

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);
document.write(a);
var f = function(a, b, c) {
    b = a;
    document.write(b);
    b = c;
    var x = 5;
}
f(a,b,c);
document.write(b);
}
c(8,9,10);
document.write(b);
document.write(x);
}
```

Soln: 10 8 8 9 10 1

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

Soln: Function is a set of code to do some task in JavaScript. Method is also a function which is used as a property in Object.

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

Soln: It might refer to the class itself, the methods of the class or the private instance variables of the class.

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

Soln: It refers to the "owner" of the method.

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

Soln: The keyword this inside the constructor function points to the newly created object.

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?

Soln: It first refers to x(own), if property is not found it might refer to y(inherited) property.

7. What is a free variable in JavaScript?

Soln: Free variables are simply the variables that are neither locally declared nor passed as parameter.

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.

Soln:

```
var x={
name:fred,
major:music,
compare: function(a,b) {
if(a===b) { return (a+b)*(a+b); }
else {
if(a>b) return b;
else return a;
}
};
};
```

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.

Soln:

```
function Employee(name, salary, position) {  
  this.name=name;  
  this.salary=salary;  
  this.position=position;  
}  
var Wuletaw = new Employee("Wuletaw Adane", 120000, "Software  
Developer");  
var Dawit = new Employee("Dawit Molla", 135000, "Senior Software  
Developer");  
var Henok = new Employee("Henok Alemu", 160000, "Manager");
```

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

Soln:

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

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

Soln:

```
var max=(a, b, c) => { if (a >= b && a >= c) return a;  
else if (b >= a && b >= c) return b;  
else return c;  
}
```