Certified Six Sigma Yellow Belt

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and boost your organization's bottom line

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Certification from ASQ is considered a mark of quality excellence in many industries. It helps you advance your career, and boosts your organization's bottom line through your mastery of quality skills. Becoming a Certified Six Sigma Yellow Belt confirms your commitment to quality and the positive impact it will have on your organization.

Information

Certified Six Sigma Yellow Belt

The Six Sigma Yellow Belt Certification will be aimed at those new to the world of Six Sigma who have a small role, interest, or need to develop foundational knowledge. Yellow Belts can be entry-level employees who seek to improve their world or executive champions who require an overview of Six Sigma and DMAIC. This certification will adopt the approach of advancing the concept and potential of using Six Sigma tools and methodologies within an organization.

Examination

Each certification candidate is required to pass a written examination that consists of multiple-choice questions that measure the comprehension of the Body of Knowledge. The Certified Six Sigma Yellow Belt examination is a one-part, 75-question, two-hour exam and is offered in English.

Education and/or Experience

You must have one year's work experience. There is no educational waiver for this certification.

For comprehensive exam information on Six Sigma Yellow Belt certification, visit **asq.org/cert.**

Body of Knowledge
Certified Six Sigma Yellow Belt (CSSYB)

The topics in this Body of Knowledge include additional detail in the form of subtext explanations and the cognitive level at which test questions will be written. This information will provide guidance for the candidate preparing to take the exam. The subtext is not intended to limit the subject matter or be all-inclusive of what might be covered in an exam. It is meant to clarify the type of content to be included in 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 Six Sigma Fundamentals
(21 Questions)

A. Six Sigma Foundations and Principles
Describe the purpose of Six Sigma (reducing variation), its methodology (DMAIC), and its evolution from quality. Describe the value of Six Sigma to the organization as a whole. (Understand)

B. Lean Foundations and Principles
Describe the purpose of lean (waste elimination) and its methodologies (just-in-time, poka-yoke, kanban, value stream mapping). Describe the value of lean to the organization as a whole. (Understand)

C. Six Sigma Roles and Responsibilities
Define and describe the roles and responsibilities of Six Sigma team members (i.e., individual team members, Yellow Belt, Green Belt, Black Belt, Master Black Belt, process owner, champion, sponsor). (Understand)

D. Team Basics

1. Types of teams
Identify the various types of teams that operate within an organization (i.e., continuous improvement, self-managed and cross-functional) and their value. (Understand)

2. Stages of development
Describe the various stages of team evolution: forming, storming, norming, performing, and adjourning. (Understand)

3. Decision-making tools
Define brainstorming, multivoting, and nominal group technique (NGT), and describe how these tools are used by teams. (Understand)

4. Communication methods
Explain how teams use agendas, meeting minutes, and project status reports, and how they support project success. (Understand)

E. Quality Tools and Six Sigma Metrics

   1. Quality tools
Select and use these tools throughout the DMAIC process: Pareto charts, cause and effect diagrams, flowcharts, run charts, check sheets, scatter diagrams, and histograms. (Apply)

   2. Six Sigma metrics
Select and use these metrics throughout the DMAIC process: defects per unit (DPU), defects per million opportunities (DPMO), rolled throughput yield (RTY), cycle time, and cost of poor quality (COPQ). (Apply)

Ⅱ Define Phase (12 Questions)

A. Project Identification

   1. Voice of the customer
Define the voice of the customer and describe how customer needs are translated into quantifiable, critical-to-quality (CTQ) characteristics. (Understand)

   2. Project selection
Describe how projects are identified and selected as suitable for a Six Sigma project using the DMAIC methodology. (Understand)

   3. Stakeholder analysis
Identify end users, subject matter experts, process owners and other people or factors that will be affected by a project, and describe how each of them can influence the project. (Understand)

   4. Process inputs and outputs
Use SIPOC (suppliers, inputs, process, outputs, customers) to identify and define important elements of a process. (Apply)

B. Project Management (PM) Basics

   1. Project charter
Describe the purpose of a charter and its components: problem statement, project scope, baseline data, and project goal. (Understand)

   2. Communication plan
Explain the purpose and benefits of a communication plan and how it can impact the success of the project. (Understand)

   3. Project planning
Define work breakdown structure (WBS) and Gantt charts and describe how they are used to plan and monitor projects. (Understand)

   4. Project management tools
Select and use various PM tools: activity network diagrams, affinity diagrams, matrix charts, relations charts, and tree diagrams. (Understand)

   5. Phase reviews
Explain how tollgate or phase reviews are used throughout the DMAIC life cycle. (Understand)

Ⅲ Measure Phase (15 Questions)

A. Basic Statistics
Define, calculate, and interpret measures of central tendency (mean, median, mode) and measures of dispersion (standard deviation, range, variance). (Apply)

B. Data Collection

   1. Data collection plans
Describe the critical elements of a data collection plan, including an operational definition, data sources, the method to be used for gathering data, and how frequently it will be gathered. Describe why data collection plans are important. (Understand)

   2. Qualitative and quantitative data
Define and distinguish between these types of data. (Understand)

   3. Data collection techniques
Use various data collection techniques, including surveys, interviews, check sheets, and checklists to gather data that contributes to the process being improved. (Apply)

C. Measurement System Analysis (MSA)

   1. MSA terms
Define precision, accuracy, bias, linearity, and stability, and describe how these terms are applied in the measurement phase. (Understand)

   2. Gauge repeatability and reproducibility (GR&R)
Describe how and why GR&R is used in the measurement phase. (Understand)

Ⓥ Analyze Phase (15 Questions)

A. Process Analysis Tools

1. **Lean tools**
   Define how 5S and value analysis can be used to identify and eliminate waste. (Understand)

2. **Failure mode and effect analysis (FMEA)**
   Define the elements of severity, opportunity, and detection, how they are used to calculate the risk priority number. Describe how FMEA can be used to identify potential failures in a process. (Understand)

B. Root Cause Analysis
Describe how the 5 whys, process mapping, force-field analysis and matrix charts can be used to identify the root causes of a problem. (Understand)

C. Data Analysis

1. **Basic distribution types**
   Define and distinguish between normal and binomial distributions and describe how their shapes (skewed and bimodal) can affect data interpretation. (Understand)

2. **Common and special cause variation**
   Describe and distinguish between these types of variation. (Understand)

D. Correlation and Regression

1. **Correlation**
   Describe how correlation is used to identify relationships between variables. (Understand)

2. **Regression**
   Describe how regression analysis is used to predict outcomes. (Understand)

E. Hypothesis Testing
Define and distinguish between hypothesis terms (i.e., null and alternative, type I and type II error, p-value and power). (Understand)

Ⓥ Improve and Control Phases (12 Questions)

A. Improvement Techniques

1. **Kaizen and kaizen blitz**
   Define and distinguish between these two methods and describe how they can be used to make improvements to any process in an organization. (Understand)

2. **Plan-do-check-act (PDCA) cycle**
   Define and distinguish between the steps in this process improvement tool. (Understand)

3. **Cost-benefit analysis**
   Explain the importance of this analysis and how it is used in the improve phase. (Understand)

B. Control Tools and Documentation

1. **Control plan**
   Describe the importance of a control plan for maintaining improvements. (Understand)

2. **Control charts**
   Describe how $\overline{X}$-R charts are used for monitoring and sustaining improved processes. (Understand)

3. **Document control**
   Describe the importance of documenting changes to a process and communicating those changes to stakeholders. (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.

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