1. Explain how var works in JavaScript. What is variable hoisting? Give a code example.

Function Scoped: A variable declared with var is scoped to the entire function in which it's declared, or to the global scope if declared outside any function.

Hoisting is JavaScript's behavior of moving declarations to the top of their scope during the compilation phase before code execution.

```
console.log(x);      <-----will print undefined in console

var x = 5;

console.log(x);     <------ will print 5 in console
```

2. What is the scope of a variable declared with var inside a function? What about inside a block (e.g., an if statement)?

it's called function scoope and i can not use that variable outside the function

and inside blick of an if statement the variable will be global and i can use it in any line in my script

3. List all JavaScript primitive types in ES5. Give an example of each.

number - string - boolean - null - undefined

4. What is the difference between a primitive type and an object type? Give an example where this difference is important.

Primitive Type: Holds the actual data directly

Object Type: Holds a reference to data in memory

5. Create a number, string, and boolean using both literal and constructor syntax. Show the difference in their types using typeof.

```
> var x = new Number(10);
  console.log(typeof x);
  x = 5;
  console.log(typeof x)
object
number
```

```
> var x = new String("Beshoy");
  console.log(typeof x);
  x = "Bshoy";
  console.log(typeof x)
object
string
```

```
> var x = new Boolean(1);
  console.log(typeof x);
  x = true;
  console.log(typeof x)
object
boolean
```

6. Why is it generally recommended to use literals instead of constructors for primitive types?

because it's easy to read and write instead of constructors

7. Given the following code, what will be the output? Explain why.

var x = 123.4567;

console.log(x.toFixed(2));

console.log(x.toPrecision(4));

line1---> 123.45

line2---> 123.5

8. What is NaN? How can you check if a value is NaN? Give an example.

NaN: refer to not a number like while i am trying to convert that "bio" into number

I can check using isNaN("a")

9. What is the difference between parseInt, parseFloat, and Number? Give an example for each.

if i use

parseInt on string like that "12.5" it will return 12 as an integer number and cancel the 0.5

parseFloat it will return 12.5 as float number

10. What is the difference between implicit and explicit type casting? Give an example of each.

Implicit:

JavaScript automatically converts types when needed

"5" + 2 results in "52" (number 2 is converted to string)

Explicit:

You manually convert a value using functions or syntax

Number("5") + 2 results in 7 (string "5" converted to number)

11. What will be the result and type of the following expressions? Explain your answer.

- true + 5

- "10" - 2

- 12 - "1a"

- 5 / 0

- 5 + undefined

line1 -----> print 6

line2 -----> print 8

line3 -----> NaN

line4 ------> infinity

line5 ------> NaN

12. What will be logged to the console in the following code? Explain each step.

var a = "15.5";

var b = +a;

console.log(b, typeof b);

b is number and the output will be:

15.5 'number'

because we added +a that will convert it into number

13. What will be the output of:

var result = 20 > true < 5 == 1;

console.log(result);

Explain why.

the output is: true

true in js = 1

20>true = true

true < 5 = true

true == 1 ---> true

14. Write a function that takes a string and returns true if it can be converted to a valid number, and false otherwise.

```
> function canConvertIntoNum(s){
      if(!isNaN(s)){return true;}
      return false;
  }
< undefined
> canConvertIntoNum("123")
< true
```

15. Write a program that prints all numbers from 1 to 20 using a while loop.

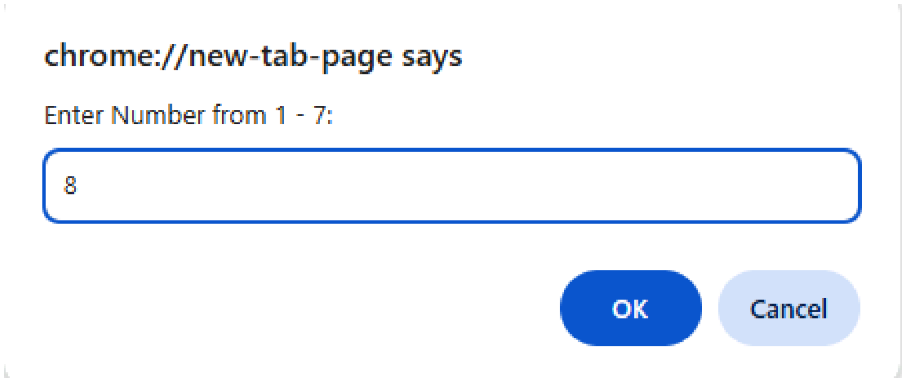
```
> while(i <= 20){console.log(i); i++;}
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
< 20
```

16. Write a program that asks the user to enter numbers until they enter 0, using a do...while loop. After the loop ends, print the sum of all entered numbers (excluding 0).

```
> var count = 0
  do{
      var i = prompt("Enter Your Number: ");
      count += +i;
  }while(i != '0')
< 12
```

i entered 5, 4, 2, 1

17. Write a program that takes a number from 1 to 7 and prints the corresponding day of the week using a switch statement. Use a for loop to test your program with all numbers from 1 to 7.




```
> function day(){
      var number = prompt("Enter Number from 1 - 7: ");
      if(+number > 7 || +number < 1){console.log("must be from 1 to 7");return;}
      switch(+number){
          case 1: console.log("suterday");break;
          case 2: console.log("sunday");break;
          case 3: console.log("monday");break;
          case 4: console.log("tuesday");break;
          case 5: console.log("wednsday");break;
          case 6: console.log("thrusday");break;
          case 7: console.log("friday");break;
      }
  }
< undefined
> day()
  suterday
< undefined
> day()
  must be from 1 to 7
< undefined
```