** among four numbers using nested if-else.
   * Take a single character as input and check if it is **uppercase, lowercase, digit, or special character**.

**Advanced Questions (Tricky, Confusing & Logical Thinking)**

1. **Complex If-Else & Edge Cases**
   * Take three sides as input and determine if they can form a **valid triangle**.
   * Modify the above question to classify the triangle as **Equilateral, Isosceles, or Scalene**.
   * Implement a simple **login system** where the user gets only **three attempts** to enter the correct password.
   * Write a program that takes **two integer inputs** and prints "Yes" if the first is a **multiple** of the second.
   * Take an input number and check whether it is a **three-digit number** or not.
   * Take three angles as input and determine if they form a **valid triangle** (sum should be 180°).
   * Check if a number is **divisible by both 3 and 5** but **not divisible by 2**.
   * Take a four-digit number as input and check whether it is a **palindrome** (1221, 4334 are palindromes).
   * Take a number as input and determine if it is **prime or not** (using if-else, no loops).
   * Ask for **two numbers and an operator** (+, -, \*, /) and perform the respective operation (like a calculator).

**Bonus Challenge Questions 🚀**

1. Take a **floating-point number** as input and check if it is an **integer or decimal**.
2. Create a program that takes **date (day, month, year)** as input and checks if it is a **valid date**.
3. Take a character as input and check whether it is a **letter, number, or symbol**.
4. Write a program to classify a number as **small (1-10), medium (11-100), or large (101 and above)**.
5. Without using max() function, find the largest of **five numbers** using nested if-else.
6. Implement a **simple ATM machine** where users can withdraw money (checking if they have a sufficient balance).

**How These Will Help You Improve?**

✔ **Simple Questions** build your **syntax familiarity**.  
✔ **Intermediate Questions** improve your **logical thinking** and **nested conditions understanding**.  
✔ **Advanced Questions** boost your **problem-solving skills** and help you handle **edge cases**.

Would you like **solutions** for any of these? Or should I add more **real-world practice problems**? 🚀

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