CISS360: Computer Systems and Assembly Language
Quiz t01

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Open `main.tex` and enter answers (look for `answercode`, `answerbox`, `answerlong`). Turn the page for detailed instructions. To rebuild and view pdf, in bash shell execute `make`. To build a gzip-tar file, in bash shell execute `make s` and you'll get `submit.tar.gz`.

INSTRUCTIONS

- This is a closed-book, no-discussion, no-calculator, no-browsing-on-the-web no-compiler/no-MIPS-simulator test.

- Cheating is a serious academic offense. If caught you will receive an immediate score of -100%.

- If a question asks for a program output and the program or code fragment contains an error, write `ERROR` as output. When writing output, whitespace is significant.

- If a question asks for the computation of a value and the program or code fragment contains an error, write `ERROR` as value.

HONOR STATEMENT

I, [REPLACE WITH YOUR FULLNAME], attest to the fact that the submitted work is my own and is not the result of plagiarism. Furthermore, I have not aided another student in the act of plagiarism.

Question	Points
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Question	Points
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TOTAL	

Welcome to your first day of work at Fullabugz Company. Your job is to write MIPS code, debug MIPS code (written by someone else ... ARGHHH), etc.

Do not give me two answers for the same question. I reserve the right to choose one for you ... and I always choose the wrong one (if there is one)!

Here's some useful info:

1. Print int: syscall 1
2. Read int: syscall 5
3. Print string: syscall 4
4. Read string: syscall 8
5. Exit: syscall 10

You should know what to do with `$v0`, `$a0`, `$a1`, right?

Q1.

$1 + 1 =$ ☐

Q2. T or F or M. $1 + 1 = 5$ .... ?

Q3. Declare an integer variable named x.

Q4. What is $1 + 1$?

INSTRUCTIONS

In `main.tex` change the email address in

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

yours. In the bash shell, execute "`make`" to recompile `main.pdf`. Execute "`make v`" to view `main.pdf`. Execute "`make s`" to create `submit.tar.gz` for submission.

For each question, you'll see boxes for you to fill. You write your answers in `main.tex` file. 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 needs 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}
```

For students beyond 245: You can put LATEX commands in `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 statement and it is not well-defined. Something like "$1+_2$" or "$\{2\}^{\{3\}}$" is not well-defined. Therefore a question 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.

When writing results of computations, make sure it's simplified. For instance write 2 instead of $1 + 1$. When you write down sets, if the answer is $\{1\}$, I do not want to see $\{1, 1\}$.

When writing a counterexample, always write the simplest.

Here are some examples (see `instructions.tex` for details):

1. T or F or M: $1 + 1 = 2$ .... $\boxed{\text{T}}$

2. T or F or M: $1 + 1 = 3$ .... $\boxed{\text{F}}$

3. T or F or M: $1+^2 =$ .... $\boxed{\text{M}}$

4. $1 + 2 = \boxed{3}$

5. Write a C++ statement to declare an integer variable named `x`.

```
int x;
```

6. Solve $x^2 - 1 = 0$.

> Since $x^2 - 1 = (x - 1)(x + 1)$, $x^2 - 1 = 0$ implies $(x - 1)(x + 1) = 0$. Therefore $x - 1 = 0$ or $x = -1$. Hence $x = 1$ or $x = -1$.

7. Which is true? .... $\boxed{\text{C}}$
    - (A) $1 + 1 = 0$
    - (B) $1 + 1 = 1$
    - (C) $1 + 1 = 2$
    - (D) $1 + 1 = 3$
    - (E) $1 + 1 = 4$