CGEIT® QAE ITEM DEVELOPMENT GUIDE

CGEIT QAE ITEM DEVELOPMENT GUIDE

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PURPOSE OF THE CGEIT ITEM DEVELOPMENT GUIDE

The purpose of the CGEIT Item Development Guide (Guide) is to provide assistance to item writers in their efforts to develop items for the *CGEIT*® *Review Questions, Answers and Explanations* (QAE) *Manual*. This Guide explains the structure of CGEIT QAE questions and will assist item writers in becoming more skilled in writing items.

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

PURPOSE OF THE CGEIT QAE

The purpose of the *CGEIT*® *Review Questions, Answers & Explanations* (QAE) *Manual* is to provide the CGEIT candidate with same questions and testing topics to help prepare and study for the CGEIT exam. The questions in this publication are not actual CGEIT exam questions, but are intended to provide CGEIT candidates with an understanding of the type and structure of questions that typically appear on the exam.

CGEIT EXAM STRUCTURE

ISACA and the CGEIT Certification Committee developed the CGEIT Job Practice. The purpose was to identify the domains as well as the tasks being performed and knowledge required by professionals involved with the governance of an enterprise's information technology (IT). This job practice serves as the blueprint for the CGEIT exam. Questions must be written to test a candidate's knowledge of this content as defined by the CGEIT Job Practice (see Appendix A, "CGEIT Job Practice").

WRITING QUALITY ITEMS

The first thing to consider when writing an item is its target audience, or the CGEIT exam candidate. An item must be developed to test the knowledge of an IT professional with 5 years of IT governance experience and one (1) year experience in Domain 1 influencing overall organizational structure, policy, and processes.

The CGEIT Certification Committee describes a qualifying CGEIT to have the ability to:
- Develop frameworks, policy, and the enterprise plan (doesn't simply execute them)
- Demonstrate awareness of how IT governance fits within the enterprise
- Align IT with corporate governance
- Integrate solutions—can see and function in inter-relationships
- Steer the enterprise from a technological perspective
- Understand how an enterprise gains value through the use of IT
- Use IT in governing the business direction
- Report on a model (does not simply contribute to the model)
- Recognize the concept of business alignment

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As critical as it is for an item writer to understand the knowledge level of the CGEIT candidate it is equally critical for an item writer to remember that IT governance is a global profession. Individual perceptions and experiences might not reflect the more global position or circumstance. Since the examination and CGEIT items will be developed for the international community, this will require you, the item writer, to be somewhat flexible when determining a globally accepted practice.

MULTIPLE-CHOICE ITEMS

The CGEIT exam will consist of a variety 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 options.

Item Stem:
The item stem is the introductory statement or question that describes a situation or circumstance related to the knowledge being assessed. Item stems can be written in the form of an incomplete statement as well as in question form.

Item Options:
The options complete the introductory statement or answer the question and consist of one correct answer (key) and three incorrect answers or distracters.

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

Distracters:
Distracters are the incorrect options but should be plausible or possible correct answers to candidates who are not knowledgeable enough to choose the key.

STEPS TO WRITING ITEMS

STEP 1 Select a topic within the CGEIT Job Practice. Items should be written to test knowledge necessary to perform a specific task. Items should focus on a single topic or knowledge statement. Items written from a knowledge statement will most likely result in higher quality, practically-based questions. Refer to Appendix A "CGEIT Job Practice" for a list of the task and related knowledge statements.

Once a topic is chosen, follow the steps listed below. While writing your item, please refer to the Item Writing Principles for further guidance and review your item using the Item Development Checklist found in Appendix B.

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STEP 2 Write the item stem and keyable answer (Answer A).

STEP 3 Develop plausible distracters. The distracters should not be made up words or phrases. Distracters should appear to be correct choices to an inexperienced professional. The development of quality distracters is usually the most difficult task for an item writer. If you have difficulty with this part of item development, consult with your colleagues. Also think about what an inexperienced IT professional might think the correct answer would be. These incorrect experiences make for the best distracters.

STEP 4 Include a thorough explanation of why the keyable answer is correct as well as why each distracter is not a correct choice. It is not acceptable to simply state that the distracters are incorrect. These explanations will assist the candidate in the learning/study experience.

STEP 5 Include any and all reference sources. Refer to the ISACA web site for applicable references – http://www.isaca.org/knowledge-center. Please note that Wikipedia is not an applicable reference.

STEP 6 Review the item using the Item Development Checklist found in Appendix C

STEP 7 Have a peer or colleague review and critique the item.

GENERAL ITEM WRITING PRINCIPLES
DOs:
1. Write the stem in the positive tone. Negatively written items will be automatically returned to the item writer for rewrite.
2. Test only one testing concept or knowledge statement per item. Knowledge statements were developed for this purpose. For a listing of knowledge statements, refer to Appendix A, "CGEIT Job Practice".
3. Ensure that the stem and all options are compatible with each other. For example, if your stem reads, "Which of the following controls will BEST…," then all options must be controls.
4. Keep the stem and options as short as possible by avoiding the use of unnecessary text or jargon. Do not attempt to teach the candidate a concept or theory by providing too much information before asking the question.
5. Include common words or phrases in the item stem rather than in the key and distracters.
6. Write all options the same approximate length and format. A good test taker with very little knowledge or experience in IT will select the option that is either the shortest or the longest in length and will most likely choose the correct answer.
7. Write options that are grammatically consistent with the item stem and maintain a parallel grammatical format. For example if the key begins with a verb ending with "ing," then all distracters must begin with a verb ending with "ing."
8. Use only professionally acceptable or technical terminology in the item stem and options.

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Don'ts:

1. Avoid using a key word or phrase in the item key that appears in the stem. Experienced test takers will look for clues such as this that often identify the key.
2. The use of words such as "frequently," "often," "common," or "rarely" introduce subjectivity into the item and will not be accepted. If an item is subjective, it can be argued that more than one option is keyable. Subjectivity is the most common reason why items are returned to the item writer and not tested on exams.
3. The use of terms in the stem such as "always," "never," or "all" are not acceptable since very little is absolute and thus it makes it easier for candidates to eliminate distracters.
4. Terms such as "least," "not," or "except" are negative and require a candidate to choose an incorrect or least preferred choice, rather than a correct or preferred choice. Negatively phrased test questions do not test well and will not be accepted.
5. Avoid the use of gender pronouns such as he, she, his, or her.
6. Items with options "all of the above" or "none of the above" will be returned to the item writer. Good test takers know that these types of options are very rarely correct and do not make good distracters.
7. Items testing knowledge regarding vendor specific products will be returned to the item writer as ISACA does not endorse any vendor products.
8. Items will not be accepted if they list specific standards, frameworks, manuals, (i.e., COBIT, ISO, ITIL, etc.) by name. It is, however, perfectly acceptable and encouraged to test the knowledge of concepts associated with these best practices.
9. Avoid testing subjective concepts such as the following:
   a. Specific international or local laws and regulations.
   b. Specific information regarding cultural or industry issues that do not apply globally and across all industries.
   c. Specific roles and responsibilities within your organization.

Remember that the CGEIT exam is administered globally and across all industries and the concepts tested must be accepted and recognized practice globally and in all industries.

ITEM EXAMPLES

Please note that the item examples appearing in this Guide have been taken from other exam study sources and are included here only as examples of exam item format (not content) to help you construct your CGEIT items.

Items can either be direct questions, incomplete statements or scenario questions.

Direct question:
   Stem: Which of the following would be included in an IT strategic plan?

   Options:
   A. Analysis of future business objectives
   B. Specifications for planned hardware purchases
   C. Target dates for development projects
   D. Annual budgetary targets for the IT department

   Note that the stem is in the form of a question.

Incomplete statement:

Stem: IT governance ensures that an organization aligns its IT strategy with:

Options:
- A. enterprise objectives.
- B. IT objectives.
- C. audit objectives.
- D. control objectives.

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

It is wise to draft an item first as a direct question, and then revise it to an incomplete sentence if this offers smoother, less repetitive wording.

SCENARIO QUESTIONS

There are a number of considerations when writing scenario questions.
- This type of item consists of introductory information (or the scenario) for the items to follow.
- There should be a set of two-to-five items that pertain to this introductory information. o The introductory material must be related to a particular field, be relevant and practical, and it must contain all the information necessary for the candidate to draw the correct conclusion – do not force the candidate to make assumptions.
- The associated items should be in some sort of sequence and follow a logical progression.
- Each item should be independent of the other items so that missing one item does not cause missing another item of the set. Care should be taken to ensure that one item does not point to the key of another item.
- New information cannot be introduced in any of the associated items. All information necessary to answer the question must be in the scenario or introductory information.

The best scenarios are written on real-life situations faced on the job. Also, the more subjective concepts such as regulations and roles and responsibilities are good to test within a scenario since you can explain the specific requirements of the regulation or the organization's reporting structure in the introductory paragraph(s).

RUBRICING

All items must be assigned a rubric. The rubric indicates which CGEIT task and knowledge statement the item most closely refers to. Each rubric consists of a 2 to 3-digit task statement number AND a 2 to 3-digit knowledge statement number. The rubrics are indicated before each task and knowledge statement. Please refer to Appendix A—CGEIT Job Practice when rubricing an item.

ITEM SUBMISSION AND REVIEW PROCESS

All subject matter experts that have indicated an interest in CGEIT item writing will receive periodic emails (item writing campaigns). Item writing campaigns will also include deadlines as to when items are to be submitted for review.

Items must be submitted to cgeitqae@isaca.org. All items MUST be submitted in English using the form located in Appendix C – Item Construction Form. All fields within the Item Construction Form must be complete. If fields are left blank, your item will be returned without review.

An initial review will be performed by an ISACA representative to ensure completeness and compliance with the item writing principles. Items that are judged to be flawed in any significant way will be sent back to the item writer with appropriate and constructive feedback. Items accepted by the ISACA representative will be forwarded to the CGEIT Quality Assurance Team (QAT) to be considered for inclusion in the *CGEIT*® *Review Questions, Answers and Explanations* (QAE) *Manual*.

Once reviewed by the CGEIT QAT, the item will be accepted or returned. If returned, the item will be sent back to the item writer and will also include appropriate and constructive feedback. If accepted, the item will become the property of ISACA and the item writer will receive honorarium payment. ISACA awards an honorarium of US $100 for items accepted by the QAT along with 2 CPE credit hours.

Items submitted for consideration by the CGEIT QAT must be original items created by the item writer. Items previously submitted for consideration by any TES for any exam or any QAT cannot be submitted to the CGEIT QAT and vice versa.

Appendix A
CGEIT Job Practice

Domain 1 – Framework for the Governance of Enterprise IT: Ensure the definition, establishment, and management of a framework for the governance of enterprise IT in alignment with the mission, vision and values of the enterprise.

Task Statements:

1.1 Ensure that a framework for the governance of enterprise IT is established and enables the achievement of enterprise goals and objectives to create stakeholder value, taking into account benefits realization, risk optimization, and resource optimization.

1.2 Identify the requirements and objectives for the framework for the governance of enterprise IT incorporating input from enablers such as principles, policies and frameworks; processes; organizational structures; culture, ethics and behavior; information; services, infrastructure and applications; people, skills and competencies.

1.3 Ensure that the framework for the governance of enterprise IT addresses applicable internal and external requirements (for example, principles, policies and standards, laws, regulations, service capabilities and contracts).

1.4 Ensure that strategic planning processes are incorporated into the framework for the governance of enterprise IT.

1.5 Ensure the incorporation of enterprise architecture (EA) into the framework for the governance of enterprise IT in order to optimize IT-enabled business solutions.

1.6 Ensure that the framework for the governance of enterprise IT incorporates comprehensive and repeatable processes and activities.

1.7 Ensure that the roles, responsibilities and accountabilities for information systems and IT processes are established.

1.8 Ensure issues related to the framework for the governance of enterprise IT are reviewed, monitored, reported and remediated.

1.9 Ensure that organizational structures are in place to enable effective planning and implementation of IT-enabled business investments.

1.10 Ensure the establishment of a communication channel to reinforce the value of the governance of enterprise IT and transparency of IT costs, benefits and risk throughout the enterprise.

1.11 Ensure that the framework for the governance of enterprise IT is periodically assessed, including the identification of improvement opportunities.

Knowledge Statements:

1.1 Knowledge of components of a framework for the governance of enterprise IT

1.2 Knowledge of IT governance industry practices, standards and frameworks (for example, COBIT, Information Technology Infrastructure Library [ITIL], International Organization for Standardization [ISO] 20000, ISO 38500)

1.3 Knowledge of business drivers related to IT governance (for example, legal, regulatory and contractual requirements)

1.4 Knowledge of IT governance enablers (for example, principles, policies and frameworks; processes; organizational structures; culture, ethics and behavior; information; services, infrastructure and applications; people, skills and competencies)

1.5 Knowledge of techniques used to identify IT strategy (for example, SWOT, BCG Matrix)

1.6 Knowledge of components, principles, and concepts related to enterprise architecture (EA)

1.7 Knowledge of Organizational structures and their roles and responsibilities (for example,

enterprise investment committee, program management office, IT strategy committee, IT architecture review board, IT risk management committee)

1.8 Knowledge of methods to manage organizational, process and cultural change

1.9 Knowledge of models and methods to establish accountability for information requirements, data and system ownership; and IT processes

1.10 Knowledge of IT governance monitoring processes/mechanisms (for example, balanced scorecard (BSC)

1.11 Knowledge of IT governance reporting processes/mechanisms

1.12 Knowledge of communication and promotion techniques

1.13 Knowledge of assurance methodologies and techniques

1.14 Knowledge of continuous improvement techniques and processes

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Domain 2 – Strategic Management: Ensure that IT enables and supports the achievement of enterprise objectives through the integration and alignment of IT strategic plans with enterprise strategic plans.

Task Statements:

2.1 Evaluate, direct and monitor IT strategic planning processes to ensure alignment with enterprise goals.

2.2 Ensure that appropriate policies and procedures are in place to support IT and enterprise strategic alignment.

2.3 Ensure that the IT strategic planning processes and related outputs are adequately documented and communicated.

2.4 Ensure that enterprise architecture (EA) is integrated into the IT strategic planning process.

2.5 Ensure prioritization of IT initiatives to achieve enterprise objectives.

2.6 Ensure that IT objectives cascade into clear roles, responsibilities and actions of IT personnel.

Knowledge Statements:

2.1 Knowledge of an enterprise's strategic plan and how it relates to IT

2.2 Knowledge of strategic planning processes and techniques

2.3 Knowledge of impact of changes in business strategy on IT strategy

2.4 Knowledge of barriers to the achievement of strategic alignment

2.5 Knowledge of policies and procedures necessary to support IT and business strategic alignment

2.6 Knowledge of methods to document and communicate IT strategic planning processes (for example, IT dashboard/balanced scorecard, key indicators)

2.7 Knowledge of components, principles and frameworks of enterprise architecture (EA)

2.8 Knowledge of current and future technologies

2.9 Knowledge of prioritization processes related to IT initiatives

2.10 Knowledge of scope, objectives and benefits of IT investment programs

2.11 Knowledge of IT roles and responsibilities and methods to cascade business and IT objectives to IT personnel

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Domain 3 – Benefits Realization: Ensure that IT-enabled investments are managed to deliver optimized business benefits and that benefit realization outcome and performance measures are established, evaluated and progress is reported to key stakeholders.

Task Statements:
3.1 Ensure that IT-enabled investments are managed as a portfolio of investments.
3.2 Ensure that IT-enabled investments are managed through their economic life cycle to achieve business benefit.
3.3 Ensure business ownership and accountability for IT-enabled investments are established.
3.4 Ensure that IT investment management practices align with enterprise investment management practices.
3.5 Ensure that IT-enabled investment portfolios, IT processes and IT services are evaluated and benchmarked to achieve business benefit.
3.6 Ensure that outcome and performance measures are established and evaluated to assess progress towards the achievement of enterprise and IT objectives.
3.7 Ensure that outcome and performance measures are monitored and reported to key stakeholders in a timely manner.
3.8 Ensure that improvement initiatives are identified, prioritized, initiated and managed based on outcome and performance measures.

Knowledge Statements:
3.1 Knowledge of IT investment management processes, including the economic life cycle of investments
3.2 Knowledge of basic principles of portfolio management
3.3 Knowledge of benefit calculation techniques (for example, earned value, total cost of ownership, return on investment)
3.4 Knowledge of process and service measurement techniques (for example, maturity models, benchmarking, key performance indicators [KPIs])
3.5 Knowledge of processes and practices for planning, development, transition, delivery, and support of IT solutions and services
3.6 Knowledge of continuous improvement concepts and principles
3.7 Knowledge of outcome and performance measurement techniques (for example, service metrics, key performance indicators [KPIs])
3.8 Knowledge of procedures to manage and report the status of IT investments
3.9 Knowledge of cost optimization strategies (for example, outsourcing, adoption of new technologies)
3.10 Knowledge of models and methods to establish accountability over IT investments
3.11 Knowledge of value delivery frameworks (for example, Val IT)
3.12 Knowledge of business case development and evaluation techniques

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Domain 4 – Risk Optimization: Ensure that an IT risk management framework exists to identify, analyze, mitigate, manage, monitor, and communicate IT-related business risk, and that the framework for IT risk management is in alignment with the enterprise risk management (ERM) framework.

Task Statements:
4.1 Ensure that comprehensive IT risk management processes are established to identify, analyze, mitigate, manage, monitor, and communicate IT risk.
4.2 Ensure that legal and regulatory compliance requirements are addressed through IT risk management.
4.3 Ensure that IT risk management is aligned with the enterprise risk management (ERM) framework.
4.4 Ensure appropriate senior level management sponsorship for IT risk management.
4.5 Ensure that IT risk management policies, procedures and standards are developed and communicated.
4.6 Ensure the identification of key risk indicators (KRIs).
4.7 Ensure timely reporting and proper escalation of risk events and responses to appropriate levels of management.

Knowledge Statements:
4.1 Knowledge of the application of risk management at the strategic, portfolio, program, project and operations levels
4.2 Knowledge of risk management frameworks and standards (for example, RISK IT, the Committee of Sponsoring Organizations of the Treadway Commission Enterprise Risk Management—Integrated Framework (2004) [COSO ERM], International Organization for Standardization (ISO) 31000)
4.3 Knowledge of the relationship of the risk management approach to legal and regulatory compliance
4.4 Knowledge of methods to align IT and enterprise risk management (ERM)
4.5 Knowledge of the relationship of the risk management approach to business resiliency (for example, business continuity planning [BCP] and disaster recovery planning [DRP])
4.6 Knowledge of risk, threats, vulnerabilities and opportunities inherent in the use of IT
4.7 Knowledge of types of business risk, exposures and threats (for example, external environment, internal fraud, information security) that can be addressed using IT resources
4.8 Knowledge of risk appetite and risk tolerance
4.9 Knowledge of quantitative and qualitative risk assessment methods
4.10 Knowledge of risk mitigation strategies related to IT in the enterprise
4.11 Knowledge of methods to monitor effectiveness of mitigation strategies and/or controls
4.12 Knowledge of stakeholder analysis and communication techniques
4.13 Knowledge of methods to establish key risk indicators (KRIs)
4.14 Knowledge of methods to manage and report the status of identified risk

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Domain 5 – Resource Optimization: Ensure the optimization of IT resources including information, services, infrastructure and applications, and people, to support the achievement of enterprise objectives.

Task Statements:
5.1 Ensure that processes are in place to identify, acquire and maintain IT resources and capabilities (i.e., information, services, infrastructure and applications, and people).
5.2 Evaluate, direct and monitor sourcing strategies to ensure existing resources are taken into account to optimize IT resource utilization.
5.3 Ensure the integration of IT resource management into the enterprise's strategic and tactical planning.
5.4 Ensure the alignment of IT resource management processes with the enterprise's resource management processes.
5.5 Ensure that a resource gap analysis process is in place so that IT is able to meet strategic objectives of the enterprise.
5.6 Ensure that policies exist to guide IT resource sourcing strategies that include service level agreements (SLAs) and changes to sourcing strategies.
5.7 Ensure that policies and processes are in place for the assessment, training and development of staff to address enterprise requirements and personal/professional growth.

Knowledge Statements:
5.1 Knowledge of IT resource planning methods
5.2 Knowledge of human resource procurement, assessment, training, and development methodologies
5.3 Knowledge of processes for acquiring application, information, and infrastructure resources
5.4 Knowledge of outsourcing and offshoring approaches that may be employed to meet the investment program and operation level agreements (OLAs) and service level agreements (SLAs)
5.5 Knowledge of methods used to record and monitor IT resource utilization and availability
5.6 Knowledge of methods used to evaluate and report on IT resource performance
5.7 Knowledge of interoperability, standardization and economies of scale
5.8 Knowledge of data management and data governance concepts
5.9 Knowledge of service level management concepts

Appendix B

Item Development Checklist

Before submitting an item, you must be able to answer YES to all of the following questions.

1. Does the item test a CGEIT concept at the appropriate experience level of the test candidate?

2. Does the item test only one CGEIT concept?

3. Is the item clear, concise and free of unnecessary or ambiguous terms?

4. Is there enough information in the stem to allow for only one correct answer? A candidate must not be able to interpret a distracter as correct based on assumptions due to a lack of information in the stem!

5. Is there only one possible or best answer in any situation, organization or culture? Many items are returned because there is more than one possible key based on situations not addressed in the stem.

6. Are the stem and all options compatible with each other? For example: "Which of the following controls…?" All options must be controls.

7. Does the item have plausible distracters but only one correct answer?

8. Does the item avoid words or phrases in the key that already appear in the stem?

9. Does the item avoid subjective terms such as "frequently," "often" or "common" in the stem and options?

10. Does the item avoid absolute terms such as "all," "never" or "always" in the stem and options?

11. Does the item avoid such terms as "least," "not" or "except"?

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Appendix C

ITEM CONSTRUCTION FORM

Name:
ISACA ID:

<mark>**Task Statement:** *(Refer to CGEIT Job Practice) This is mandatory; any items submitted without a task statement will be returned*</mark>
<mark>**Knowledge Statement:** *(Refer to CGEIT Job Practice) This is mandatory; any items submitted without a knowledge statement will be returned*</mark>

<mark>**Testing Concept:** (One sentence describing what is being tested) *This is mandatory; any items submitted without a testing concept will be returned*</mark>

Stem:

Options:
    A. (Always make A the correct answer)
    B.
    C.
    D.

Key: A

Justification:
    A. (Why is A the correct answer)
    B. (Why is B incorrect)
    C. (Why is C incorrect)
    D. (Why is D incorrect)

Reference(s): Provide references to enable independent review. Include the publication title, publication year, author and page.