

CS303 Midterm I

Name:	Id:
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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 we cannot read your answer, you'll not get credit.

Good luck!

1. [5] Fill in the blanks

```
let start = 0;
function someFun(num) {
  let jordan = 23;
  if (num >= 0) {
    num = Math.sqrt(num)
  }
  start = jordan + num;
  console.log(num + " " + Jordan + " " + start); _____
  return num;
}
console.log(start); _____
console.log(someFun(100)); _____
console.log(start); _____
console.log(jordan); _____
```

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()); _____
```

3. [2] Fill in the blank below

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

4. [1] const x = alert('hi');

What is the value of x (not the alert output) after this line runs? _____

5. [1] const y = console.log('bye');

What is the value of y (not the log output) after this line runs? _____

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]); _____  
myArray=anotherArray;  
alert(myArray[0]); _____  
alert(myArray.length); _____
```

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')); _____  
alert(goodBye('Developer')); _____  
alert(goodBye); _____  
alert(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(); //_____
```

9. [3] 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); //_____  
console.log(x.d); //_____  
console.log(y === x); //_____
```

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? _____

What is the value of w? _____

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? _____

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? _____

What is the value of f2? _____

What is the value of f3? _____

What is the value of f4? _____

What is the value of f5? _____

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

- | | | |
|---|---|---|
| T | F | esLint enforces good 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]`

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. You can use a simple for loop.

16. [6]

- a) Create two student objects with the properties first name and last name, and any values you want.
- b) Create an array and add the 2 student objects to the array.
- 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

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

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".

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); // _____
```


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 = //your code here
```

21. [6] Write a mocha unit test with 2 “it” calls for the following function.

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

22. [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.