The challenge is to write questions that test a significant concept, that are unambiguous, and that don’t give test-wise students an advantage.

1. The stem should fully state the problem and all qualifications. To make sure that the stem presents a problem, always include a verb in the statement.

2. Concentrate on writing items that measure students’ ability to comprehend, apply, analyze, and evaluate as well as recall.

3. Include words in the stem that would otherwise be repeated in each option. Following this guideline not only saves time for the typist but also saves reading time for the student.

   **Poor:** Sociobiology can be defined as
   a. the scientific study of humans and their relationships within the environment.
   b. the scientific study of animal societies and communication.
   c. the scientific study of plants and their reproductive processes.
   d. the scientific study of the number of species in existence.

   **Better:** Sociobiology can be defined as the scientific study of
   a. humans and their relationships within the environment.
   b. animal societies and communication.
   c. plants and their reproductive processes.
   d. the number of species in existence.

4. Eliminate excessive wording and irrelevant information in the stem.

5. Make sure there is only one correct or best response.

   **Poor:** The function of the hypothesis in a research study is to provide
   a. tentative explanation of phenomena.
   b. proven explanation of phenomena.
   c. framework for interpretation of the findings.
   d. direction for the research.

   There is no single or best answer; options a, c, and d are correct. The options need to be reworded so that only one is clearly best or correct. Or one could change the stem: According to the lecture (or the text), the most important function of the hypothesis is. …
6. Provide a minimum of three, but not more than five, plausible and attractive options for each item.
A good procedure is to think of errors that students are likely to make and use these as distractors.

**Poor:** The recent (1989) research suggesting that controlled nuclear-fusion could be affected in a laboratory experiment at room temperature was conducted by

a. Watson and Crick.
b. Pons and Fleischmann.
c. Koch and Jenner.
d. Fermi and Bohr.

While the first two options are plausible, the last two are not. The latter should be replaced by the names of contemporary scientists.

7. Make all the options for an item approximately homogeneous in content, form, and grammatical structure. Increasing the homogeneity of the content among the options can increase the difficulty of an item. (Difficulty of a test should not be based on inclusion of obscure content.)

8. Avoid the use of the all-of-the-above and none-of-the-above options. The problem with “all of the above” as an option is that it makes the item too easy. If students can recognize at least one incorrect option, they can eliminate “all of the above” as a viable option. On the other hand, if they can recognize at least two correct options, then they know that “all of the above” is the correct answer. Furthermore, research shows that when “all of the above” is used as a distractor, it is too often the correct response. Students are quick to pick up on this clue.

“None of the above” should be used only when absolute standards of correctness can be applied, such as in math, grammar, spelling, geography, historical dates, and so on. Otherwise, students can often argue about the correctness of one of the other options.

9. Avoid verbal associations between the stem and the correct option; e.g., the same reference word should not appear in the stem and an option. Also make sure that the options are grammatically consistent with the stem.

**Poor:** The correlation coefficient found by correlating students’ scores on a classroom math test with their scores on a standardized math test is called a

a. validity coefficient.
b. index of reliability.
c. equivalence coefficient.
d. internal consistency coefficient.

Option (a) is the only one that is grammatically consistent with the stem. It could be correctly selected without knowing anything about the content. One should change the “a” in the stem to “a(n).”

10. Avoid making the correct answer markedly longer or shorter than the other options.

11. If there is a logical sequence in which the alternatives can be arranged (alphabetical if a single word, in order of magnitude if numerals, in temporal sequence, or by length of response), use that sequence.
12. Use negatively stated stems sparingly. When used, call attention to the negative word by underlining and/or capitalizing.

13. Randomly distribute the correct response among the alternative positions throughout the test. That is, have approximately the same proportion of As, Bs, Cs, Ds, and Es as the correct response.

14. Watch for specific determiners such as “all,” “always,” and “never,” which are more likely to be in incorrect options. Others like “usually” and “sometimes,” are more likely to be in the keyed response.

15. Multiple-choice items should be independent. That is, an answer to one question should not depend on the answer to another question.

16. Avoid the use of language that your students won’t understand. For example (unless it’s a French test), use “cause” instead of “raison d’être” in the question.

17. State items so there can be only one interpretation of their meaning.

   **Poor:** Which one of the following is the best source of heat for home use?
   a. Gas
   b. Electricity
   c. Oil
   d. Geothermal

   The answer depends on how the question is interpreted. Does the question ask about the best source economically, in terms of cleanness, in terms of efficiency, or just what? Also the correct answer might depend on what part of the world we’re asking about.

   **Better:** The most economical source of heat in the midwestern U.S. is
   a. gas.
   b. electricity.
   c. oil.
   d. geothermal.