

1. What is the final value of “result”?

```
int a = 10;  
int b = 6;  
int result = a % b;
```
2. In your own words, briefly explain what does the `std::cin` object do?
3. What is the output of this code?

```
int x = 10;  
if (x > 5) {  
    cout << "A";  
}  
if (x < 11) {  
    cout << "B";  
}
```
4. True/False: In a switch statement, the default case is mandatory.
5. True/False: An if statement can exist without a corresponding else statement.
6. Which loop is guaranteed to execute at least once?
7. True/False: The continue statement skips the rest of the current loop iteration and proceeds to the next one.
8. True/False: You can change the size of a standard C++ array after it is declared.
9. Which vector method removes the last element?
 - a) `pop_back()`
 - b) `remove_back()`
 - c) `delete_back()`
 - d) `erase_back()`
10. True/False: Function overloading allows you to have multiple functions with the same name but different parameters.
11. What is the purpose of the protected access specifier?
 - a) Accessible only within the class
 - b) Accessible from anywhere
 - c) Accessible within the class and its derived classes

12. Which access specifier allows members to be accessed from outside the class?
- a) private
 - b) protected
 - c) public
 - d) hidden
13. Which header file is required for file input and output?
- a) <iostream>
 - b) <fstream>
 - c) <sstream>
14. True/False: Code that might cause an exception is placed inside a try block.
15. True/False: You can have multiple catch blocks for a single try block.
16. In your own words, briefly explain what is recursion?
17. True/False: Every recursive function must have a base case to prevent infinite recursion.
18. What does a catch block with ... (ellipsis) catch?
19. Write a function that takes an integer as a parameter and returns true if the number is even, and false if it is odd.
20. Create a class named Rectangle that has:
- Two private member variables: length and width (both doubles)
 - A public constructor that takes two parameters to initialize length and width
 - A public member function calculateArea() that returns the area of the rectangle (length × width)