section 1: strings - basic concepts (10 questions)

1. what is a string in python?  
   a string is a sequence of characters, like text.
2. how do you declare a string literal in python?  
   by putting text in single quotes ('hello') or double quotes ("hello").
3. which operator is used to concatenate two strings?  
   the plus sign (+).
4. how do you access the first character of a string s?  
   s[0].
5. what will be the output of len('hello')?

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1. which method is used to convert all characters of a string to uppercase?  
   .upper().
2. how do you check if a string s starts with the letter 'a'?  
   s.startswith('A').
3. what does the strip() method do in python?  
   it removes spaces (or other specified characters) from the start and end of a string.
4. what is the difference between isalpha() and isdigit() string methods?  
   isalpha() checks if all characters are letters; isdigit() checks if all are numbers.
5. how can you replace all occurrences of the letter 'a' with '@' in a string s?  
   s.replace('a', '@').

section 2: string methods - usage & examples (10 questions)

1. write the syntax and usage of the find() method.  
   s.find('sub') → returns the index of first occurrence of 'sub' or -1 if not found.
2. what is the difference between the find() and index() methods?  
   both return index, but index() raises an error if not found; find() returns -1.
3. what is the return type of the split() method?  
   a list.
4. how do you join a list of strings into a single string?  
   ' '.join(list\_of\_strings).
5. which method checks if all characters in a string are lowercase?  
   .islower().
6. how do you convert a string to title case in python?  
   s.title().
7. what will be the output of 'hello'.lower()?  
   'hello' (already lowercase).
8. how can you count the number of occurrences of a substring in a string?  
   s.count('sub').
9. write an example demonstrating the use of startswith() method.  
   s = "Apple"; s.startswith("A") → returns True.
10. what will be the output of ' hello '.lstrip()?  
    'hello ' (removes spaces on the left).

section 3: assignment operators - conceptual & examples (5 questions)

1. what is the difference between = and == operators in python?  
   = assigns a value; == checks if values are equal.
2. what is the meaning of a += 5 in python?  
   it means a = a + 5.
3. what happens when you write a = b = 10 in python?  
   both a and b get the value 10.
4. explain the working of a \*= 2 with an example.  
   if a is 3, then a \*= 2 makes a become 6.
5. which operator is used for floor division assignment in python?  
   //=.

section 4: arithmetic operators - concepts & examples (10 questions)

1. list all arithmetic operators used in python.  
   +, -, \*, /, //, %, \*\*.
2. what will be the output of 5 + 3 \* 2 in python?  
   11 (because multiplication happens first).
3. what will be the result of 10 / 3 in python?  
   3.333... (float).
4. what is the difference between / and // operators?  
   / gives float division; // gives floor division (rounds down).
5. what will be the result of 2 \*\* 3 in python?  
   8 (2 to the power of 3).
6. what is the modulus operator used for?  
   it gives the remainder after division.
7. what will be the output of -5 % 3 in python?

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1. what is the precedence order of arithmetic operators in python?  
   \*\* > \* / // % > + -.
2. what will be the result of 4 + 3 - 2 \* 2 / 1?  
   3.0 (multiplication/division first → 2\*2=4; 4/1=4; then 4+3=7; 7-4=3).
3. which arithmetic operator is used to calculate powers in python?  
   \*\*.

section 5: mixed code-based questions (5 questions)

1. write a python expression that concatenates 'hello' and 'world' with a space in between.  
   'hello' + ' ' + 'world'.
2. given s = "hello", write python code to print the last character of s.  
   print(s[-1]).
3. if a = 5, write an expression to multiply a by 2 using the assignment operator.  
   a \*= 2.
4. given s = "python", write python code to print the substring 'yth'.  
   print(s[1:4]).
5. write a python expression to check if the word 'apple' is present in the string 'i have an apple'.  
   'apple' in 'i have an apple'.