CMSC 122 Exam 2 Worksheet

The exam will be on Friday, April 19th. The following list provides additional information about the exam.

- This will be a written quiz (no computer), closed book, closed notes, and answers must be neat and legible.
- Feel free to discuss the worksheet and possible solutions to problems.
- Some worksheet problems may be harder/easier than exam problems.
- The exam itself will feature more true/false and multiple choice problems and fewer short answer problems than the worksheet.
- We use the Gradescope system to grade your quizzes after they have been scanned. For the system to recognize your work, you **need to print your name (uppercase) and student id.** The following is an example of the information you need to provide on your quiz:

FIRSTNAME, LASTNAME (PRINT IN UPPERCASE):   MARY, SMITH

STUDENT ID (e.g. 123456789):   123456789

The following exercises cover the material to be included in this exam. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TAs or instructor during office hours. It is recommended that you try these exercises on paper first (without using the computer). You can then type the code based problems to check if they work. You should still **use proper indentation** when handwriting code. **The material you are expected to know is listed on the Exam 2 webpage.**

Exercises

1. Redo any problem you missed on Quizzes 2 or 3 and make sure you know them well. I may include very similar problems on Exam 2 or the Final Exam. Worksheet 3 that was posted for Quiz 3 will also be helpful in studying for these exams.
2. List the five JavaScript primitive data types we've discussed in this course.
3. How do you include quotation marks within a string in JavaScript?
4. Briefly describe the difference between === and ==. Which one is used for comparison in a switch statement?
5. What are the necessary parts of a for loop? What are the optional parts of a for loop?
6. What are the necessary parts of a function definition? What are the optional parts of a function definition?
7. What are the primitive data types undefined and null used for.
8. What is passed to a function in JavaScript? What is passed for primitive data types versus arrays?
9. Briefly describe what "break" and "continue" do in a loop.
10. What does the Number() function do? Why do you need it sometimes when using prompt()?
11. Write a line of code to assign "Hi!" to the first element of some array called wordArray.
12. Write a for loop that loops through an array of numbers, decreasing each number by one.

To practice for reading code problems, you can also go through the code posted from lectures. Open the code in Komodo. Before running each program, try to figure out what it will do and write it down. Then, run it and check if you were correct.

13. For each problem, write what would be written by the corresponding line in the code.

```
var x = 2, y = "7", z = [5, 10, 15, 20];


document.write(someFunction(x, y)); // Problem (1)

document.write(x);   // Problem (2)

document.write(y);   // Problem (3)

document.write(anotherFunction(z)); // Problem (4)

document.write(z);   // Problem (5)


function someFunction(x, num) {
     var y = 3;

     x *= 5;

     num = Number(num);

     return x + y + num;
}

function anotherFunction(arr) {
     var arrIndex;

     for (arrIndex = 0; arrIndex < arr.length; arrIndex++) {
          arr[arrIndex]++;
     }

     return arr[2];
}
```

1) _____

2) _____

3) _____

4) _____

5) _____

For code writing, you can assume script tags have been provided. For this exam, you are allowed to use global variables and do not need to write a main() function.

14. Write a JavaScript program that prompts the user for a number. This program should display an alert() based on the following rules.
    - If the number is odd, the program displays "This number is odd."
    - If the number is not odd and is smaller than 0 or larger than 100, the program displays "Out of range."
    - If the number is not odd and in the range from 30 to 70, the program displays "Good number."
    - If the number does not satisfy any of the criteria above, the program displays "Okay number."

    Note the following:
    - Ideally you should only check once if the number is odd.
    - Ideally you should only make one call to the alert() function.
    - What do you need to do to make sure the expressions work properly? How do you make sure 9 >= 30 is false?

15. Define a function called **checkLength** with a parameter called **word**. Assume the parameter **word** will be a string. The function should return a string based on the length of the string **word**.
    - If the length is greater than 0 and less than 5, return "short word".
    - If the length is at least 5 and at most 8, return "medium word".
    - If the length is greater than 8, return "long word".

16. Write a JavaScript program that reads a number with a prompt() and prints a table with the powers of 2 from 1 up to (and including) the provided number. You can use Math.pow(x,y) to compute the power of a number (e.g., 2^3 is Math.pow(2,3)). Your program must use the message "Enter Value" to read the value from the user. You don't need to use meaningful variable names (although you should); however, you must have good indentation. **You don't need to write any CSS**. Assume the CSS for table borders has already been included in the code.

    The following is a table generated by the program when the user provides 5 as input. Remember that your program must work for different values (not just 5).

    | 1 | 2 |
    | 2 | 4 |
    | 3 | 8 |
    | 4 | 16 |
    | 5 | 32 |