

## Certified Quality Auditor Body of Knowledge 2012

The topics in this body of knowledge (BOK) include additional detail in the form of subtext explanations and cognitive level. These details will be used by the Exam Development Committee as guidelines for writing test questions, and are designed to help candidates prepare for the exam by identifying specific content within each topic that may be tested. The subtext is not intended to limit the subject-matter or be all-inclusive of what might be covered in an exam, but is intended to clarify how the topics relate to a Quality Auditor's role. The descriptor in parentheses at the end of each entry refers to the maximum cognitive level at which the topic will be tested. A more comprehensive description of cognitive levels is provided at the end of this Primer Section.

### Case Studies for the CQA Exam

The CQA examinations will continue to present a number of case studies. Each case study will include a brief scenario outlining critical details about an audit situation. In addition, each case study will be supported by related audit documents. The documents will be contained in a separate booklet "Confidential Audit Documents – CQA Case Studies" that will be part of the test materials distributed at the examination. Approximately 15-20% (25-30 questions) of the test will be devoted to these case studies. Although the questions related to these cases will use the same four-choice answer format as the rest of the test, the use of scenario details and sample documents will allow the candidates to apply their critical thinking skills in evaluating realistic situations and accompanying documents,

#### I. Auditing Fundamentals (27 Questions)

##### A. Types of quality audits (Analyze)

Define, differentiate, and analyze various audit types by method, relationship, and purpose.

1. Method: product, process, desk, department, function, element, system, management
2. Auditor-auditee relationship: first-party, second-party, third-party, internal and external
3. Purpose: verification of corrective action (follow-up) audits, risk audits, accreditation (registration) and compliance audits, surveillance and for-cause audits

## **CQA BOK (Continued)**

- 4. Common elements with other audits (Apply)**  
Identify elements such as audit purpose, data gathering techniques, tracing, etc., that quality audits have in common with environmental, safety, financial, and other types of audits.

### **B. Purpose and scope of audits**

- 1. Elements of purpose and scope (Apply)**  
Describe and determine how the purpose of an audit can affect its scope.
- 2. Benefits of audits (Analyze)**  
Analyze how audits can be used to provide an independent assessment of system effectiveness and efficiency, risks to the bottom line, and other organizational measures.

### **C. Criteria to audit against (Analyze)**

Define and distinguish between various audit criteria, such as external (industry, national, international) standards, contracts, specifications, quality awards, policies, internal quality management system (QMS), sustainability, social responsibility, etc.

### **D. Roles and responsibilities of audit participants (Apply)**

Define and describe the functions and responsibilities of various audit participants, including audit team members, lead auditor, client, auditee, etc.

### **E. Professional conduct and consequences for auditors**

- 1. Professional conduct and responsibilities (Apply)**  
Define and apply the ASQ Code of Conduct, concepts of due diligence and due care with respect to confidentiality and conflict of interest, and appropriate actions in response to the discovery of illegal activities or unsafe conditions.
- 2. Legal consequences (Apply)**  
Identify potential legal and financial ramifications of improper auditor actions (carelessness, negligence, etc.) in various situations, and anticipate the effect that certain audit results can have on an auditee's liability.

## **CQA BOK (Continued)**

- 3. Audit credibility (Apply)**  
Identify and apply various factors that influence audit credibility, such as auditor independence, objectivity, and qualifications.

### **II. Audit Process (42 Questions)**

#### **A. Audit preparation and planning**

- 1. Elements of the audit planning process (Evaluate)**  
Evaluate and implement the basic steps in audit preparation and planning: verify audit authority; determine the purpose, scope, and type of audit; identify the requirements to audit against and the resources necessary, including the size and number of audit teams.
- 2. Auditor selection (Analyze)**  
Identify and examine various auditor selection criteria, such as education, experience, industry background, and subject-matter or technical expertise.
- 3. Audit-related documentation (Analyze)**  
Identify the sources of pre-audit information and examine audit-related documentation, such as audit criteria references and results from prior audits.
- 4. Logistics (Analyze)**  
Identify and organize audit-related logistics, including travel, safety and security considerations, the need for escorts, translators, confidentiality agreements, clear right of access, etc.
- 5. Auditing tools and working papers (Create)**  
Identify the sampling plan or method and procedural guidelines to be used for the specific audit. Select and prepare working papers (checklists, log sheets, etc.) to document the audit.
- 6. Auditing strategies (Apply)**  
Identify and use various tactical methods for conducting an audit, such as forward and backward tracing, discovery, etc.

#### **B. Audit performance**

- 1. On-site audit management (Analyze)**  
Interpret situations throughout the performance of the audit to determine whether time is being managed well and when changes need to be made, such as revising planned audit team activities, reallocating resources, adjusting the audit plan, etc., and communicate with the auditee about any changes or other events related to the audit.

## **CQA BOK (Continued)**

- 2. Opening meeting (Apply)**  
Manage the opening meeting of an audit by identifying the audit's purpose and scope, describing any scoring or rating criteria that will be used during the audit, creating a record of the attendees, reviewing the audit schedule, and answering questions as needed.
- 3. Audit data collection and analysis (Evaluate)**  
Use various data collection methods to capture information: conducting interviews, observing work activities, taking physical measurements, examining documents, etc. Evaluate the results to determine their importance for providing audit evidence.
- 4. Establishment of objective evidence (Analyze)**  
Identify and differentiate characteristics of objective evidence, such as observed, measured, confirmed or corroborated, and documented.
- 5. Organization of objective evidence (Evaluate)**  
Classify evidence in terms of significance, severity, frequency, and level of risk. Evaluate the evidence for its potential impact on product, process, system, cost of quality, etc., and determine whether additional investigation is required to meet the scope of the audit.
- 6. Exit and closing meetings (Apply)**  
Formally manage these meetings: reiterate the audit's purpose, scope, and scoring or rating criteria, and create a record of the attendees. Present the audit results and obtain concurrence on evidence that could lead to an adverse conclusion. Discuss the next steps in the process (follow-up audit, additional evidence-gathering, etc.), and clarify who is responsible for performing those steps.

### **C. Audit reporting**

- 1. Report development and content (Create)**  
Group observations into actionable findings of significance, and identify the severity and risk to the client and the auditee. Use appropriate steps to generate the audit report: organize and summarize details, review and finalize results, emphasize critical issues, establish unique identifiers or codes for critical issues to facilitate tracking and monitoring, etc.
- 2. Effective reports (Create)**  
Develop and evaluate components of effective audit reports, including background information, executive summary, prioritized results (observations, findings, opportunities for improvement, etc.). Use graphical tools or other means of emphasizing conclusions, and develop a timeline for auditee response and/or corrections.

## **CQA BOK (Continued)**

- 3. Final audit report steps (Apply)**  
Obtain necessary approvals for the audit report and distribute it according to established procedures. Identify the contents of the audit file and retain the file in accordance with established policies and procedures.

### **D. Audit follow-up and closure**

- 1. Elements of the corrective action process (Evaluate)**  
Identify and evaluate various elements: assignment of responsibility for problem identification; the performance of root cause analysis and recurrence prevention.
- 2. Review of corrective action plan (Evaluate)**  
Evaluate the acceptability of proposed corrective actions and schedule for completion. Identify and apply strategies for negotiating changes to unacceptable plans.
- 3. Verification of corrective action (Evaluate)**  
Determine the adequacy of corrective actions taken by verifying and evaluating new or updated procedures, observing revised processes, conducting follow-up audits, etc.
- 4. Follow-up on ineffective corrective action (Create)**  
Develop strategies to use when corrective actions are not implemented or are not effective, such as communicating to the next level of management, reissuing the corrective action request, and re-auditing.
- 5. Audit closure (Apply)**  
Identify and apply various elements of, and criteria for, audit closure.

### **III. Auditor Competencies (25 Questions)**

#### **A. Auditor characteristics (Apply)**

Identify characteristics that make auditors effective: interpersonal skills, problem-solving skills, attention to detail, cultural awareness and sensitivity, ability to work independently as well as in a group or on a team, etc.

#### **B. On-site audit resource management (Apply)**

Identify and apply techniques for managing audit teams, scheduling audit meetings and activities, making logistical adjustments, etc.

## CQA BOK (Continued)

**C. Conflict resolution** (Analyze)

Identify typical conflict situations (mild to vehement disagreements, auditee delaying tactics, interruptions, etc.) and determine appropriate techniques for resolving them: clarifying the question or request, reiterating ground rules, intervention by another authority, cool-down periods, etc.

**D. Communication and presentation techniques** (Evaluate)

Select and use written, oral, and electronic communication techniques for presentations made during audits for opening, closing, ad hoc meetings, etc. Use technical and managerial reporting techniques, including graphs, charts, diagrams, multimedia aids, etc., in various situations: domestic, global, in-person, virtual (e-audits), multiple sites simultaneously, etc.

**E. Interviewing techniques** (Apply)

Select and use appropriate interviewing techniques and methodologies.

1. Use open-ended or closed question types
2. Use active listening, paraphrasing, empathy, etc.
3. Recognize and respond to non-verbal cues: body language, the significance of pauses and their length, etc.
4. Determine when and how to prompt a response: when supervisors are present, when interviewing a group of workers, when using a translator, etc.

**F. Team dynamics** (Apply)

Define, describe, and apply various aspects of team dynamics.

1. Team-building: clarifying roles and responsibilities for participants and leaders to ensure equitable treatment for all team members, providing clear direction for deliverables, identifying necessary resources and ensuring their availability, etc.
2. Team facilitation: providing coaching and guidance, defusing clashes between members, eliciting input from all, cultivating objectivity, overseeing progress, encouraging diverse views and consensus, etc.
3. Stages of team development: forming, storming, norming, and performing

## CQA BOK (Continued)

### IV. Audit Program Management and Business Applications (30 Questions)

#### A. Audit program management

1. Senior management support (Understand)  
Identify and explain management's role in creating and supporting the audit function.
2. Staffing and resource management (Evaluate)  
Develop staffing budgets that provide adequate time for auditors to plan, conduct, and respond to scheduled audits, including time and resources that internal auditees need to participate. Identify any special equipment resources needed and ensure their adequacy and availability. Consider the use of and requirements for special audits (outsourced or contracted audits, virtual or e-audits, shared audits, etc.) as driven by costs, geography, etc. Evaluate results and adjust resources as needed on a regular basis.
3. Auditor training and development (Create)  
Identify minimum audit knowledge and skill requirements for auditors. Provide training on various aspects of the audit process such as relevant standards, regulatory influences, facilitation techniques, etc. Provide training on diversity and cultural influences (ethnicity, gender, age, organized labor, etc.) and how such factors can affect communications and other interactions among audit participants.
4. Audit program evaluation (Evaluate)  
Select the correct metric to evaluate the audit program, including tracking its effect on the bottom line and the risk to the organization.
5. Internal audit program management (Create)  
Develop procedures, policies, and schedules to support the organization's objectives. Review internal audit results to identify systemic trends.
6. External audit program management (Create)  
Develop procedures, policies, and schedules in support of the supplier management program, including supplier qualification surveys, surveillance audits, supplier improvement, etc.
7. Best practices (Analyze)  
Analyze audit results to standardize best practices and lessons learned across the organization.
8. Organizational risk management (Analyze)  
Analyze how the audit program affects an organization's risk level and how the risk level can influence the number and frequency of audits performed.  
[Note: Tools and techniques for managing risk are covered in BOK area V.H.]

## **CQA BOK (Continued)**

- 9. Management review input (Evaluate)**  
Examine and summarize audit program results, trends, and changes in risk to provide input to management reviews.

### **B. Business and financial impact**

- 1. Auditing as a management tool (Analyze)**  
Use audit results to monitor continuous improvement, supplier management, customer satisfaction, etc., and to provide management with an independent view of the strategic plan's effectiveness and how well it is deployed.
- 2. Interrelationships of business processes (Understand)**  
Identify how business units (receiving, product and process design, production, engineering, sales, marketing, field support, etc.) and multiple sites are interrelated, and recognize how their unique metrics and goals can be in conflict with one another.
- 3. Cost of quality (COQ) principles (Analyze)**  
Identify, describe, and analyze the audit program's effect on the four COQ categories: prevention, appraisal, internal failure, external failure.
- 4. Emerging roles of the auditor (Understand)**  
Recognize new roles and responsibilities for auditors, such as being process consultants and facilitators who can help resolve internal issues, improve processes, and add value to the organization.

### **V. Quality Tools and Techniques (26 Questions)**

#### **A. Basic quality and problem-solving tools (Analyze)**

Identify, interpret, and analyze: 1) Pareto charts, 2) cause and effect diagrams, 3) flowcharts, 4) statistical process control (SPC) charts, 5) check sheets, 6) scatter diagrams, 7) histograms, 8) root cause analysis, 9) plan-do-check-act (PDCA).

#### **B. Process improvement techniques**

- 1. Six sigma (Apply)**  
Identify, interpret, and apply the six sigma DMAIC phases: define, measure, analyze, improve, control.
- 2. Lean (Apply)**  
Identify, interpret, and apply lean tools: 5S, standard operations, kanban (pull), error-proofing, value-stream mapping, etc.



## CQA BOK (Continued)

### C. Basic statistics

1. Measures of central tendency (Apply)  
Identify, interpret, and use mean, median, and mode.
2. Measures of dispersion (Apply)  
Identify, interpret, and use standard deviation and frequency distribution.
3. Qualitative and quantitative analysis (Understand)  
Describe qualitative data in terms of the nature, type, or attribute of an observation or condition. Describe how quantitative data is used to detect patterns or trends and how such analysis can indicate whether a problem is systemic or isolated.

### D. Process variation

1. Common and special cause (Apply)  
Identify and distinguish between common and special cause variation.
2. Process performance metrics (Understand)  
Describe elements of  $C_p$  and  $C_{pk}$  process capability studies (process centering and stability, specification limits, underlying distribution, etc.), and how these studies and other performance metrics are used in relation to established goals.
3. Outliers (Understand)  
Describe their significance and impact.

### E. Sampling methods

1. Acceptance sampling plans (Understand)  
Identify and interpret these plans for attributes and variables data.
2. Types of sampling (Understand)  
Describe and distinguish between random, stratified, and cluster sampling, and identify the uses and potential problems of non-statistical sampling.
3. Sampling terms (Understand)  
Define related terms including consumer and producer risk, confidence level, etc.

### F. Change control and configuration management (Understand)

Identify the principles of change control and configuration management systems as used in various applications: hardware, software (including security considerations), product, process, and service.