

**CISS240: Introduction to Programming
Quiz q0306**Name: sithurman1@cougars.ccis.eduScore:

This is a closed-book, no compiler, 5 minute quiz.

Q1. The following code fragment has a repeating chunk of code that repeats 3 times:

```
int i = 1, j = 1;

j = j * i;
i = i + 1;

j = j * i;
i = i + 1;

j = j * i;
i = i + 1;
```

If the goal is to compute $1 \times 2 \times 3 \times \cdots \times 8$, how many times does the repeating chunk of code appear?

ANSWER:

Q2. What is the final value of i at the end of this code fragment?

```
int i = 0, j = 1;

i = i * 10 + j;
j = j + 1;

i = i * 10 + j;
j = j + 1;

i = i * 10 + j;
j = j + 1;

i = i * 10 + j;
j = j + 1;
```

```
i = i * 10 + j;  
j = j + 1;
```

ANSWER:

123456

Q3. What is the final value of **k** at the end of this code fragment?

```
int i = 135692468, j = 1000000, k;  
  
k = i / j % 10;  
j = j / 10;  
  
k = i / j % 10;  
j = j / 10;  
  
k = i / j % 10;  
j = j / 10;  
  
k = i / j % 10;  
j = j / 10;  
  
k = i / j % 10;  
j = j / 10;  
  
k = i / j % 10;  
j = j / 10;
```

ANSWER:

6

Q4. What is the final value of **k** at the end of this code fragment?

```
int i = 135792468, j = 1, k = 0;  
  
k = k * 10 + i / j % 10;  
j = j * 10;  
  
k = k * 10 + i / j % 10;  
j = j * 10;  
  
k = k * 10 + i / j % 10;  
j = j * 10;  
  
k = k * 10 + i / j % 10;  
j = j * 10;
```

```
k = k * 10 + i / j % 10;
j = j * 10;

k = k * 10 + i / j % 10;
j = j * 10;
```

ANSWER:

864297

Q5. What is the final value of **k** at the end of this code fragment?

```
int i = 135792468, j = 1, k = 0;

k = k + i / j % 10;
j = j * 10;

k = k + i / j % 10;
j = j * 10;

k = k + i / j % 10;
j = j * 10;

k = k + i / j % 10;
j = j * 10;

k = k + i / j % 10;
j = j * 10;

k = k + i / j % 10;
j = j * 10;
```

ANSWER:

36

Q6. Complete the following code segment so that **i** and **j** swap their values (you can declare an extra variable):

```
int i = 0, j = 1;

// ENTER CODE BELOW

t = i;
i = j;
j = t;

std::cout << i << ' ' << j;
```

i.e. the output of the above code segment must be

```
1 0
```

If I change the initial values for i, j to 1, 2, the output is 2 1.

ANSWER:

```
t = i;  
i = j;  
j = t;
```

Q7. Complete the following code segment

```
int x0 = 0, x1 = 1, x2 = 2;  
int t;  
  
// ENTER CODE BELOW  
t = x0;  
x0 = x1;  
x1 = x2;  
x2 = t;  
  
std::cout << x0 << ' ' << x1 << ' ' << x2 << '\n';
```

so that you get the following output

```
1 2 0
```

And if the initial values for x0, x1, x2, are 3, 4, 5, the output is 4 5 3. Do it in 4 statements.

ANSWER:

```
t = x0;  
x0 = x1;  
x1 = x2;  
x2 = t;
```

INSTRUCTIONS

In the file `thispreamble.tex` look for

```
\renewcommand\AUTHOR{}
```

and enter your email address:

```
\renewcommand\AUTHOR{jdoe5@cougars.ccis.edu}
```

(This is not really necessary since alex will change that for you when you execute `make`.) In your bash shell, execute “`make`” to recompile `main.pdf`. Execute “`make v`” to view `main.pdf`.

Enter your answers in `main.tex`. In the bash shell, execute “`make`” to recompile `main.pdf`. Execute “`make v`” to view `main.pdf`.

For each question, you’ll see boxes for you to fill. For small boxes, if you see

```
1 + 1 = \answerbox{}
```

you do this:

```
1 + 1 = \answerbox{2}
```

`answerbox` will also appear in “true/false” and “multiple-choice” questions.

For longer answers that need typewriter font, if you see

```
Write a C++ statement that declares an integer variable name x.  
\begin{answercode}  
\end{answercode}
```

you do this:

```
Write a C++ statement that declares an integer variable name x.  
\begin{answercode}  
int x;  
\end{answercode}
```

`answercode` will appear in questions asking for code, algorithm, and program output. In this case, indentation and spacing is significant. For program output, I do look at spaces and newlines.

For long answers (not in typewriter font) if you see

```
What is the color of the sky?  
\begin{answerlong}  
\end{answerlong}
```

you can write

```
What is the color of the sky?  
\begin{answerlong}  
The color of the sky is blue.  
\end{answerlong}
```

A question that begins with “T or F or M” requires you to identify whether it is true or false, or meaningless. “Meaningless” means something’s wrong with the question and it is not well-defined. Something like “ $1 + 2 = 4$ ” is either true or false (of course it’s false). Something like “ $1+2 = 4?$ ” does not make sense.

When writing results of computations, make sure it’s simplified. For instance write 2 instead of $1 + 1$.

HIGHER LEVEL CLASSES.

For students beyond 245: You can put L^AT_EX commands in `answerlong`.

More examples of meaningless statements: Questions such as “Is $42 = 1+2$ true or false?” or “Is $42 = \{2\}^{\{3\}}$ true or false?” does not make sense. “Is $P(42) = \{42\}$ true or false?” is meaningless because $P(X)$ is only defined if X is a set. For “Is $1 + 2 + 3$ true or false?”, “ $1 + 2 + 3$ ” is well-defined but as a “numerical expression”, not as a “proposition”, i.e., it cannot be true or false. Therefore “Is $1 + 2 + 3$ true or false?” is also not a well-defined question.

More examples of simplification: When you write down sets, if the answer is $\{1\}$, do not write $\{1, 1\}$. And when the values can be ordered, write the elements of the set in ascending order. When writing polynomials, begin with the highest degree term.

When writing a counterexample, always write the simplest.