Javascript Scope Exercises

1. Determine what this Javascript code will print out (without running it):

```
x = 1;
var a = 5;
var b = 10;
var c = function (a, b, c) {
   var x = 10;
   document.write(x);   //  Display: 10
   document.write(a);  // Display: 8
   var f = function (a, b, c) {
       b = a;  //  b have a new value , b=a=8
       document.write(b); // Display: 8
      b = c;  //  b have a new value , b=c=10
      var x = 5;
   }
       f(a, b, c);
         document.write(b); // Display: 9
}
    c(8, 9, 10);
    document.write(b); // Display:  10
 document.write(x); // Display:  1
}
```

Answer: 10 8 8 9 10 1

2- What is the difference between a method and function?

Answer:

- A JavaScript function is a block of code designed to perform a particular task.
- A JavaScript methods are actions that can be performed on objects.

3- What does 'this' refer to when used in a Java method?

Answer: " this " in java method refers to the current class method (implicitly).

4- What does 'this' refer to when used in a JavaScript method?

Answer: " this " in JavaScript method refers to the **owner** of the method.

5- What does 'this' refer to when used in a JavaScript constructor function?

Answer: In a constructor function **this** does not have a value. It is a substitute for the new object. The value of **this** will become the new object when a new object is created.

6- **Assume object x is the prototype for object y in Javascript. Object x has a method f( ) containing keyword 'this'. When f is called by x.f( ), what does 'this' refer to?**

Answer: The will use the name of his Owner.

7- What is a free variable in JavaScript?

Answer: A variable referred to by a function that is not one of its parameters or local variables.

8- Create an object that has properties with name = "fred" and major="music" and a property that is a function that takes 2 numbers and returns the smallest of the two, or the square of the two if they are equal.

Answer:

```
var myObject = (function (n, m) {
  var name = n;
  var major = m;
  return {
            getResult: function (num1, num2) {
               if (num1 > num2) {
                    return  num2;
              }          else if (num1 < num2) {
                   return num1;
         }
         return num1 * num2;
     }
  };
}) ("fred", "music");
```

9- Write Javascript code for creating three Employee objects using the "new" keyword and a constructor function. Employee objects have the following fields: name, salary, position?

Answer:

```
function Employee (name, age, sex) {
                    this.name = name;
                     this.salary = salary;
                     this. position =position;
 }
```

1. var joseph = new Employee ("DArimathe JOSEPH", 50000, "Manager");
2. var bob = new Employee ("Bob Jones", 40000, "Junior Developer ");
3. var tom= new Employee ("Tom John", 40000, "Junior Developer ");

10- Write a Javascript function that takes any number of input arguments and returns the product of the arguments.

Answer:

```
function product() {
                var i;
                 var prod = 1;
                    for (i = 0; i < arguments.length; i++) {
                                prod *= arguments[i];
                     }
          return prod;
   }

   result = product(3,8,9,5);
```

11-Write an arrow function that returns the maximum of its three input arguments.

Answer:

```
const maximumOfThreeValue=( a,b,c)=>{
        if(a>b && a>c) {
                    return a;
                 }
            else if(b>a && b>c)
                 {
                       return b;
                   }
                 return c;
              };
   result = maximumOfThreeValue(3,90,5);
```