

## Writing Good Multiple-Choice Questions: A Brief Guide for Radiologists

**Your goal:** to test key concepts, not minutiae

### Definitions:

**Stem:** the “question” part of the item

**Distractors:** the incorrect choices

**Key:** the correct answer

### Sample Question:

Where do gastrointestinal stromal tumors most commonly occur? [STEM]

- a. Esophagus [DISTRACTOR]
- b. Stomach [KEY]
- c. Small bowel [DISTRACTOR]
- d. Colon [DISTRACTOR]

### The stem:

- (1) Should be “focused”: that is, contain the *main idea* of the question. (Use the “cover test”: Can you cover the options and still answer the question?)
- (2) **Don’t** use negative constructions, such as:
  - “What finding is NOT associated with...”;
  - “...all of the following EXCEPT...”;
  - “Which of the following is LEAST likely... .”
- (3) Use simple wording and sentence structure, no jargon or unusual abbreviations. Include no unnecessary information and no “red herrings” that might mislead.

### Focused stem:

What is the most common site of hematogenous metastases from colon carcinoma?

### Unfocused stem:

Which of the following is true regarding autoimmune pancreatitis?

### The key:

- (1) **Must** be 100%, no doubt, accepted as correct. (Have a reference.)
- (2) Avoid nebulous, relative terms, like “frequently,” “rarely,” or “often.”
- (3) Randomize the position of the correct answer (most test-takers guess **b** or **c**).

### The distractors:

- (1) How many? Having three is fine.
- (2) **Must** be plausible.
- (3) **Do** keep them
  - (a) All about the same length (and the answer, too);
  - (b) Focused (for example, all are diagnoses, or imaging findings, or therapies);
  - (c) Short and simple (avoid lengthy modifiers or combining concepts in one item).
- (4) **Don’t**
  - (a) Use “always” or “never” (and no “maybe” terms, such as “can sometimes” or “is often”);
  - (b) Use “all of the above” or “none of the above”;
  - (c) Use mutually exclusive paired options; for example,
    - “a. Worse with head turned to the right;
    - “b. Worse with head turned to the left.”
  - (d) “Highlight” any choices, such as with quotation marks or parentheses;
  - (e) Give grammar clues; for example, if the stem asks for a plural response, be certain the distractors are plural, too.

### The test images:

- (1) **Must** be technically superb;
- (2) **Must** be classic examples;
- (3) **Must** have readily apparent findings (no “eye tests”).