JavaScript (4 points)

- What are some advantages of using JavaScript in web development?

JavaScript Syntax (4 points)

- Question 1: Identify and correct the syntax errors in the following code:
  - var number = 10;
  - console.log (Number + 5);
- Question 2: Write a JavaScript function called isEven that takes a number as an argument and returns true if the number is even and false if it is odd.
- Question 3: Write a JavaScript function called isPalindrome that takes a string as an argument and returns true if it is a palindrome (reads the same forwards and backwards) and false otherwise.

Variables (6 points)

- Question 1: Declare a variable called name and assign it a string value of your choice. Then, display a message that says "Hello, [name]!" using the value of the name variable.
- Question 2: Create two variables, x, and y, and assign them numerical values. Swap the x and y values using a third variable and display the updated values.

Numbers (6 points)

- Question 1: Calculate the square root of a given number and store the result in a variable called result.
- Question 2: Write a JavaScript function called isPrime that takes a number as an argument and returns true if it is a prime number and false otherwise.
- Question 3: Write a JavaScript function called generateRandomNumber that takes two numbers, min, and max, as arguments and returns a random number between min and max

Operators (6 points)

- Question 1: Given the variables a = 10 and b = 3, what is the value of the following expression: a % b?
- Question 2: Write a JavaScript function called isInRange that takes a number as an argument and returns true if it falls within a specific range (e.g., between 10 and 20) and false otherwise.
- Question 3: Given the variables a = 5, b = 3, and c = 2, what is the value of the following expression: a > b || c < b && a === c?

Boolean (6 points)

- Question 1: Write a condition that checks whether a variable isRaining is true and a variable isSunny is false. Store the result in a variable called shouldStayInside.
- Question 2: Write a JavaScript function called hasPermission that takes two boolean parameters, isUserLoggedIn and isAdmin, and returns true if the user has permission and false otherwise.
- Question 3: Write a JavaScript function called hasUniqueCharacters that takes a string as an argument and returns true if all characters in the string are unique and false otherwise.

Strings (6 points)

- Question 1: Given the string "Hello, World!", write code to convert it to uppercase and store the result in a variable called uppercaseString.

- Question 2: Write a JavaScript function called countVowels that takes a string as an argument and returns the number of vowels present in the string.
- Question 3: Write a JavaScript function called truncateString that takes a string and a number maxLength as arguments and returns a truncated version of the string if it exceeds maxLength, appending an ellipsis ("...") at the end.

Math (6 points)

- Question 1: Generate a random number between 1 and 100 (inclusive) using the Math.random() function and round it to the nearest integer. Store the result in a variable called randomNumber.
- Question 2: Write a JavaScript function called calculateFactorial that takes a number as an argument and returns its factorial.
- Question 3: Write a JavaScript function called calculatePower that takes two numbers, base and exponent, as arguments and returns the result of base raised to the power of exponent.

Conditionals (6 points)

- Question 1: Write an if-else statement that checks whether a variable num is positive, negative, or zero. Print the appropriate message accordingly.
- Question 2: Write a JavaScript function called getDiscount that takes a purchase amount as an argument. If the purchase amount is greater than $100, apply a 10% discount. If it is less than or equal to $100, apply a 5% discount. Return the discounted amount.
- Question 3: Write an if-else statement that checks whether a year is a leap year. Print "Leap year" if it is divisible by 4 but not divisible by 100, or if it is divisible by 400. Otherwise, print "Not a leap year".

Loops and Iterations (6 points)

- Question 1: Write a while loop that prints the numbers from 1 to 20.
- Question 2: Write a JavaScript function called calculateSum that takes a positive integer n as an argument and returns the sum of all numbers from 1 to n.
- Question 3: Write a JavaScript function called calculateFactorialIterative that takes a positive integer n as an argument and calculates its factorial using a loop instead of recursion.

Functions (6 points)

- Question 1: Write a JavaScript function called reverseString that takes a string as an argument and returns the reversed version of the string.
- Question 2: Write a JavaScript function called calculateBMI that takes a person's weight (in kilograms) and height (in meters) as arguments and returns their body mass index (BMI).
- Question 3: Write a JavaScript function called capitalizeWords that takes a sentence as an argument and returns the sentence with each word capitalized.