



CSSBB

ASQ Certified Six Sigma Black Belt

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Exam Summary

Syllabus

Questions

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Key to success in CSSBB Exam on ASQ Certified Six Sigma Black Belt

To achieve the professional designation of Certified Six Sigma Black Belt from the ASQ, candidates must clear the CSSBB Exam with the minimum cut-off score. For those who wish to pass the ASQ CSSBB certification exam with good percentage, please take a look at the following reference document detailing what should be included in ASQ Six Sigma Black Belt Exam preparation.

The ASQ CSSBB Exam Summary, Body of Knowledge (BOK), Sample Question Bank and Practice Exam provide the basis for the real ASQ Certified Six Sigma Black Belt exam. We have designed these resources to help you get ready to take Certified Six Sigma Black Belt (CSSBB) exam. If you have made the decision to become a certified professional, we suggest you take authorized training and prepare with our online premium [ASQ Six Sigma Black Belt Practice Exam](#) to achieve the best result.

ASQ CSSBB Certification Details:

Exam Name	Certified Six Sigma Black Belt
Exam Code	CSSBB
Exam Fee	USD \$538
Retakes	USD \$338
ASQ Member	USD \$388
Application Fee	USD \$70
Exam Duration	270 Minutes
Number of Questions	165
Passing Score	550/750
Format	Multiple Choice
Books	Certified Six Sigma Black Belt Certification Preparation The ASQ Pocket Guide For The Certified Six Sigma Black Belt
Schedule Exam	Book Your Exam
Sample Questions	ASQ CSSBB Exam Sample Questions and Answers
Practice Exam	ASQ Certified Six Sigma Black Belt Practice Test

ASQ CSSBB Exam Syllabus:

I. Organization-wide Planning and Deployment (Questions 12)

A. Organization-wide Considerations	<ol style="list-style-type: none"> 1. Fundamentals of Six Sigma and lean methodologies 2. Six Sigma, lean, and continuous improvement methodologies 3. Relationships among business systems and processes 4. Strategic planning and deployment for initiatives 	<ul style="list-style-type: none"> - Define and describe the value, foundations, philosophy, history, and goals of these approaches, and describe the integration and complementary relationship between them. (Understand) - Describe when to use Six Sigma instead of other problem-solving approaches, and describe the importance of aligning Six Sigma objectives with organizational goals. Describe screening criteria and how such criteria can be used for the selection of Six Sigma projects, lean initiatives, and other continuous improvement methods. (Apply) - Describe the interactive relationships among business systems, processes, and internal and external stakeholders, and the impact those relationships have on business systems. (Understand) - Define the importance of strategic planning for six sigma projects and lean initiatives. Demonstrate how hoshin kanri (X-matrix), portfolio analysis, and other tools can be used in support of strategic deployment of these projects. Use feasibility studies, SWOT analysis (strengths, weaknesses, opportunities, and threats), PEST analysis (political, economic, social, and technological) and contingency planning and business continuity planning to enhance strategic planning and deployment. (Apply)
B. Leadership	<ol style="list-style-type: none"> 1. Roles and responsibilities 2. Organizational roadblocks and 	<ul style="list-style-type: none"> - Describe the roles and responsibilities of executive leadership, champions, sponsors, process owners, Master Black Belts, Black Belts, and Green Belts in driving Six Sigma and lean initiatives. Describe how each group influences project deployment in terms of

	change management	<p>providing or managing resources, enabling changes in organizational structure, and supporting communications about the purpose and deployment of the initiatives.</p> <p>(Understand)</p> <ul style="list-style-type: none"> - Describe how an organization's structure and culture can impact Six Sigma projects. Identify common causes of Six Sigma failures, including lack of management support and lack of resources. Apply change management techniques, including stakeholder analysis, readiness assessments, and communication plans to overcome barriers and drive organization-wide change. (Apply)
II. Organizational Process Management and Measures (10 Questions)		
A. Impact on Stakeholders		<ul style="list-style-type: none"> - Describe the impact Six Sigma projects can have on customers, suppliers, and other stakeholders. (Understand)
B. Benchmarking		<ul style="list-style-type: none"> - Define and distinguish between various types of benchmarking, e.g., best practices, competitive, collaborative, breakthrough. Select measures and performance goals for projects resulting from benchmarking activities. (Apply)
C. Business Measures	<ol style="list-style-type: none"> 1. Performance measures 2. Financial measures 	<ul style="list-style-type: none"> - Define and describe balanced scorecard, key performance indicators (KPIs), customer loyalty metrics, and leading and lagging indicators. Explain how to create a line of sight from performance measures to organizational strategies. (Analyze) - Define and use revenue growth, market share, margin, net present value (NPV), return on investment (ROI), and cost-benefit analysis (CBA). Explain the difference between hard cost measures (from profit and loss statements) and soft cost benefits of cost avoidance and reduction. (Apply)

III. Team Management (18 Questions)

A. Team Formation	<ol style="list-style-type: none"> 1. Team types and constraints 2. Team roles and responsibilities 3. Team member selection criteria 4. Team success factors 	<ul style="list-style-type: none"> - Define and describe various teams, including virtual, cross-functional, and self-directed. Determine what team type will work best for a given a set of constraints, e.g., geography, technology availability, staff schedules, time zones. (Apply) - Define and describe various team roles and responsibilities for leader, facilitator, coach, and individual member. (Understand) - Describe various factors that influence the selection of team members, including the ability to influence, openness to change, required skill sets, subject matter expertise, and availability. (Apply) - Identify and describe the elements necessary for successful teams, e.g., management support, clear goals, ground rules, timelines. (Apply)
B. Team Facilitation	<ol style="list-style-type: none"> 1. Motivational techniques 2. Team stages of development 3. Team communication 4. Team leadership models 	<ul style="list-style-type: none"> - Describe and apply techniques to motivate team members. Identify factors that can demotivate team members and describe techniques to overcome them. (Apply) - Identify and describe the classic stages of team development: forming, storming, norming, performing, and adjourning. (Apply) - Describe and explain the elements of an effective communication plan, e.g., audience identification, message type, medium, frequency. (Apply) - Describe and select appropriate leadership approaches (e.g., direct, coach, support, delegate) to ensure team success. (Apply)
C. Team Dynamics	<ol style="list-style-type: none"> 1. Group behaviors 2. Meeting management 3. Team decision-making methods 	<ul style="list-style-type: none"> - Identify and use various conflict resolution techniques (e.g., coaching, mentoring, intervention) to overcome negative group dynamics, including dominant and reluctant participants, groupthink, rushing to finish, and digressions. (Evaluate) - Select and use various meeting management techniques, including using

		<p>agendas, starting on time, requiring pre-work by attendees, and ensuring that the right people and resources are available. (Apply)</p> <ul style="list-style-type: none"> - Define, select, and use various tools (e.g., consensus, nominal group technique, multi-voting) for decision making. (Apply)
D. Team Training	<ol style="list-style-type: none"> 1. Needs assessment 2. Delivery 3. Evaluation 	<ul style="list-style-type: none"> - Identify the steps involved to implement an effective training curriculum: identify skills gaps, develop learning objectives, prepare a training plan, and develop training materials. (Understand) - Describe various techniques used to deliver effective training, including adult learning theory, soft skills, and modes of learning. (Understand) - Describe various techniques to evaluate training, including evaluation planning, feedback surveys, pretraining and p
IV. Define (20 Questions)		
A. Voice of the Customer	<ol style="list-style-type: none"> 1. Customer Identification 2. Customer data collection 3. Customer requirements 	<ul style="list-style-type: none"> - Identify and segment customers and show how a project will impact both internal and external customers. (Apply) - Identify and select appropriate data collection methods (e.g., surveys, focus groups, interviews, observations) to gather voice of the customer data. Ensure the data collection methods used are reviewed for validity and reliability. (Analyze) - Define, select, and apply appropriate tools to determine customer needs and requirements, including critical-to-X (CTX when "X" can be quality, cost, safety, etc.), CTQ tree, quality function deployment (QFD), supplier, input, process, output, customer (SIPOC) and Kano model. (Analyze)
B. Business Case and Project Charter	<ol style="list-style-type: none"> 1. Business case 2. Problem statement 3. Project scope 4. Goals and 	<ul style="list-style-type: none"> - Describe business case justification used to support projects. (Understand) - Develop a project problem statement and evaluate it in relation to baseline performance and improvement goals. (Evaluate)

	objectives 5. Project performance measurements 6. Project charter review	<ul style="list-style-type: none"> - Develop and review project boundaries to ensure that the project has value to the customer. (Analyze) - Identify SMART (specific, measureable, actionable, relevant and time bound) goals and objectives on the basis of the project's problem statement and scope. (Analyze)measureable, actionable, relevant and time bound) goals and objectives on the basis of the project's problem statement and scope. (Analyze) - Identify and evaluate performance measurements (e.g., cost, revenue, delivery, schedule, customer satisfaction) that connect critical elements of the process to key outputs. (Analyze) - Explain the importance of having periodic project charter reviews with stakeholders. (Understand)
C. Project Management (PM) Tools	1. Gantt charts 2. Toll-gate reviews 3. Work breakdown structure (WBS) 4. RACI model (responsible, accountable, consulted, and informed)	<ul style="list-style-type: none"> - Identify and use the following PM tools to track projects and document their progress. (Evaluate)
D. Analytical Tools	1. Affinity diagrams 2. Tree diagrams 3. Matrix diagrams 4. Prioritization matrices 5. Activity network diagrams	<ul style="list-style-type: none"> - Identify and use the following analytical tools throughout the DMAIC cycle. (Apply)

V. Measure (25 Questions)		
A. Process Characteristics	1. Process flow metrics 2. Process analysis tools	<ul style="list-style-type: none"> - Identify and use process flow metrics (e.g., work in progress (WIP), work in queue (WIQ), touch time, takt time, cycle time, throughput) to determine constraints. Describe the impact that "hidden factories" can have on process flow metrics. (Analyze) - Select, use, and evaluate various tools, e.g., value stream maps, process maps, work instructions, flowcharts, spaghetti diagrams, circle diagrams, gemba walk. (Evaluate)
B. Data Collection	1. Types of data 2. Measurement scales 3. Sampling 4. Data collection plans and methods	<ul style="list-style-type: none"> - Define, classify, and distinguish between qualitative and quantitative data, and continuous and discrete data. (Evaluate) - Define and use nominal, ordinal, interval, and ratio measurement scales. (Apply) - Define and describe sampling concepts, including representative selection, homogeneity, bias, accuracy, and precision. Determine the appropriate sampling method (e.g., random, stratified, systematic, subgroup, block) to obtain valid representation in various situations. (Evaluate) - Develop and implement data collection plans that include data capture and processing tools, e.g., check sheets, data coding, data cleaning (imputation techniques). Avoid data collection pitfalls by defining the metrics to be used or collected, ensuring that collectors are trained in the tools and understand how the data will be used, and checking for seasonality effects. (Analyze)
C. Measurement Systems	1. Measurement system analysis (MSA) 2. Measurement systems across the organization 3. Metrology	<ul style="list-style-type: none"> - Use gauge repeatability and reproducibility (R&R) studies and other MSA tools (e.g., bias, correlation, linearity, precision to tolerance, percent agreement) to analyze measurement system capability. (Evaluate) - Identify how measurement systems can be applied to marketing, sales, engineering, research and development (R&D), supply

		<p>chain management, and customer satisfaction data. (Understand)</p> <ul style="list-style-type: none"> - Define and describe elements of metrology, including calibration systems, traceability to reference standards, and the control and integrity of measurement devices and standards. (Understand)
D. Basic Statistics	<ol style="list-style-type: none"> 1. Basic statistical terms 2. Central limit theorem 3. Descriptive statistics 4. Graphical methods 5. Valid statistical conclusions 	<ul style="list-style-type: none"> - Define and distinguish between population parameters and sample statistics, e.g., proportion, mean, standard deviation. (Apply) - Explain the central limit theorem and its significance in the application of inferential statistics for confidence intervals, hypothesis tests, and control charts. (Understand) - Calculate and interpret measures of dispersion and central tendency. (Evaluate) - Construct and interpret diagrams and charts, e.g., box-and-whisker plots, scatter diagrams, histograms, normal probability plots, frequency distributions, cumulative frequency distributions. (Evaluate) - Distinguish between descriptive and inferential statistical studies. Evaluate how the results of statistical studies are used to draw valid conclusions. (Evaluate)
E. Probability	<ol style="list-style-type: none"> 1. Basic concepts 2. Distributions 	<ul style="list-style-type: none"> - Describe and apply probability concepts, e.g., independence, mutually exclusive events, addition and multiplication rules, conditional probability, complementary probability, joint occurrence of events. (Apply) - Describe, interpret, and use various distributions, e.g., normal, Poisson, binomial, chi square, Student's t, F, hypergeometric, bivariate, exponential, lognormal, Weibull. (Evaluate)
F. Process Capability	<ol style="list-style-type: none"> 1. Process capability indices 2. Process performance indices 3. General process 	<ul style="list-style-type: none"> - Define, select, and calculate Cp and Cpk. (Evaluate) - Define, select, and calculate Pp, Ppk, Cpm, and process sigma. (Evaluate) - Describe and apply elements of designing and conducting process capability studies

	capability studies 4. Process capability for attributes data 5. Process capability for non-normal data 6. Process performance vs. specification 7. Short-term and long-term capability	relative to characteristics, specifications, sampling plans, stability, and normality. (Evaluate) - Calculate the process capability and process sigma level for attributes data. (Apply) - Identify non-normal data and determine when it is appropriate to use Box-Cox or other transformation techniques. (Apply) - Distinguish between natural process limits and specification limits. Calculate process performance metrics, e.g., percent defective, parts per million (PPM), defects per million opportunities (DPMO), defects per unit (DPU), throughput yield, rolled throughput yield (RTY). (Evaluate) - Describe and use appropriate assumptions and conventions when only short-term data or only long-term data are available. Interpret the relationship between short-term and long-term capability. (Evaluate)
VI. Analyze (22 Questions)		
A. Measuring and Modeling Relationships between Variables	1. Correlation coefficient 2. Linear regression 3. Multivariate tools	- Calculate and interpret the correlation coefficient and its confidence interval, and describe the difference between correlation and causation. (Evaluate) - Calculate and interpret regression analysis, and apply and interpret hypothesis tests for regression statistics. Use the regression model for estimation and prediction, analyze the uncertainty in the estimate, and perform a residuals analysis to validate the model. (Evaluate) - Use and interpret multivariate tools (e.g., factor analysis, discriminant analysis, multiple analysis of variance (MANOVA)) to investigate sources of variation. (Evaluate)
B. Hypothesis Testing	1. Terminology 2. Statistical vs. practical significance 3. Sample size	- Define and interpret the significance level, power, type I, and type II errors of statistical tests. (Evaluate) - Define, compare, and interpret statistical and practical significance. (Evaluate)

	<p>4. Point and interval estimates</p> <p>5. Tests for means, variances, and proportions</p> <p>6. Analysis of variance (ANOVA)</p> <p>7. Goodness-of-fit (chi square) tests</p> <p>8. Contingency tables</p> <p>9. Non-parametric tests</p>	<ul style="list-style-type: none"> - Calculate sample size for common hypothesis tests: equality of means and equality of proportions. (Apply) - Define and distinguish between confidence and prediction intervals. Define and interpret the efficiency and bias of estimators. Calculate tolerance and confidence intervals. (Evaluate) - Use and interpret the results of hypothesis tests for means, variances, and proportions. (Evaluate) - Select, calculate, and interpret the results of ANOVAs. (Evaluate) - Define, select, and interpret the results of these tests. (Evaluate) - Select, develop, and use contingency tables to determine statistical significance. (Evaluate) - Understand the importance of the Kruskal-Wallis and Mann-Whitney tests and when they should be used. (Understand)
C. Failure Mode and Effects Analysis (FMEA)		<ul style="list-style-type: none"> - Describe the purpose and elements of FMEA, including risk priority number (RPN), and evaluate FMEA results for processes, products, and services. Distinguish between design FMEA (DFMEA) and process FMEA (PFMEA), and interpret their results. (Evaluate)
D. Additional Analysis Methods	<p>1. Gap analysis</p> <p>2. Root cause analysis</p> <p>3. Waste analysis</p>	<ul style="list-style-type: none"> - Analyze scenarios to identify performance gaps, and compare current and future states using predefined metrics. (Analyze) - Define and describe the purpose of root cause analysis, recognize the issues involved in identifying a root cause, and use various tools (e.g., 5 whys, Pareto charts, fault tree analysis, cause and effect diagrams) to resolve chronic problems. (Analyze) - Identify and interpret the seven classic wastes (overproduction, inventory, defects, over-processing, waiting, motion, transportation) and resource under-utilization. (Analyze)

VII. Improve (21 Questions)		
A. Design of Experiments (DOE)	1. Terminology 2. Design principles 3. Planning experiments 4. One-factor experiments 5. Two-level fractional factorial experiments 6. Full factorial experiments	<ul style="list-style-type: none"> - Define basic DOE terms, e.g., independent and dependent variables, factors and levels, response, treatment, error, nested. (Understand) - Define and apply DOE principles, e.g., power, sample size, balance, repetition, replication, order, efficiency, randomization, blocking, interaction, confounding, resolution. (Apply) - Plan and evaluate DOEs by determining the objective, selecting appropriate factors, responses, and measurement methods, and choosing the appropriate design. (Evaluate) - Design and conduct completely randomized, randomized block, and Latin square designs, and evaluate their results. (Evaluate) - Design, analyze, and interpret these types of experiments, and describe how confounding can affect their use. (Evaluate) - Design, conduct, and analyze these types of experiments. (Evaluate)
B. Lean Methods	1. Waste elimination 2. Cycle-time reduction 3. Kaizen 4. Other improvement tools and techniques	<ul style="list-style-type: none"> - Select and apply tools and techniques for eliminating or preventing waste, e.g., pull systems, kanban, 5S, standard work, poka-yoke. (Analyze) - Use various tools and techniques for reducing cycle time, e.g., continuous flow, single-minute exchange of die (SMED), heijunka (production leveling). (Analyze) - Define and distinguish between kaizen and kaizen blitz and describe when to use each method. (Apply) Identify and describe how other process improvement methodologies are used, e.g., theory of constraints (TOC), overall equipment effectiveness (OEE). (Understand)
C. Implementation		<ul style="list-style-type: none"> - Develop plans for implementing proposed improvements, including conducting pilot tests

		or simulations, and evaluate results to select the optimum solution. (Evaluate)
VIII. Control (15 Questions)		
A. Statistical Process Control (SPC)	<ol style="list-style-type: none"> 1. Objectives 2. Selection of variables 3. Rational subgrouping 4. Control chart selection 5. Control chart analysis 	<ul style="list-style-type: none"> - Explain the objectives of SPC, including monitoring and controlling process performance, tracking trends, runs, and reducing variation within a process. (Understand) - Identify and select critical process characteristics for control chart monitoring. (Apply) - Define and apply the principle of rational subgrouping. (Apply) - Select and use control charts in various situations: $\bar{X} - R$, $\bar{X} - s$, individual and moving range (ImR), p, np, c, u, short-run SPC, and moving average. (Apply) - Interpret control charts and distinguish between common and special causes using rules for determining statistical control. (Analyze)
B. Other Controls	<ol style="list-style-type: none"> 1. Total productive maintenance (TPM) 2. Visual controls 	<ul style="list-style-type: none"> - Define the elements of TPM and describe how it can be used to consistently control the improved process. (Understand) - Define the elements of visual controls (e.g., pictures of correct procedures, color-coded components, indicator lights), and describe how they can help control the improved process. (Understand)
C. Maintain Controls	<ol style="list-style-type: none"> 1. Measurement system reanalysis 2. Control plan 	<ul style="list-style-type: none"> - Review and evaluate measurement system capability as process capability improves, and ensure that measurement capability is sufficient for its intended use. (Evaluate) - Develop a control plan to maintain the improved process performance, enable continuous improvement, and transfer responsibility from the project team to the process owner. (Apply)

D. Sustain Improvements	<ol style="list-style-type: none"> 1. Lessons learned 2. Documentation 3. Training for process owners and staff 4. Ongoing evaluation 	<ul style="list-style-type: none"> - Document the lessons learned from all phases of a project and identify how improvements can be replicated and applied to other processes in the organization. (Apply) - Develop or modify documents including standard operating procedures (SOPs), work instructions, and control plans to ensure that the improvements are sustained over time. (Apply) - Develop and implement training plans to ensure consistent execution of revised process methods and standards to maintain process improvements. (Apply) - Identify and apply tools (e.g., control charts, control plans) for ongoing evaluation of the improved process, including monitoring leading indicators, lagging indicators, and additional opportunities for improvement. (Apply)
IX. Design for Six Sigma (DFSS) Framework and Methodologies (7 Questions)		
A. Common DFSS Methodologies		<ul style="list-style-type: none"> - Identify and describe DMADV (define, measure, analyze, design, and validate) and DMADOV (define, measure, analyze, design, optimize, and validate). (Understand)
B. Design for X (DFX)		<ul style="list-style-type: none"> - Describe design constraints, including design for cost, design for manufacturability (producibility), design for test, and design for maintainability. (Understand)
C. Robust Designs		<ul style="list-style-type: none"> - Describe the elements of robust product design, tolerance design, and statistical tolerancing. (Understand)

CSSBB Sample Questions:

01. Typically, which of the following actions is NOT used to reduce process cycle time?

- a) Analyzing current processes
- b) Reducing queue times

- c) Setting scheduling priorities
- d) Implementing activity-based costing

02. Which of the following terms is used to describe the risk of a type I error in a hypothesis test?

- a) Power
- b) Confidence level
- c) Level of significance
- d) Beta risk

03. One characteristic of attributes data is that it is always

- a) continuous
- b) discrete
- c) expensive to collect
- d) read from a scale of measurement

04. Which of the following is most important in evaluating and understanding design intent?

- a) Identifying the functional requirement
- b) Brainstorming failure modes
- c) Conducting computer simulations
- d) Developing FMEA

05. The process of having a six sigma team develop a problem statement helps the team to?

- a) agree on key dates associated with completing major project phases
- b) achieve consensus and ownership of the process
- c) determine solutions
- d) determine how often it should meet

06. If a process follows an exponential distribution with a mean of 25, what is the standard deviation for the process?

- a) 0.4
- b) 5.0
- c) 12.5
- d) 25.0

07. Which of the following best describes a controlled variable whose influence on a response is being studied?

- a) Replicate
- b) Version
- c) Level
- d) Factor

08. A change agent is responsible for helping the organization do which of the following?

- a) Overcome fear of the unknown
- b) Reorganize departments
- c) Determine performance criteria
- d) Identify which group is responsible for failures

09. Which of the following will have the most influence on consumers' perception of quality?

- a) Industry standards
- b) Company financial performance
- c) Audit results
- d) Service and repair policies

10. Correction, over-production, inventory, and motion are all examples of

- a) waste
- b) 5S target areas
- c) Noise
- d) value-added activities

Answers to CSSBB Exam Questions:

Question: 01 Answer: d	Question: 02 Answer: c	Question: 03 Answer: b	Question: 04 Answer: a	Question: 05 Answer: b
Question: 06 Answer: d	Question: 07 Answer: d	Question: 08 Answer: a	Question: 09 Answer: d	Question: 10 Answer: a

Note: If you find any typo or data entry error in these sample questions, we request you to update us by commenting on this page or write an email on feedback@processexam.com