JS Assignment

1. **Basic Operators (Arithmetic, Assignment, Increment, Decrement, Comparison, Logical, Bitwise)**

   a. Create two numbers a = 10 and b = 3.
      Perform and log: a + b, a - b, a * b, a / b, a % b.

   b. Write: let x = 5; x = x + 3;
      Now rewrite the same using +=.
      Do the same for -=, *=, /=.

   c. let count = 5;
      Use count++ and log value before and after.
      Repeat for count–.

   d. Compare two values: 5 == "5" and 5 === "5".
      Observe difference.

   e. Check if 10 is greater than 5, less than 20, and equal to 10.

   f. Try logical AND and OR:
      true && false
      true || false
      !(true)

   g. Predict the result of:
      (5 > 3 && 10 > 8),
      (5 > 3 || 10 < 8)

   h. Bitwise (light intro):
      Evaluate 5 & 1 and 5 | 1.
      Write result and your observation (no deep explanation needed now).

2. **Variable Hoisting in JavaScript**

   a. Predict output of:
      console.log(a);
      var a = 10

b. Predict output of:
   console.log(b);
   let b = 10

c. Predict output of:
   test()
   function test() { console.log("Hello") }

d. Try writing a function expression before initialization and call it:
   hello()
   var hello = function() { console.log("Hi") }
   Write what happened and why.

e. Write one sentence:
   What gets hoisted?
   What does not get hoisted fully?

3. Conditional Operators (if, else, else-if, ternary, switch)

   a. Take input using prompt for age.
      If age > 18 → log "Adult".
      Else → log "Minor".

   b. Write a program:
      If marks >= 90 → "A grade"
      Else if marks >= 75 → "B grade"
      Else if marks >= 50 → "C grade"
      Else → "Fail"

   c. Create a variable city = "Bhopal".
      If city is "Bhopal" → log "MP"
      Else if city is "Delhi" → log "Capital"
      Else → log "Unknown City"

   d. Use ternary operator:
      Let score = 40.
      If score > 35 → "Pass" else "Fail" using a ternary.

   e. Convert this if-else into a ternary:
      if (temperature > 30) { "Hot" } else { "Pleasant" }

f. Write a switch case:
    Take day number (1 to 7).
    Print the day name.
    Default case: "Invalid Day".

g. Using logical operators in condition:
    If age > 18 and country == "India" → log "Eligible for Vote"
    Else → "Not Eligible"