

CSS322 – Example Quiz

Security and Cryptography, Semester 2, 2013

Prepared by Steven Gordon on May 20, 2014
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This style/template allows you to write a single L^AT_EX file for a quiz (or other assessment item) that is then used to produce multiple variants of question sheets, as well as a single answer sheet. The variants are used to give different questions to different sets of students. For example, you can create a quiz that has 3 questions (each with multiple parts), and where the first 2 questions are the same on each variant of the quiz, while the last question has 4 different variants. Four question sheets will be produced (typically referred to in this template as variants a, b, c and d), as well as a single answer sheet (which may include the answers for all variants).

This is best explained via examples, as you will see in the following questions.

Question 1 [2 marks]

This is a simple question that will be the same across all variants. To start a question use the `\question{n}` command, where n is the number of marks for that question. For example, the heading you see above with 2 marks allocated was created using:

```
\question{2}
```

Normal L^AT_EX code can be used in a question.

Now lets look at how answers can be included. There are several options, illustrated below.

- (a) What is $4 + 5$?

Answer. 9

- (b) What is $4 + 5$?

Answer. 9

- (c) What is $4 + 5$? 9

Look at both the question sheet and the answer sheet to compare these three options.

In part (a), the answer was created using the command `\qans{9}`. In the answer sheet, this command prints the word **Answer.** followed by the specified value in the command. In the question sheet, the answer is obviously not included.

In part (b), the answer was created using the command `\qansbox{30}{9}`. In the answer sheet, this produces the same output as using `\qans{9}`. However in the question sheet, 30mm of vertical space is created after the question, leaving the student space to write their answer. You may need to trial-and-error to find the appropriate amount of space that should be printed (this gets a bit harder when dealing with multiple pages and figures).

In part (c), the answer was created using the command `\qansshort{9}`. In the answer sheet, this prints just the value (in italics) next to the question, useful for short answers. In the question sheet, it produces the same output as `\qans{9}`.

Question 2 [3 marks]

How do you create the separate question and answer sheets?

Answer. In the \LaTeX file just after the `\begin{document}` there is the following:

```
\renewcommand{\variant}{ans}
```

The value **ans** indicates that the answer sheet will be created with the \LaTeX file is compiled. To create the question sheet, change the value to **a** (meaning “question variant a”) and re-compile.

```
\renewcommand{\variant}{a}
```

If the questions contain more than one variant, to create the answer sheets select the letter, e.g. **b** to produce the 2nd variant, **c** for the 3rd variant and so on.

Question 3 [3 marks]

Now lets look at creating question variants. The first approach will be to use different values in the same question. For example, you want a quiz question that is essentially identical for all students, but the numbers in the question change. Lets assume you want three different variants, as illustrated in the following example.

(a) What is $[4 + 5 \mid 6 + 2 \mid 5 + 1]$?

Answer. Add the two values. The answers are:

- $4 + 5 = 9$
- $6 + 2 = 8$
- $5 + 1 = 6$

This question was created using the command `\qvariii{}{}{}`, which means “a question with iii (3) variants”. When you compile the \LaTeX file using the **ans** variant, the answer sheet will show all three variants in square brackets (as well as showing the answer). When you compile the file using the variant **a**, then the first question, $4 + 5$, will be displayed. Using variant **b** will display $6 + 2$, and using variant **c** will display $5 + 1$.

Currently the number of variants supported is from 2 to 6, i.e. the commands:

- `\qvarii{}{}`
- `\qvariii{}{}{}`
- `\qvariv{}{}{}{}`
- `\qvarv{}{}{}{}{}`
- `\qvarvi{}{}{}{}{}{}`

Question 4 [2 marks]

Another way to create question variants is to create entire questions that differ. To do so, you can specify that you want text to appear in only one specific variant.

- (a) This question will appear only in the question sheet for variant **a**. It was produced using the command `\qonlyx{a}{question text}`.
- (b) This question will appear only in the question sheet for variant **b**. It was produced using the command `\qonlyx{b}{question text}`.
- (c) This question will appear only in the question sheet for variant **c**. It was produced using the command `\qonlyx{c}{question text}`.

All of the above questions appear in the answer sheet, but they only appear in the question sheet of the variant specified.

Sometimes you may want to re-use a question across two variants. Here is an example:

- (b) This question will appear only in the question sheet for variants **a** and **c**. It was produced using the command `\qonlyxory{a}{c}{question text}`.
- (c) This question will appear only in the question sheet for variant **b**. It was produced using the command `\qonlyx{b}{question text}`.

Question 5 [1 marks]

When dealing with variants, it is highly recommend to use the same number across all questions in the quiz. For example, if you want 3 variants, then you may use commands:

- `\qvariii{}{}{}`
- `\qonlyx{a}{}{}`
- `\qonlyx{b}{}{}`
- `\qonlyx{c}{}{}`
- `\qonlyxory{a}{b}{}{}`
- `\qonlyxory{a}{c}{}{}`
- `\qonlyxory{b}{c}{}{}`

If using the above commands, you should *not* use commands that are specific to another number of variants, e.g. `\qvarii{}{}{}`, `\qonlyx{d}{}{}`.

Question 6 [2 marks]

Now lets return to the answers, and look at two specific types of answers. First, is for creating question which require filling in the blanks.

- (a) The capital city of Thailand is *Bangkok*.
- (b) The capital city of *Thailand* is Bangkok.

The above two questions made use of the command `\qansalt{ }{ }`, which includes the first option in the question sheet and the second option (in italics) in the answer sheet. In these examples the first option was a horizontal line created with `\rule{width}{thickness}`, to allow the student space to write an answer.

The next type of answer is useful when creating multiple choice questions.

- (c) What is $4 + 5$?
 - i. 4
 - ii. 7
 - iii. **9**
 - iv. 10
 - v. 8
- (d) What is the capital of Thailand?
 - i. Singapore
 - ii. **Bangkok**
 - iii. Tokyo
 - iv. Taipei
 - v. Phnom Penh

The correct answer in the multiple choice was specified using the command `\qansmc{ }`. In the question sheet, all possible answers are printed the same. In the answer sheet, the correct answer is shown in **bold**.

Question 7 [5 marks]

This question contains cut down examples of all the question and answer types that you may use as templates.

Answer types:

- (a) Question text

Answer. *Formatted answer text*

- (b) Question text

Answer. *Formatted answer text with space*

(c) Question text *Short answer text*

(d) Question text *Fill-in-blanks*

(e) Multiple choice question

i. Option 1

ii. Option 2

iii. **Option 3 (correct)**

iv. Option 3

Question variants:

(f) Question with 3 variants [a | b | c]

Answer. *Formatted answer text*

(g) Question only included in 1 variant

Answer. *Formatted answer text*

(h) Question included in 2 variants

Answer. *Formatted answer text*