

CSE/INFO 100 Fluency with Information Technology
Winter 2007
Midterm 2 Review Questions

Answers will be discussed in the Wednesday/Thursday sections before the exam.

1. What is a variable, and what are the three main data types a variable can contain? What does it mean to “declare a variable” in JavaScript? Write code to declare a variable with a name of your own choosing, in JavaScript.
2. Give a World Famous Iteration statement that loops a dozen times. (Assume the iteration variable has been declared, and ignore the statements in the body.)
3. An algorithm is a precise and systematic method to achieve a specified result. Algorithms have five properties. Give one of them and explain what it means.
4. What’s the fetch/execute cycle? How is it related to clock rate?
5. Give the five steps of the fetch/execute cycle.
6. The key fact about “integration” as used in integrated circuits is (choose one):
 - a. The circuits are made out of a common family of materials.
 - b. The circuits are extremely small, and so use little power.
7. Opt-in/Opt-out refers to a person making a choice about how their private information will be used relative to some new purpose; explain each term.
8. Describe how to add comments in HTML and explain the two ways of making comments in JavaScript.
9. Using a for loop, generate an empty HTML table with 4 rows and 3 columns in JavaScript.
10. Write a JavaScript function that takes in a number and returns the square of that number. How would we use this function to find the square of 145?
11. What’s the difference between a typical cookie and a 3rd party cookie? Why is a 3rd party cookie worrisome?
12. Write the HTML code for a form that includes (in the order mentioned):
 - a. One textbox named “type”.
 - b. A blank line break.
 - c. Three radio buttons grouped together under the common name “numDonuts” labeled 1, 2, and 3.
 - d. A blank line break.
 - e. Another textbox named “result”
13. Now, take the form from the previous question and add the following functionality:

When a user clicks on any of the radio buttons, it will take the number that the radio button corresponds to, concatenate the value of the textbox “type” onto the back, and then store the results as the value in the “result” textbox. For example, if the “type” textbox contains “Sesame” and the user clicks “2”, the result textbox should say “2 Sesame”.

14. Consider the following JavaScript code:

```
<script language = "javascript">
function foo(foo1, foo2) {
    return foo1+foo2;
}
```

```
document.write(foo(1,2));
document.write(foo('foo', 'bar'));
</script>
```

- a. Describe what would be the output of the two `document.write()` calls.
 - b. What is the name of the function defined in the JavaScript code? What are the arguments that the function takes? What does the function return (there are two possibilities)?
 - c. The two `document.write()` calls have a problem. They print their output right next to each other, and that makes it hard to see where one `document.write()` call ends and the other one begins. Modify the `document.write()` calls so that they print on separate lines.
15. What kind of things can you do with algorithms? What are some algorithms that we have seen so far? Are algorithms strictly confined to computing?
16. Why would we want to prefetch images? Prefetch an image located at the relative URL "penguins.gif" and store it into a variable. (The name of the variable is your choice, however it should be a name that makes sense based on what we are storing.)
17. Conditional statements: What does the following JavaScript code do? Describe the exact output you would see if you were to run this on a web browser in an HTML page.

```
<script language="javascript">
var myAge, yourAge;
var older;
myAge = 20;
yourAge = myAge-1;
if (myAge < yourAge) {
    older = "You are older";
} else {
    if (yourAge < myAge) {
        older = "I am older";
    } else {
        older = "We're the same age";
    }
}
alert("Who's older? " + older);
</script>
```

18. Array images question. Describe what will display on this HTML page. Assume all the image files are in the correct place, that is in the same folder as this HTML page.

```
<html><head><title>Animals</title></head>
<body>
<br>
<br>
<br>
<script language="javascript">
```

```
var i;
for (i = 0; i < 3; i++) {
    document.images[i].src = "butterfly.gif";
}
</script>
</body>
</html>
```

19. Assume $a = 5, b = 4, c = 4$. Are the following Boolean expressions true or false?
 - a. $b == c$
 - b. $(a < b \ || \ b < a)$
 - c. $!((a > c) \ \&\& \ (b == c))$
 - d. $((a > c) \ \&\& \ !(b > c))$
20. What is the difference between a function call and a function definition? Is `document.write("hello world")` a function call, a function definition, or something else?
21. What is the purpose of having functions?
22. What is an array? Declare an array with length n . Set the last element in the array to 5.
23. Define then call a function that takes 1 argument called n and returns the value 2 to the power n . (The symbol $^$ would not compute the power; you need to find a way to compute this.) For your call use any argument you choose, but you must also give the result in a comment. Hint: use iteration.
24. What is an event? What is event based programming? Why do we study it, i.e., why is it important?