



CISM® ITEM DEVELOPMENT GUIDE

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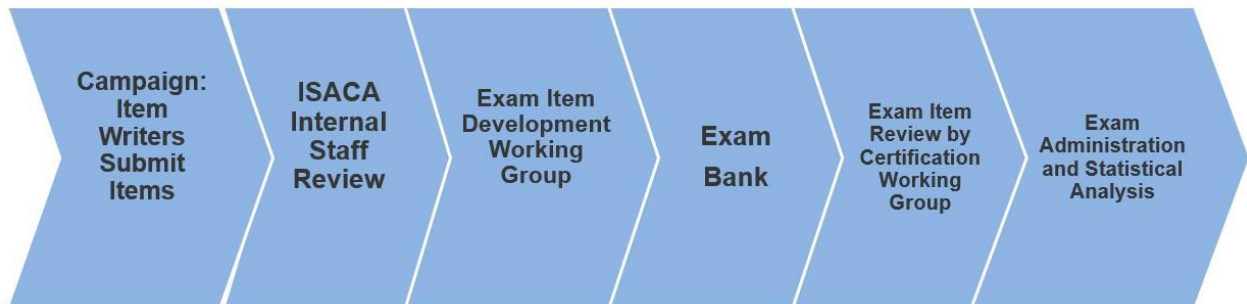
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PURPOSE OF THE CISM ITEM DEVELOPMENT GUIDE

The purpose of the CISM Item Development Guide is to assist item writers in their efforts to write new items for the CISM exam. This guide is intended to familiarize writers with the item development process and provide tools to help create quality exam questions.

As you read through this Guide, please pay particular attention to the item writing principles. Applying these principles will greatly increase the chances of your items being accepted for the CISM exam.

THE CISM ITEM WRITING AND REVIEW PROCESS: AN OVERVIEW



ISACA conducts item writing campaigns each year to generate new items for the CISM exam. You will receive an invitation to the campaign from our online item writing system, along with instructions for how to use the system to create and submit new items for review. Resources and guidance will also be available throughout each campaign to assist you.

Once you have submitted a new item, a member of the ISACA item development team will review the item for adherence to ISACA's item writing guidelines. ISACA staff reviewers are not subject matter experts; however, they are exam development experts and understand the types of questions that test well or poorly. While the ISACA staff review typically does not focus on the content of the item, they may provide suggestions for alternate wording to enhance the clarity of the text. Items that need revision to meet ISACA's guidelines are returned to the writer with feedback and can be resubmitted at any time before the campaign's final deadline.

Once ISACA staff determine that an item is ready to move forward, the item will then be included for review by the CISM Exam and Item Development Working Group (EIDWG), which is a panel of CISM subject matter experts from a variety of industries and regions. The Working Group meets a few weeks after the conclusion of the campaign to review the items with a focus on the content being tested. Items accepted by the Working Group go directly into ISACA's exam banks, and the item writer is paid an honorarium and awarded CPEs for each item accepted.

Items that are not accepted by the Working Group are returned to the writer after the meeting with feedback from the group.

While initial feedback from ISACA staff takes place on an ongoing basis during the campaign, final results from the EIDWG are typically available the week following the Working Group meeting. This means that once a campaign closes, feedback from the Working Group will not be available for approximately 4-6 weeks, depending on the meeting date.

TRAINING FOR NEW WRITERS

All new item writers are required to complete an online training program before participating in a CISM campaign. Writers enrolled in a training program are assigned to a member of the ISACA Item Development Team, who will provide detailed feedback on submissions to help writers become familiar with the process and principles behind effective CISM item writing. Upon completion of the training program, writers become eligible to participate in our CISM item writing campaigns.

WRITING QUALITY ITEMS

ISACA and the CISM Certification Working Group periodically perform a CISM job practice analysis study to determine the tasks and knowledge currently required of information security managers. The results of this analysis serve as the blueprint for the CISM exam and the CISM review materials. Exam questions must be written to test a candidate's knowledge of established content areas defined by the CISM exam content outline. Each item must align with a task and knowledge statement from the exam content outline, which is made available to writers at the beginning of each campaign.

When writing CISM items, it is necessary to consider the exam's target audience, which is the minimally competent CISM candidate. Items must be developed at the proper level of experience expected of the individual just passing the CISM exam, with three (3) to five (5) years of working experience in information security management.

Item writers must keep in mind that because the CISM exam is administered globally, the content and wording of items must be universally applicable to the international information security community.

It is also important to develop CISM items from the perspective of information security *management* and NOT information security *operations*. Items that are overly technical, or that test lower-level operational actions will most likely be returned.

ITEM FORMATS

The CISM exam consists of multiple-choice items. The multiple-choice item is the most commonly used type of test question in certification exams.

Multiple-choice items consist of a stem and four possible alternatives.

Item Stem:

The item stem contains the introductory statement to be completed or question to be answered. The stem often includes context describing a situation or circumstance related to the knowledge being assessed. Stems are usually written as direct questions, though sometimes stems are written as incomplete sentences to improve readability.

Item Choices (Alternatives):

The alternatives complete the introductory statement or answer the question and consist of one correct answer (key) and three incorrect answers (distractors).

Key:

The key must reflect current practice. In some cases, the key will be the only correct alternative, while in other cases the key will be deemed to be the BEST alternative when considered against the others provided.

Distractors:

Distractors are the incorrect alternatives. Writing effective distractors is one of the most challenging aspects of item writing. Distractors must be wrong answers, but they must appear to be plausible or possible answers to candidates who lack the knowledge or applicable experience to choose the key.

As mentioned above, the majority of CISM exam items use a direct question format, as in the following example. (Please note that any items in this Guide will not appear on future exams.)

Stem: Which of the following is the **MOST** effective way to identify changes in an information security environment?

Alternatives:

- A. Implement continuous monitoring. (Key)
- B. Conduct annual risk assessments.
- C. Interview information security staff.
- D. Review security audit findings.

Sometimes an incomplete statement is used in the stem, which looks like this:

Stem: The **PRIMARY** goal of a post-incident review is to:

Alternatives:

- A. identify ways to improve the response process. (Key)
- B. gather evidence for subsequent legal action.
- C. re-allocate budget for incident response.
- D. determine the identity of the attacker.

Note that the responses for this item are followed by a period, as the response serves to complete the sentence started in the stem.

ITEM TYPES TO AVOID

Items with the following issues will be returned to the item writer for revision by ISACA staff:

1. Items that ask a negatively phrased question – that is, asking which alternative does NOT apply, or which alternative is LEAST preferred. Negative questions require candidates to reverse their traditional mode of thinking and tend to test poorly based on statistical analysis.
2. Items that ask a true/false question or ask which of the alternatives is a true statement.
3. Items with alternatives in a “multiple-multiple” format – that is, components of some alternatives are contained within others. It is permissible to use lists in answer choices, but no element contained in one choice should be repeated in any other choice.
4. Items with alternatives such as “all of the above”, “none of the above” or “Both B and C”. Each alternative must be able to stand alone. (Along these lines, alternatives such as “take no action” or “ignore this issue” are usually too close to “none of the above.” Such alternatives make poor distractors and should also be avoided.)
5. Items that use a fill-in-the-blank format.
6. Items that test knowledge of vendor-specific products or region-specific regulations.
7. Items that directly test knowledge of the meanings of terminology. Remember that the CISM exam is an experience-based exam. A definitional question can be answered by an otherwise inexperienced candidate who happens to have studied a review manual or other reference; such questions do not require candidates to rely on their professional experience to answer correctly.

STEPS TO WRITING ITEMS

- STEP 1 Select a topic from the CISM exam content outline for your new item. Items should be written to test knowledge necessary to perform a specific task, and they should focus on a single topic area rather than trying to test multiple concepts at once.
- STEP 2 Write the item stem and key (correct answer). **When submitting items, you should always make choice A the correct answer.**
- STEP 3 Develop plausible distractors. Distractors should not include made-up words or phrases, and they should appear to be correct alternatives to an inexperienced professional. It may help when creating distractors to consider what an inexperienced information security professional might think the correct answer would be, or to ask colleagues what sorts of mistakes they can imagine an inexperienced professional making.
- STEP 4 In the space provided for rationales, include an explanation of why the key is correct, as well as why each distractor is not a correct alternative. This helps ISACA reviewers and the Working Group understand your intended testing concept.
- STEP 5 Include any reference sources that support your item. Submitted items must include at least one reference, and the ISACA web site may be consulted for applicable references – <http://www.isaca.org/knowledge-center>.
- STEP 6 Review the item using the Item Writing Checklist.
- STEP 7 Have a peer or colleague review and critique the item.

GOOD PRACTICES FOR ITEM WRITING

1. Ensure the item is testing only one concept and reflects the chosen task and knowledge statements. Items that attempt to test multiple concepts at once are typically returned for being unclear or potentially confusing.
2. Ensure the item is appropriate for a CISM candidate with three to five years of experience – not too fundamental or easy, not too advanced or difficult.
3. Ensure the stem and alternatives are concise and do not contain unnecessary detail or explanation. Keep in mind that a candidate has only a short time to read, understand, and answer each question on the exam.
4. Ensure the item is not “teaching” the candidate – that is, explaining a concept explicitly within the stem or alternatives.

5. Ensure the key would always be the correct or best available answer for the situation presented in the stem. Items are often returned because they do not provide enough context for a candidate to arrive at the correct answer without making assumptions, or because the correct answer could vary depending on the organization.
6. If the item is testing roles and responsibilities, ensure the correct answer is not dependent on the organization's size, structure or other organization-specific factors.
7. Ensure the wording of the item does not introduce subjectivity – words such as “commonly”, “frequently” or “rarely” are dependent on interpretation and should be avoided.
8. Ensure that absolute words such as “all”, “always” or “never” are not used – it is often too easy for candidates to rule out distractors with this wording.
9. Ensure that personal or gender pronouns (you, your, she, he, her, his, etc.) are avoided, as well as ad hoc organization names such as “Company XYZ”.
10. If an important word appears in both the stem and the key, the same word should appear in at least one distractor as well, so the candidate is not inadvertently given a clue to the correct answer.
11. Ensure the alternatives are compatible with the stem. For example, if the question begins with “Which of the following controls...,” all the alternatives should be controls.
12. Ensure any terminology or practice referred to in the item is globally familiar and in current use.
13. Ensure the alternatives do not introduce new information that is not apparent from the stem. Candidates should be able to begin formulating an answer even before viewing the alternatives.
14. Ensure all alternatives are roughly the same length and are constructed similarly. For example, if the key starts with a verb ending in “ing”, the distractors should also start that way. This keeps certain alternatives from standing out unnecessarily.

ITEM WRITING CHECKLIST

1. Does the item have any of the issues listed in the Item Types to Avoid section above? If so, those issues must be addressed prior to submission.
2. Does the item adhere to the item writing guidelines presented in the Good Practices for Item Writing section above?
3. Has the item been checked for grammar and spelling, and is it easily understood on first reading? Remember that the candidate does not get to see the rationales for the stem and alternatives during the exam, so if one has to read the rationales to understand the item, it probably needs clarification.
4. Have task and knowledge statements from the exam content outline been selected for the item, and does the item's testing concept align with them?
5. Have rationales been included for the stem and alternatives?
6. Has at least one reference been provided for the item?

EXAMPLE ITEMS

Here are several examples to illustrate some of the **challenges/issues** associated with CISM item writing:

Example 1:

Stem: An intrusion prevention system does which of the following?

Alternatives:

- A. Prevents any attacks that occur from affecting the target system
- B. Stops all network traffic that is part of an attack before it can get to the intended victim
- C. Constantly modifies operating systems to make them a moving target
- D. Launches attacks against attacking systems to bring them down or disable them

Key: A

There are several issues with this item:

- Notice that a key word from the stem (“prevention”) leads to the word “prevent” in the answer, giving the exam candidate an inadvertent clue. If a key word from the stem is repeated in the answer, the remedy is to either remove the word from the key or add it to at least one of the distractors.
- The use of an absolute word (“all”) in option B makes it easier to rule out as an answer. Absolutes such as all, always, etc. are easy for candidates to eliminate as a possible choice.
- The use of “constantly” in choice C is open to interpretation.

Example 2:

Stem: Which of the following should be the **FIRST** step when building support for an information security program?

Alternatives:

- A. Identify existing vulnerabilities.
- B. Perform a cost-benefit analysis.
- C. Conduct a formal risk assessment.
- D. Determine resource requirements.

Key: A

This item illustrates the difficulty of writing sequential questions – that is, questions that ask which action should be taken **FIRST** or **NEXT**. It is not clear that the key would always be the first step for every organization – it might depend on the situation or specific circumstances. As in this example, many such “first” items end up being too subjective.

However, some sequential items encounter the opposite problem: the key may clearly be the best answer, but it is too obvious or fundamental for the CISM exam. While sequential items are allowed on the CISM exam, they tend to be very challenging to write effectively.

Example 3:

Stem: Security awareness programs should be:

Alternatives:

- A. customized depending on the target audience.
- B. standardized throughout the organization.
- C. avoided since key security vulnerabilities may be disclosed.
- D. limited to information security personnel.

Key: A

There are several issues with this item:

- The first issue is that the phrase to be completed is very broad – there are many attributes of successful security awareness programs, and it is impossible for test takers to know just from reading the stem what specific knowledge is being tested. Exam candidates should be able to begin formulating an answer once the stem is read. In this example, there could be many different, and correct, possibilities to complete the sentence.
- Broad statements or testing concepts such as this one can also lead to subjectivity. In this example, the best answer may depend on the organization’s preference or the type of organization or industry. Some organizations find it best to tailor awareness training to specific audiences, while some may require awareness programs to be standardized. Without more context in the stem describing the organization’s structure or circumstances, it is difficult to say whether choice A or choice B is always the correct answer.
- Note that choice C is a weak distractor. Even an inexperienced exam candidate would likely know that security awareness training is a very common practice, so it would be easy to rule out the idea that such training should be avoided altogether.

If you need assistance or have questions related to the item writing process, please contact us at itemwriting@isaca.org.