Important Questions
2, 8, 14, 19, 22

CS303 Midterm I

Name:	Id:

The exam takes 2.5 hours.

Please read the exam policy before you start the exam.

Exam Policy:

You can bring one sheet of handwritten notes to the exam. You must turn this sheet and any scratch paper you use in at the end of the exam.

There is no tolerance policy for academic dishonesty on exams. **You will be asked to leave the exam room immediately without a warning** if you do the following things which mean you'll get an **NC**.

1. You are caught cheating or trying to cheat.
2. Answers should be written with a Pen or Pencil, but if you want to use a pencil please bring your own eraser and sharpener. You're not allowed to borrow from other students during the exam.
3. All mobile phones should be turned off and stored with your coat or backpack.
4. You're not allowed to go to restroom or go out room for water.
5. You are not allowed to ask or get extra papers from other students.

Please write down your answer clearly. If I cannot read your answer, you'll not get credit.

Good luck!

1. [5] Fill in the blanks

```
let start = 0;
function someFun(num) {100
   let jordan = 23;
   if (num >= 0) {
      num = Math.sqrt(num)10
   }
   start = jordan  + num;33
   console.log(num + " " + Jordan + " " +  start); _______10 23 33_____________
        return num;10
}
console.log(start); _____________0_____________
console.log(someFun(100)); _______10_____________
console.log(start); _____________33_____________
console.log(jordan); _____Reference Error_____________
```

2. [2] What is the output of the code ?

```
        let myObj = {
                myArray: [1, 2, 3],
                anotherArray: [1, 2, 3],
                equals: function() {
                        return this.myArray === this.anotherArray;
                }
        }
        alert(myObj.equals());  _____________false_____________
```

3. [2] Fill in the blank below

```
 const x = 10;
 const y = x;
 y = 100;
 console.log(x); //_____10_____________
```

4. [1] const x = alert('hi');
What is the value of x after this line runs? _____undefined____

5. [1] const y = console.log('bye');
What is the value of y after this line runs? _____undefined_____

6. [3] Fill in the blanks with the alert output of the following code.

```
        let myArray=[1,2,3,4];
```

```
let anotherArray=[10,11,12,13]
alert(myArray[0]);  _____1_____
myArray=anotherArray;
alert(myArray[0]);  _____10_____
alert(myArray.length);  _____4_____
```

7. [4] What is the output of the following code ?

```
function hi(name){return 'Hi ' + name;}
let goodBye= function(){return 'Good Bye';}
alert(hi('Developer','Welcome'));  _____Hi Developer_____
alert(goodBye('Developer')); _____Goodbye_____
alert(goodBye);  _____fn itself_____
alert(goodBye());  _____Goodbye_____
```

8. [2] Fill in the blank for the output of the following code.

```
let color='red';
let myObject={
        color : 'blue',
        printColor:function(){
                alert(color);
        }
}
myObject.printColor();   //_____red_____
```

9. [4] Fill in the blanks below

```
const x = {a: 10, b: 20, c:30}
const y = x;
y.c = 300;
y.d = 400;
console.log(x.c);  //____300_____
console.log(x.d);  //_____400_____
console.log(y === x); //_____true_____
```

10. [4] Fill in the blanks below

```
function checkAge(age) {
  if (age > 18) {
    return true;
```

```
  } else {
    alert('Age is less than 18');
  }
}
const z = checkAge(19);
const w = checkAge(18);
```

What is the value of z? ____true_____

What is the value of w? _____undefined_____

11. [2] Fill in the blank below

```
function getQuote() {
        return
                "this is a really long quote and therefore I want it to be on it's own line."
        }
const m = getQuote();
```

What is the value of m? _____undefined_____

12. [5] Fill in the blanks below

```
function getSix() { return 6;}
const f1 = getSix();
const f2 = getSix;
const f3 = f1;
const f4 = f2();
const f5 = f1();
```

What is the value of f1? ____6_____

What is the value of f2? _____fn itself_____

What is the value of f3? _____6_____

What is the value of f4? _____6_____

What is the value of f5? _____error_____

13. [2] Circle T or F for each of the following

T F esLint enforces good coding practices that are not necessarily illegal or runtime errors

T F Behavior driven development requires a lint program such as esLint.

14.[4] Write a function named sortThis that takes three input parameters and returns an array that has them sorted in ascending order.

e.g. calling sortThis(5, 2, 3) should return [2, 3, 5]

```
function sortThis(a,b,c){
      let result= [];

      if(a>b && a>c ){
            result[2]=a;
            if(b>c){
                  result[0]=c;
                  result[1]=b
            }else{
                  result[1]=c;
                  result[0]=b
            }
      }else if(){
            //….
      }

      return result;
}
```

15.[4] Write a function named somethingOdd that takes an array of numbers as input and returns the product of all the array values at the odd indices.

```
Function smtOdd(arr){
      let mul = 1;

      for(let i =1;i<arr.length,i=i+2){
            Mul = mul * arr[i]
      }
      return mul;
}
```

16. [6]

a) Create a student object with the properties first name and last name.
b) Create an array and add 2 student objects.
c) Use the **forEach** method to print out all the values and indices. Use function declarations to declare any functions in the code.

Example output :

Keith - Levi - 0
Umur - Inan - 1

```
let obj1={
      fname : 'umur',
      lname : 'inan'
}

let obj2={
      fname : keith,
      lname : levi
}
let array =[obj1,obj2];

array.forEach(function(value,index){
      alert(value.fname + value.lname + index);

});
```

17. [6] Write a function 'multiplyAll' which takes an array as a parameter and returns the product of all the values in this array. You have to use the **reduce** method. Include an initial value. Use function declarations for all functions you write.

Array	Output
[1,2,3,4,5]	120
[10,5,3]	150

```
      function multiplyAll(array){
            return array.reduce((result,value)=> result*value,1);
      }
```

18. [6] Write a function 'thisProgramIsTheBest' which takes 3 parameters. First two parameters are objects that have property 'color' and the last one is a function, "cbFun". If the color properties are equal, then return "Same color!", otherwise call the cbFun function with the input parameters as arguments, and then return "Different colors".

```
function thisProgramIsTheBest(obj1,obj2,cbFun){

      if(obj1.color===obj2.color){
            return 'same';
      }
      else{
            cbFun(obj1,obj2);
            return 'different';
      }
}
```

19. [6] Write a function, helper, that map will use to multiply each element by its corresponding the array index. For example, in the code below returnVal should be [0, 20, 60, 120]. Also, fill in the blank for what the second log will show as the value of the array:

```
let array =[10,20,30,40]
let returnVal= array.map(helper);
console.log(returnVal);  //  [0, 20, 60, 120]
console.log(array);  // _____[10,20,30,40]


function helper(value,index){
      return value*index;
}
```

20. [4] Complete the code for an object, rectangle. It should have properties for length and width. It should have methods to compute and return the area and the circumference.

```
const rectangle =   {
      length : 5,
      width :6,
      area : function(){
            return this.length * this.width;
      }
}
```

21. [10] Write code for your own version of filter.
    a. Your function must be a pure function.
    b. You cannot use JavaScript's filter method.
    c. The name will be myFilter.
    d. It will have two parameters. The first will be the array to filter. The second will be the filter function.
    e. Write a JS Doc comment that will pass our esLint rules.
    f. Test your function on this array [1, 2, 3, 4, 5]. Write a function that will allow you to use myFilter to filter the array for even numbers.

```
function myFilter(arr,fn){
      let result = [];
      for(let i =0,i<arr.length,i++){
            let callbackResult = fn(arr[i],i);
            if(callbackResult){
                  result.push(arr[i]);
            }
      }
      return result;
}


myFilter(arr,function(value,index){
      return value%2===0
);
```

22. [6] Write a mocha unit test with 2 "it" calls for the following function.

    function mult(x, y, z) {return x * y * z);

```
describe('Test of mul function', function(){
      it('Parameters are 3 2 5 ' , function(){
            assert.equal(30,mul(3,2,5));
      });
      it('Parameters are 2 3 4 ' , function(){
            assert.equal(24,mul(2,3,4));
      })
})
```