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?  

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

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 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.

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”).