The topics in this Body of Knowledge include subtext explanations and the cognitive level at which the questions will be written. This information will provide useful guidance for both the Exam Development Committee and the candidate preparing to take the exam. The subtext is not intended to limit the subject matter or be all-inclusive of material that will be covered in the exam. It is meant to clarify the type of content that will be included on the exam. The descriptor in parentheses at the end of each entry refers to the maximum cognitive level at which the topic will be tested. A complete description of cognitive levels is provided at the end of this document.

I. Quality Basics (30 Questions)

A. Terms, concepts, and principles

1. Quality definitions
   Describe and distinguish between the common definitions of quality. (Apply)

2. Quality plan
   Define a quality plan, describe its purpose and objectives to achieve the quality mission or policy. Identify the various functional areas and people having responsibility for contributing to its development. (Understand)

3. Quality systems
   Understand the difference and relationship between quality assurance, quality control, and continuous quality improvement. (Understand)

4. Organizational culture
   Understand how culture influences the success of process improvement efforts such as lean, six sigma, ISO 9001, Baldrige, and change management. (Understand)

5. Employee involvement and empowerment
   Define and distinguish between employee involvement and employee empowerment. Describe the benefits of both concepts. (Understand)

6. Systems and processes
   Define and distinguish between a system and a process and describe the interrelationships between them. Describe the components of a system – supplier, input, process, output, customer (SIPOC) – and how these components impact the system as a whole. (Analyze)

7. Variation
   Define and distinguish between common and special cause variation in relation to quality measures. (Understand)

8. Standardization
   Describe how quality systems provide consistency and standardization (e.g. ISO 9001). (Remember)
B. Benefits of quality
Describe how using quality tools, techniques, and concepts can improve processes and deliverables (including products and services), and how each benefit all parts of an organization. Describe what quality means to various stakeholders (e.g., employees, organizations, customers, suppliers, community, and interested parties) and how each can benefit from quality. (Understand)

C. Foundations of quality
Understand the key concepts and teachings of the foundational quality thought leaders including 1) Walter Shewhart, 2) W. Edwards Deming, 3) Joseph Juran, 4) Kaoru Ishikawa, 5) Philip Crosby, and 6) Armand Feigenbaum. (Understand)

II. Team Basics (16 Questions)
A. Team organization
1. Team purpose
   Describe why teams are an effective way to identify and solve problems, and describe when, where, why, and how teams can be used effectively. (Apply)

2. Types of teams
   Define and distinguish between various types of teams: process teams, continuous improvement teams, workgroups, self-managed teams, ad hoc project teams, cross-functional teams, and virtual teams. (Apply)

3. Value of teams
   Explain how a team’s efforts can support an organization’s key strategies and effect positive change throughout the organization. (Understand)

B. Roles and responsibilities
   Describe the roles and responsibilities of various team stakeholders, such as 1) sponsor, 2) champion, 3) facilitator, 4) leader, 5) member, 6) scribe, and 7) timekeeper. (Understand)

C. Team formation and group dynamics
1. Initiating teams
   Apply the elements of launching and sustaining a successful team, including establishing a clear purpose and goals, developing ground rules and schedules, gaining support from management, and obtaining commitment from team members. (Apply)

2. Selecting team members
   Describe how to select team members based on knowledge, skill sets, and team logistics, such as an adequate number of members in relation to the size or scope of the project, appropriate representation from affected departments or areas, and diversity. (Apply)

3. Team stages
   Describe the classic stages of team development: forming, storming, norming, performing, and adjourning. (Understand)
4. Team conflict
Identify the value of team conflict and recognize how to resolve it. Define and describe groupthink and how to overcome it. Determine how good logistics, an agenda, and effective training facilitate team success. (Analyze)

5. Team decision-making
Describe and use different decision-making models, such as voting (majority rule, multi-voting) and consensus. Use follow-up techniques to clarify the issue to be decided, to confirm agreement on the decision, and to achieve closure. (Apply)

III. Improvement (40 Questions)
A. Process improvement
1. Six sigma concepts and tools
   Compare six sigma concepts, tools, and techniques. Understand the DMAIC phases: define, measure, analyze, improve, and control. (Understand)

2. Lean concepts and tools
   Compare lean concepts, tools, and techniques. Understand lean tools used to reduce waste, including set-up and cycle-time reduction, pull systems (kanban), continuous improvement (kaizen), just-in-time (JIT), 5S, value stream mapping, and error-proofing (poka-yoke). (Understand)

3. Benchmarking
   Define benchmarking and describe how it can be used to develop and support best practices. (Understand)

4. Incremental and breakthrough improvement
   Describe and distinguish between these two types of improvements, the steps required for each, and the type of situation in which either type would be expected. (Understand)

B. Improvement techniques
   Select and utilize improvement opportunity techniques and/or methodologies including 1) brainstorming, 2) plan-do-check-act (PDCA) cycle, 3) affinity diagrams, 4) cost of poor quality (COPQ), and 5) internal audits. (Apply)

C. Improvement tools
   Select, interpret, and apply the basic improvement tools including 1) flowcharts, 2) histograms, 3) Pareto charts, 4) scatter diagrams, 5) check sheets, 6) control charts, and 7) decision trees. (Apply)

D. Root cause analysis
   Utilize root cause tools such as the 5 whys and fishbone diagram to implement correction and corrective action. (Apply)

E. Risk management
   Understand the tools and techniques used to identify and communicate risks, including failure modes and effects analysis (FMEA) and strength weakness opportunity threat (SWOT). Understand prioritization of activities and projects based on risk. (Understand)
IV. Supplier Relationship (7 Questions)
   A. Supplier selection
      Identify the supplier selection criteria and approval process. (Remember)
   B. Supplier relationship
      Understand supplier relationships, associated challenges, and effects of a diverse supply base. (Understand)
   C. Supplier performance
      Identify supplier performance measures, including quality performance, on-time delivery, and level of service. (Apply)

V. Customer Relationship (7 Questions)
   A. Customer identification
      Distinguish between internal and external customers. Describe their influence on products, services, and processes. (Understand)
   B. Voice of the customer (VOC)
      1. Data gathering and use
         Describe various methods for collecting customer satisfaction feedback, including formal surveys, informal feedback, warranty claims, and focus groups. Understand the importance of using customer satisfaction feedback to drive continuous improvement. (Understand)
      2. Complaint process
         Define and identify a customer complaint. Understand and apply the complaint handling process including documentation, action taken, and providing resolve to the customer. (Apply)
      3. Customer needs
         Understand the key elements of quality function deployment (QFD) and how it identifies and prioritizes customer expectations and needs. (Understand)
Levels of Cognition

Based on Bloom’s Taxonomy – Revised (2001)

In addition to content specifics, the subtext for each topic in this BOK also indicates the intended complexity level of the test questions for that topic. These levels are based on “Levels of Cognition” (from Bloom’s Taxonomy – Revised, 2001) and are presented below in rank order, from least complex to most complex.

**Remember**
Recall or recognize terms, definitions, facts, ideas, materials, patterns, sequences, methods, principles, etc.

**Understand**
Read and understand descriptions, communications, reports, tables, diagrams, directions, regulations, etc.

**Apply**
Know when and how to use ideas, procedures, methods, formulas, principles, theories, etc.

**Analyze**
Break down information into its constituent parts and recognize their relationship to one another and how they are organized; identify sublevel factors or salient data from a complex scenario.

**Evaluate**
Make judgments about the value of proposed ideas, solutions, etc., by comparing the proposal to specific criteria or standards.

**Create**
Put parts or elements together in such a way as to reveal a pattern or structure not clearly there before; identify which data or information from a complex set is appropriate to examine further or from which supported conclusions can be drawn.