COURSE NAME   **Question Catalog**   **July 4, 2023**

These questions use the `Auto Multiple Choice` package without any additional code. Some examples can be found below:
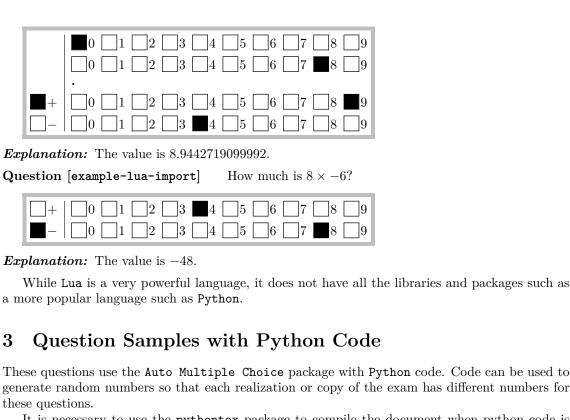
Multiple Choice: questions with only one correct answer, multiple correct answers, and even questions with no correct answers.

Open Questions: open space for the student to write a short answer or a long answer.

Range: It is also possible to have a numeric question with a range of accepted answers.

1 Question Samples

Question [`example-true-false`]   This proposition is true.

■ True   □ False

Explanation: A true statement is true.

Question [`example-one-choice`]   What is equal to one in $\mathbb{Z}$?

■ 1   □ 2   □ 3   □ 4   □ 5

Explanation: There is only one 1 in the set of integers.

Question [`example-multiple-choice`] ♣   Which below are the odd numbers?

■ 1   □ 2   ■ 3   □ 4   ■ 5

Explanation: All odd numbers are divisible by 2.

Question [`example-lastchoices`]   Which color do you prefer?

■ red   ■ green   ■ blue   ■ I don't care   ■ I don't know

Explanation: There is no wrong answer.

Question [`example-open`]   Write π with two decimal places.   □w □p ■c

3.14 . . . .

Explanation: $\pi = 3.14$.

2 Question Samples with Lua Code

These questions use the `Auto Multiple Choice` package with `Lua` code. Code can be used to generate random numbers so that each realization or copy of the exam has different numbers for these questions.

It is necessary to use the `LuaTex` engine to compile the document when lua code is present. Some examples can be found below:

Question [`example-lua-random`]   How much is $4 + 8$?

□ 10   □ 11   ■ 12   □ 13   □ 14

Explanation: The value is 12.

Question [`example-lua-random-open`]   How much is $\sqrt{80}$?

	0	1	2	3	4	5	6	7	8	9
	■0	□1	□2	□3	□4	□5	□6	□7	□8	□9
	□0	□1	□2	□3	□4	□5	□6	□7	■8	□9
.										
■+	□0	□1	□2	□3	□4	□5	□6	□7	□8	■9
□−	□0	□1	□2	□3	■4	□5	□6	□7	□8	□9

Explanation: The value is 8.9442719099992.

Question [example-lua-import]   How much is 8×-6?

	0	1	2	3	4	5	6	7	8	9
□+	□0	□1	□2	□3	■4	□5	□6	□7	□8	□9
■−	□0	□1	□2	□3	□4	□5	□6	□7	■8	□9

Explanation: The value is -48.

While `Lua` is a very powerful language, it does not have all the libraries and packages such as a more popular language such as `Python`.

3   Question Samples with Python Code

These questions use the `Auto Multiple Choice` package with `Python` code. Code can be used to generate random numbers so that each realization or copy of the exam has different numbers for these questions.
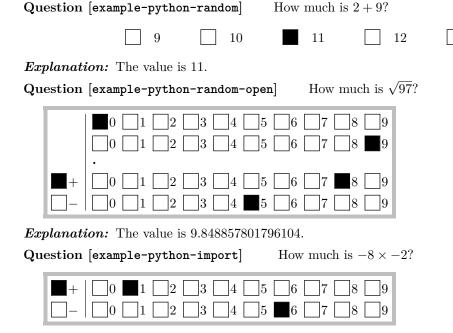
It is necessary to use the `pythontex` package to compile the document when python code is present.

There are some minor inconveniences, such as the need to use the commands `\pyc` and `\py` to run python code inside questions.

However due to the popularity of `Python`, it is possible to use many libraries and packages to generate questions.

Question [example-python-random]   How much is $2 + 9$?

☐ 9   ☐ 10   ■ 11   ☐ 12   ☐ 13

Explanation: The value is 11.

Question [example-python-random-open]   How much is $\sqrt{97}$?

	0	1	2	3	4	5	6	7	8	9
	■0	□1	□2	□3	□4	□5	□6	□7	□8	□9
	□0	□1	□2	□3	□4	□5	□6	□7	□8	■9
.										
■+	□0	□1	□2	□3	□4	□5	□6	□7	■8	□9
□−	□0	□1	□2	□3	□4	■5	□6	□7	□8	□9

Explanation: The value is 9.848857801796104.

Question [example-python-import]   How much is -8×-2?

	0	1	2	3	4	5	6	7	8	9
■+	□0	■1	□2	□3	□4	□5	□6	□7	□8	□9
□−	□0	□1	□2	□3	□4	□5	■6	□7	□8	□9

Explanation: The value is 16.