1) In an experiment in unconscious cognition, words appear, one at a time, for a fraction of a second on a computer screen and subjects are instructed to read them out loud as quickly as they can. Each subject reads 30 words taken from one of two lists. Half of the subjects are shown words from the first list, the other half are shown words from the second list. A portion of the words in the first list are words that have high motivational content (such as *success*, *determination*, *achievement*, *persevere*, etc.); we will call this the Positive List. The second list contains words which are all relatively neutral in motivational content (for example, *lamp*, *eye*, *quiet*, *climbing*); we will call this the Neutral List. Subjects are told that the experiment is about how quickly they can read the words, and they are not told anything about the special characteristics of the word list they receive.

After subjects read their 30 words, they are told that the experiment is over. They are then asked if they would like to solve a series of puzzles, some of which are fairly complex. The subjects are told that they don’t have to solve all the puzzles, but that the experimenters are trying to determine how hard the puzzles are, for use in another experiment, and that they would like the subjects’ help. In fact, this is part of the experiment, and the experimenters are interested in finding out whether the subjects who read words from the Positive List would work longer at, and be more likely to complete the harder puzzles, compared to subjects who read words from the Neutral List. The experimenters recorded how long subjects worked on each puzzle, and which puzzles they solved.

a) What is/are the independent variable(s) in this experiment?

b) What is/are the dependent variables(s) in this experiment?

c) What are the *conditions* in the experiment? Which is best described as the experimental condition? Control condition?
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(QUESTION 1, CONTINUED)

d) List 2 other factors (other than condition) which could affect a subject’s performance on the dependent measure(s).

e) For each of the factors you listed in (d), explain why you think or do not think that the factor is confounded with the conditions in the experiment.

(The fictitious experiment described above was based on an actual experiment by Bargh, Gollwitzer, & Lee-Chai, 1999. In the actual experiment, subjects worked longer and were more likely to solve the puzzles if they had previously read the Positive List than if they read the Neutral List.)

2) Suppose you had a theory that having brown eyes causes one to believe in UFOs. You go and find a lot of people who have brown eyes and ask them if they believe in UFOs; overwhelmingly they say “yes.”

a) What would this result prove your theory? Explain.

Imagine instead that the most of the brown-eyed people you interviewed said they didn’t believe in UFOs.

b) What would this result say about your theory? Explain. (Hint: Think about what your hypothesis is, and what the Null Hypothesis is.)
3) Design a study to test whether caffeine consumption improves memorization performance. In the space provided answer the following questions.

a) Briefly describe the experiment, that is, the groups/conditions, task(s), measurement(s), etc.

b) What is/are the independent variable(s) in the experiment?

c) What is/are the dependent variable(s) in the experiment?

d) What are the conditions in the experiment? Identify the experiment and control conditions/groups.

e) List 2 other factors (other than caffeine) which could affect a subject’s outcome on the dependent measure(s).

f) For each of the factors you listed in (e), explain whether or not you think the factor is confounded with the conditions in the experiment.
The two bell curves in the picture above represent the distribution of results (measurements) from two different groups/conditions in the same experiment. The curve on the left is data for Group 1, the curve on the right is data for Group 2.

a) On the whole, is a subject from Group 1 or Group 2 more likely to have a score which is close to the mean for their group? Explain how you came to this conclusion.

b) Suppose Group 1 is the experimental group, and Group 2 is the control group. Do the results pictured above support the Null Hypothesis that there is no difference between the control group and the experimental group? Why or why not?