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#1 Process Certification Guide

ASQ CQI

ASQ QUALITY INSPECTOR CERTIFICATION QUESTIONS & ANSWERS

Exam Summary – Syllabus – Questions

CQI

ASQ Certified Quality Inspector (CQI)

110 Questions Exam – 550/750 Cut Score – Duration of 270 minutes

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Know Your CQI Certification Well:

The CQI is best suitable for candidates who want to gain knowledge in the ASQ Quality Control. Before you start your CQI preparation you may struggle to get all the crucial Quality Inspector materials like CQI syllabus, sample questions, study guide.

But don't worry the CQI PDF is here to help you prepare in a stress free manner.

The PDF is a combination of all your queries like-

- What is in the CQI syllabus?
- How many questions are there in the CQI exam?
- Which Practice test would help me to pass the CQI exam at the first attempt?

Passing the CQI exam makes you ASQ Certified Quality Inspector (CQI). Having the Quality Inspector certification opens multiple opportunities for you. You can grab a new job, get a higher salary or simply get recognition within your current organization.

ASQ CQI Quality Inspector Certification Details:

Exam Name	ASQ Certified Quality Inspector
Exam Code	CQI
Exam Fee ASQ MEMBERS	USD $318
NON-MEMBERS	USD $418
RETAKES	USD $208
Application Fee	USD $70
Exam Duration	270 Minutes
Number of Questions	110
Passing Score	550/750
Format	Multiple Choice Questions
Books / Trainings	**Certified Quality Inspector Certification Preparation** **The Certified Quality Inspector Handbook**
Schedule Exam	**Book Your Exam**
Sample Questions	**ASQ CQI Exam Sample Questions and Answers**
Practice Exam	**ASQ Certified Quality Inspector (CQI) Practice Test**

CQI Syllabus:

I. TECHNICAL MATHEMATICS (19 Questions)	
A. Basic Shop Math	- Solve basic shop math problems using addition, subtraction, multiplication, division of fractions and decimals, squares, and square roots. Use methods such as truncating and rounding to obtain significant digits for positive and negative numbers. (Apply)
B. Basic Algebra	- Solve or simplify first-degree and single-variable equations. (Apply)
C. Basic Geometry	- Calculate general parameters such as area, circumference, perimeter, and volume for basic geometric shapes. Calculate complementary and supplementary angles. (Apply)
D. Basic Trigonometry	- Solve for angles and lengths using trigonometric functions such as sine, cosine, tangent, and the Pythagorean Theorem. (Apply)
E. Measurement Systems	- Convert units within and between English and metric measurement systems (SI) such as inch to micro-inch, liter to quart, and meter to millimeter. (Apply)
F. Numeric Conversions	- Use various numbering methods such as scientific notation, decimals, and fractions, and convert values between these systems. (Apply)
II. METROLOGY (26 Questions)	
A. Common Gauges and Measurement Instruments	1. Variable gauges - Identify and use variable gauges, including micrometers, calipers, dial indicators, and Coordinate Measuring Machines (CMMs). Understand linear scales, such as steel rule, and gauge blocks. Use borescopes, thermometers, and temperature probes. (Apply) 2. Attribute gauges - Identify and use attribute gauges, including thread plugs, progressive rings, flush pins, pin gauges, and radius gauges. (Apply) 3. Transfer gauges - Identify and use transfer gauges, including small-hole gauges, telescoping gauges, and spring calipers. (Apply) 4. Measurement scales - Describe and distinguish between dial, digital, and vernier scales. (Remember)
B. Special Gauges and Applications	- Identify and describe the following basic tools and components. (Remember) 1. Electronic gauging tools: oscilloscopes, multimeters, and

	pyrometers. 2. Automatic gauging components: machine vision, ultrasonic, X-ray, and laser. 3. Pneumatic gauging components: air columns, probes, and rings. 4. Force gauging: torque wrenches. 5. Environment instrumentation: hygrometers, chart recorders, and data loggers.
C. Gauge Selection, Handling, and Use	1. 10:1 rule - Understand the 10:1 rule: inspection measurements require better than the tolerance of a dimension by a factor of 10, and calibration standards require better than the inspection measurements by a factor of 10. (Understand) 2. Gauge selection - Select gauges according to the feature or characteristic to be measured, the applicable tolerance and the accuracy, environment, and the resolution and capability of the test instrument. Determine whether the type of measurement should be direct, differential, or transfer. (Apply) 3. Gauge handling, preservation, and storage - Identify and apply various methods of cleaning, handling, and storing gauges. (Apply) 4. Gauge correlation - Identify and apply methods for establishing the correlation between measurement instruments such as gauge-to-gauge or manual-to-automated process. (Apply)
D. Surface Plate Tools and Techniques	1. Surface plate equipment - Select and use height gauges, V-blocks, and other indicators to measure various types of features. Understand the care, cleaning, calibration, and lapping of a surface plate. (Apply) 2. Angle measurement instruments - Identify and use protractors, sine bars, and angle blocks. (Apply)
E. Specialized Inspection Equipment	1. Measuring mass - Describe and apply weights, balances, and scales. (Apply) 2. Measuring finish - Describe and apply profilometers, and fingernail comparators. (Apply) 3. Measuring shape and profile - Describe and apply mechanical comparators, roundness testers, precision spindles, and profile tracers. (Apply) 4. Optical equipment - Describe and apply optical comparators, optical flats, and microscopes. (Apply) 5. Software-based measurement systems - Define and describe the use of digital cameras, in-line optical sensors, vision inspection systems (white light/blue light), articulating arms, laser trackers, contracers, and

	other digital systems for product inspection. Recognize software limitations with regard to locating functional datums, target points and areas, hole positions, and the basic operation of the x, y, and z axes. (Understand) 6. Measuring Inclination - Define and describe the measurement of the slope or slant of various equipment (mechanical/laser). (Understand)
F. Calibration	1. Calibration systems - Describe the principles and purpose of a calibration system, including the importance of establishing calibration intervals and uncertainty. Identify and use basic tracking and identification methods such as logs, stickers, radio frequency identification (RFID), barcodes, and other identification codes to control calibration equipment. (Apply) 2. Calibration standards and equipment traceability - Describe the hierarchy of standards, from working standards through international standards and the documentation process of a measurement device traceable to the international standards. (Remember) 3. Gauge calibration environment - Describe the effects that environmental conditions have on the calibration process, such as temperature, humidity, vibration and cleanliness of the gauge. (Apply) 4. Out-of-Calibration effects - Describe the effects that out-of-calibration instruments can have on product acceptance and the actions to take in response to this situation. (Apply)
G. Measurement System Analysis (MSA)	- Define and describe the following elements of MSA. (Remember) 1. Bias 2. Stability 3. Precision 4. Accuracy 5. Linearity 6. Repeatability and reproducibility (R & R) studies
III. INSPECTION AND TEST (33 Questions)	
A. Blueprints, Drawings, Geometric Dimensioning and Tolerancing (GD&T), and Model-Based Definitions	1. Blueprints, engineering drawings, and model-based definitions - Define and interpret various sections of technical drawings: title blocks, tolerances, change or revision blocks, including notes, scale, and size details. (Apply) 2. Terminology and symbols - Define and interpret drawing views and details for product specifications or other controlling documents. Define and use various terms and symbols from the ASME Y14.5M standard. (Analyze) 3. Position and bonus tolerances

	- Calculate position and bonus tolerances from various drawings. (Analyze) 4. Part alignment and datum structure - Determine part alignment and setup using the datum structure. (Analyze)
B. Sampling	- Define and interpret the following terms related to sampling. (Apply) 1. Acceptance quality limit (AQL) 2. Random sampling 3. Lot and sample size 4. Acceptance number 5. Sampling plans
C. Inspection Planning and Processes	1. Inspection types - Define and distinguish between inspection types such as incoming material, first-article (first-piece), in-process, and final. (Apply) 2. Inspection errors - Identify potential inspection errors such as bias, fatigue, flinching, distraction, and poor time management. (Apply) 3. Product traceability - Identify methods to trace products and materials such as age control, shelf life, first-in first-out (FIFO), barcoding, date codes, and lot and part numbering. (Apply) 4. Identification of nonconforming material - Describe various methods of identifying nonconforming material such as tagging, labeling, and segregating. (Apply) 5. Levels of severity Define and describe levels of severity (critical, major, and minor) and apply them to product features and defects. (Apply) 6. Disposition of nonconforming material - Describe disposition methods including rework, reprocess, reinspect, scrap, and customer waiver, as determined by a material review board (MRB) or other authority. (Apply)
D. Testing methods	- Define and use the following methods in various situations. (Apply) 1. Nondestructive testing: X-ray, eddy current, ultrasonic, dye penetrant, magnetic particle, optical, visual, and profile. 2. Destructive testing: tensile, force testing, and drop test. 3. Functionality testing: tension, torque, leak testing and compression. 4. Hardness testing: Brinell, Rockwell, durometer, and micro-hardness scales
E. Software for test equipment	- Identify and describe basic tools (safeguarding, functional checks, comparison of test results, identification of attributes and parameters) used to ensure that the

	software for test equipment adequately and correctly performs its intended functions. (Remember)
IV. QUALITY ASSURANCE (22 Questions)	
A. Basic Statistics and Applications	1. Measures of central tendency - Calculate mean, median, and mode. (Apply) 2. Measures of dispersion - Calculate range, standard deviation, and variance. (Apply) 3. Measures of proportion - Calculate percentage and ratio measures for various data sets. (Apply) 4. Graphical displays - Define, interpret, and use scatter diagrams, tally sheets, and bar charts to display data effectively in various situations. (Apply) 5. Normal distribution - Describe various characteristics of a normal distribution: symmetry, bell curve, and central tendency. (Understand)
B. Statistical Process Control (SPC)	1. Common and special cause variation - Explain the difference between these causes of variation. Determine whether a process is in statistical control by analyzing data patterns (runs, trends, and hugging), and identify what actions should be taken in response. (Evaluate) 2. Control limits and specification limits - Define, describe, and distinguish between these limits as used in SPC. (Apply) 3. Variables charts - Identify characteristics and uses of X − R and X − s charts. (Apply) 4. Attributes charts - Identify characteristics and uses of p, np, c, and u charts. (Apply) 5. Process capability analysis - Define and distinguish between Cp, Cpk, Pp, and Ppk studies and identify their application to various types of data. (Understand)
C. Quality Improvement	1. Terms and concepts - Define basic quality improvement concepts such as defect detection and prevention, the cost of poor quality, total quality management (TQM), and the importance of customer satisfaction. (Understand) 2. Products and processes - Define and distinguish between products and processes. Describe the interrelationships of product design, materials used, manufacturing processes, and final output, and how individual steps in a process can affect the final product or the system as a whole. (Understand)

D. Quality Audits	1. Types of audits - Define and describe various types of audits, including internal, external, system, product, and process. (Understand) 2. Audit process - Define and describe various stages of the audit process (planning, performance, and closure), including audit scope and purpose, resources needed, audit schedule, opening meeting, interviewing, data gathering, document and record review, analysis of results, closing meeting, audit documentation (reporting), recordkeeping, and verification of corrective actions. (Understand) 3. Audit tools - Define and describe the purpose of checklists, log sheets, sampling plans, record reviews, document reviews, and forward- and backward-tracing. (Understand) 4. Communication tools and techniques - Define and describe the use of graphs, charts, diagrams, and other aids for written and oral presentations including interview techniques and listening skills. (Understand) 5. Corrective action requests (CARs) - Describe how CARs from audits can support quality improvement. (Understand)
E. Quality Tools and Techniques	- Define and use the following quality tools and techniques. (Apply) 1. Pareto charts 2. Cause and effect diagrams 3. Flowcharts 4. Control charts 5. Check sheets 6. Scatter diagrams 7. Histograms
F. Problem-solving Tools and Continuous Improvement Techniques	- Describe and use the following tools and techniques in various situations. (Apply) 1. Plan-do-check-act (PDCA) or Plan-do-study-act (PDSA) cycles 2. Lean tools for eliminating waste: 5S, error-proofing, value-stream mapping; and lean concepts: kaizen, flow, pull. 3. Six sigma phases: define, measure, analyze, improve, control (DMAIC) 4. Failure mode and effects analysis (FMEA) 5. 8D Methodology 6. 5 Whys 7. Fault Tree Analysis
G. Resources	1. Environmental and safety support - Define and use various resources related to personal and environmental safety: safety data sheets (SDS), material data sheet (MSDS), and personal protective equipment

	(PPE). (Apply) 2. Reference documents - Identify and use national and international standards (ISO, ANSI, ASTM, QS) and customer requirements as authorities that support processes and procedures used to assure quality products. (Apply) 3. Employees as resources - Describe how employees can be empowered and the value they add to project teams or quality improvement teams. Describe typical team roles and responsibilities: facilitator, ground rules, project, or team charter. Describe the four stages of team development: forming, storming, norming, performing. (Remember) 4. Quality Documentation - Basic quality documentation including correct form/revision for the process (ISO9001, First Article Inspection Report, ISIR, PPAPs). Proper usage of policy, procedure, work instructions and forms, proper documentation practices such as document control, filling out forms completely, correcting misspellings, and initialing changes. (Apply)

ASQ CQI Sample Questions:

Question: 1

Which of the following can measure size and location simultaneously?

a) Dial bore indicator
b) Digital calipers
c) Coordinate measuring machine
d) Micrometer

Answer: c

Question: 2

Which of the following is the correct way to open and close a micrometer?

a) Hold it by the thimble and twirl it.
b) Run the thimble across a hard surface.
c) Run the thimble across your hand.
d) Hold the adjusting nut and turn the ratchet screw.

Answer: c

Question: 3

Which of the following conditions must be met for a process to be in a state of statistical control?

a) Most of the product output by the process is in specification.
b) All subgroup averages and ranges are within control limits.
c) All variation has been completely removed.
d) Previously optimal process settings are used.

Answer: b

Question: 4

What type of gage is best to use to avoid damaging an object's surface?

a) Pneumatic gage
b) Ring gage
c) Snap gage
d) Thread plug gage

Answer: a

Question: 5

The dial caliper evolved from which of the following gages?

a) Vernier caliper
b) Micrometer
c) Dial bore gage
d) Digital caliper

Answer: a

Question: 6

When a control chart is used on a new process, capability can be assessed at which of the following times?

a) Before the chart is first started
b) After the first ten points are plotted
c) When the plotted points hug the centerline
d) After the process is shown to be in control

Answer: d

Question: 7

What is 68 Fahrenheit converted to Centigrade?

a) 16 C
b) 20 C
c) 28 C
d) 36 C

Answer: b

Question: 8

A standard micrometer will have how many pitch threads per inch?

a) 25
b) 40
c) 60
d) 100

Answer: b

Question: 9

Which of the following is NOT necessary for team effectiveness?

a) The team's purpose is clearly understood and supported by all members.
b) The team is accountable for specific measurable outcomes.
c) A process exists for establishing goals and objectives.
d) Company management directly participates as a team member.

Answer: d

Question: 10

Which of the following hardness tests is best suited for plastic and rubber?

a) Brinell
b) Rockwell B
c) Rockwell C
d) Durometer

Answer: d

Study Guide to Crack ASQ Quality Inspector CQI Exam:

- Getting details of the CQI syllabus, is the first step of a study plan. This pdf is going to be of ultimate help. Completion of the syllabus is must to pass the CQI exam.
- Making a schedule is vital. A structured method of preparation leads to success. A candidate must plan his schedule and follow it rigorously to attain success.
- Joining the ASQ provided training for CQI exam could be of much help. If there is specific training for the exam, you can discover it from the link above.
- Read from the CQI sample questions to gain your idea about the actual exam questions. In this PDF useful sample questions are provided to make your exam preparation easy.
- Practicing on CQI practice tests is must. Continuous practice will make you an expert in all syllabus areas.