How to Write a Test Question

<u>Stem or Lead Line</u> - introductory statement (information required) and the question itself that elicits the correct answer.

DO THIS

- Develop patient-based questions, presented as a scenario.
- Keep the stem as succinct as possible.
- Avoid adding unnecessary or misleading information.
- Make the stem clear enough to provide the examinee with sufficient information to anticipate the type of answer before looking at the responses.
- Write the stem to assess knowledge of meaningful facts and concepts, not trivial information.
- Include in the stem all words that would otherwise have to be repeated in each of the responses.

DON'T DO THIS

- Don't test more than one point.
- Don't ask, "What would you do?" or, "What do you believe?" as these statements cannot be verified with references.
- Don't use gender pronouns.
- Don't use ambiguous terms such as: rarely, commonly, frequently, generally, sometimes, and/or usually.
- Don't use jargon – appropriate medical terminology is required.
- Don't use flawed question formats such as: true/false questions, "least likely", "none of the above", "all of the above", or negative questions.
- Don't try to trick the examinee.

<u>Responses or Options</u> – 1 correct "answer" plus 3 incorrect "distractors".

- Always list the correct answer first.
- Always start with a capital letter unless part of a sentence.
- The correct answer must be <u>absolutely</u> correct. A common pitfall is the lack of one clearly *best* answer.
- Make sure you aren't including unintentional clues to the correct answer.
- Incorrect answers should be realistic and plausible. Don't use nonsense or obviously wrong distractors.
- Distractors should represent unsafe practices or commonly held misconceptions and should be plausible.
- All responses should be grammatically consistent with the item stem, and all responses should be parallel.
- Do not make the correct answer substantially longer or more detailed than the distractors.
- Do not use non-homogenous options; in other words, don't make the candidate choose between apples and oranges

<u>Rationale</u> – Brief statement explaining the testing point, be sure to describe

1) The testing point.
2) Why you picked the different options.
3) Why the indicated answer is the best, most correct, answer.

<u>References</u> – Author, Title, Publisher, year, page

- References should be current, ideally less than 10 years, and on the reading list of the specialty.
- Avoid proceedings or journal articles as not every candidate will have access to these documents.
- References must agree. For example, normal heart rate of a dog differs slightly depending on the text. There is no one answer.

<u>Question Writing Plan</u>

- Survey the general content domain of your writing assignment.
- List or select specific content areas within the domain.
- Highlight the most important areas, such as those in which practice has changed.
- Identify and write out the exact testing point. Don't write the stem before determining the testing point.
- Select the cognitive ability to be tested – knowledge, synthesis, judgment.
- Select the cognitive task to be tested.
  - Recall knowledge – requires only the recall of facts
  - Synthesis – requires the integration and interpretation of facts to reach a conclusion
  - Judgement – requires knowledge, interpretation, synthesis, and then the application of judgement

Here is a list of appropriate question tasks for DVM questions. These can be altered for Veterinary Technicians and may help inspire your writing:

Diagnostic inference/Differential diagnosis:
- Which of the following is the most likely diagnosis?
- Which of the following best explains this patient's current symptoms?

Clinical features:
- The clinical manifestations of [disease named] include which of the following?
- Which of the following is characteristic of this patient's illness?

Diagnostic testing:
- Which of the following will document the source of this patient's symptoms?
- Which of the following laboratory studies should you order next?

Natural history/Epidemiology:
- This patient is at increased risk for the development of which of the following?
- Which of the following best predicts the development of [disease named] in a patient who has [condition named]?
- A statistically significant correlation between a history of [feature named] and the population prevalence of [disease named] exists for which of the following?

Treatment:
- Which of the following is most likely to correct this patient's problem?
- Which of the following drugs [or therapeutic interventions] should you order?

Management decision:
- Which of the following should you do next [or now]?
- Which of the following is the best management plan?

Pathophysiology/Basic science:
- Gram stain of the causative organism is most likely to reveal which of the following?
- Which of the following is the best explanation for this patient's poor response to therapy?
- The biopsy specimen shown is consistent with which of the following conditions?

Interpretation of literature/Statistical methods:
- Which of the following statements best describes the findings of these researchers?
- Which of the following is the best interpretation of these data?

When done please review, reflect and rewrite, then submit

Let's play what's wrong with these questions!

1. Which of the following is not part of the small intestine?
   a. Duodenum
   b. Ileum
   c. Jejunum
   d. Pylorus

2. Goblet cells produce mucin, which serves what purpose?
   a. Entrap microorganisms
   b. Entrap foreign particles
   c. Protect epithelial layers
   d. All of the above

3. Which of the following statements is false?
   a. Bile is released when ingested food has reached the jejunum
   b. Gastrin, produced in the stomach by G cells, triggers production of pepsin and HCl
   c. The colon's major function is to resorb water

d. The enzymes; amylase, lipase, & trypsin, when released by the pancreas, are exposed to the ingested food in the duodenum

4. Which of the following is the most common hepatic disease seen in cats, which is characterized by prolonged anorexia resulting in an imbalance between the breakdown of peripheral lipids and lipid clearance with the liver resulting in excess accumulation of fat within hepatocytes? This syndrome results in hepatic failure if untreated.
   a. Cholangiohepatitis
   b. Hepatic vascular anomaly
   c. Idiopathic hepatic lipidosis
   d. Portosystemic shunts

5. Which of the following is least concerning in the efficacy of chemotherapy?
   a. Impaired transport of drugs across the cell membrane
   b. Intrinsic specific and permanent biochemical resistance to a drug
   c. The duration of tumor exposure to an effective concentration of drug (drug concentration multiplied by length of exposure)
   d. The length of time an agent is viable post reconstitution

6. In a hyperthermic patient with a temperature of 106F (41.1C), cooling should be discontinued when the rectal temperature reaches?
   a. 100F
   b. 101F
   c. 102F
   d. 104F

ANSWERS:

1. Flawed stem: asks the candidate to think negatively which is confusing. Unfortunately, "not" questions are easy to write!
2. Flawed stem: smart test takers can key into this very readily.
3. Flawed stem: more negative thinking.
4. Includes unnecessary information. Includes ambiguous terms like "common". Includes unintentional clues by adding extra information on lipids and fats leading the candidate to the word "lipidosis".
5. Flawed stem: uses ambiguous terms like "least".
6. References don't agree on this, leading to a question that could have multiple "correct" answers.