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38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

American Society For Quality (ASQ)

CQTEN

Certified Quality Technician

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for American Society For Quality (ASQ) CQTEN , each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, CQTEN
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

SINGLE CHOICE

A quality technician is evaluating two types of quality costs in a manufacturing process. Which of the following activities is BEST classified as a prevention cost?

- ☐ A Performing 100% inspection of finished products before shipment
- ☒ B Training employees on the proper operation of calibrated measuring equipment
- ☐ C Reworking defective units identified during final inspection
- ☐ D Scrap costs associated with parts that fail incoming material inspection

ANSWER B

WHY Prevention costs are incurred to keep defects from occurring in the first place. Training employees on proper equipment operation reduces the likelihood of producing defective parts, making it a classic prevention activity. Inspection (A) is an appraisal cost, while rework (C) and scrap (D) are internal failure costs.

QUESTION 2

SINGLE CHOICE

A quality technician needs to identify the most frequently occurring type of defect on an assembly line. Which of the seven basic quality tools is MOST appropriate for this situation?

- ☐ A Scatter diagram
- ☐ B Histogram
- ☒ C Pareto chart
- ☐ D Control chart

ANSWER C

WHY A Pareto chart is a bar chart with categories ordered from largest to smallest frequency, often combined with a cumulative percentage line. It is the most appropriate tool when the goal is to identify the most frequently occurring defect type so improvement efforts can be prioritized. A histogram shows variation distribution, a scatter diagram shows relationships between two variables, and a control chart monitors process stability over time.

QUESTION 3

SINGLE CHOICE

An X-bar chart has a center line of 10.00, an upper control limit (UCL) of 10.60, and a lower control limit (LCL) of 9.40. A sample subgroup mean of 10.72 is plotted on the chart. What action should the technician take?

- ☐ A Continue production because the point is still within the specification limits.
- ☐ B Continue production because only one point is outside the control limits and Western Electric rules require at least two.
- ☒ C Stop the process and investigate the assignable cause because the point exceeds the upper control limit.
- ☐ D Adjust the center line to 10.72 to recenter the process.

ANSWER C

WHY A single plotted point outside the control limits is, by itself, an out-of-control condition indicating an assignable (special) cause of variation. The technician should stop the process and investigate. Specification limits are not the same as control limits, and adjusting the center line to fit an out-of-control point would mask a real problem. Western Electric rules are additional pattern-based tests but are not required to react to a single point outside the limits.

QUESTION 4 SINGLE CHOICE

A gauge is used repeatedly to measure the same dimension on the same part, with the part not being moved between measurements. Which attribute of the measurement system is being evaluated?

- ☒ **A** Repeatability
- ☐ **B** Reproducibility
- ☐ **C** Stability
- ☐ **D** Linearity

ANSWER A

WHY Repeatability is the variation in measurements obtained when one operator uses the same gauge to measure the same characteristic on the same part multiple times (often called 'equipment variation' or EV). Reproducibility involves different operators; stability tracks the gauge over time; linearity compares bias across the operating range.

QUESTION 5 SINGLE CHOICE

Which index represents the portion of total measurement system variation that is attributable to repeatability and reproducibility combined?

- ☐ **A** C_g
- ☐ **B** C_{gk}
- ☒ **C** %GRR
- ☐ **D** P_p

ANSWER C

WHY %GRR (Percent Gage Repeatability and Reproducibility) expresses the combined repeatability and reproducibility variation as a percentage of total process variation. C_g and C_{gk} are gauge capability indices that compare gauge precision and bias to the tolerance, and P_p is a process performance index comparing process spread to specification spread.

QUESTION 6

SINGLE CHOICE

A technician must measure the outside diameter of a cylindrical shaft to the nearest 0.001 inch. Which inspection instrument is MOST appropriate?

- ☐ A Steel rule
- ☒ B Outside micrometer
- ☐ C Vernier caliper
- ☐ D Dial caliper

ANSWER B

WHY An outside micrometer typically reads to 0.001 inch (or 0.0001 inch with a vernier scale) and is the standard instrument when that level of resolution is required for a single dimension. A steel rule is limited (typically 1/32 or 1/64 inch), and dial and Vernier calipers usually read to 0.001 inch but with less precision and repeatability than a micrometer for this type of measurement.

QUESTION 7

SINGLE CHOICE

A receiving inspection area uses an ANSI/ASQ Z1.4 sampling plan with AQL 1.0, level II inspection, and a sample size of 32. For a lot size of 1,300, the Accept number (Ac) is 1 and the Reject number (Re) is 2. A lot is sampled and 2 defectives are found. What is the correct disposition?

- ☐ A Accept the lot because the Accept number has not been exceeded by more than one unit.
- ☒ B Reject the lot because the Reject number was reached.
- ☐ C Continue sampling additional units until a clear accept or reject decision is made.
- ☐ D Accept the lot because fewer than the sample size units were found defective.

ANSWER B

WHY In an attribute single-sampling plan such as Z1.4, the lot is rejected as soon as the cumulative number of defectives reaches the Reject number. With $Ac=1$ and $Re=2$, finding 2 defectives means the lot must be rejected; no additional sampling is performed under this plan.

QUESTION 8

SINGLE CHOICE

A process has specification limits of 10.0 mm and 12.0 mm with a process standard deviation of 0.30 mm. The process mean is centered at 11.0 mm. What is the Cp value?

- ☐ A 0.56
- ☒ B 1.11
- ☐ C 1.67
- ☐ D 2.22

ANSWER B

WHY $C_p = (USL - LSL) / (6\sigma) = (12.0 - 10.0) / (6 \times 0.30) = 2.0 / 1.8 = 1.11$. Cp measures process capability relative to specification width assuming the process is centered; it does not account for centering, which is captured by Cpk.

QUESTION 9

MULTIPLE CHOICE

Which of the following activities are part of the Plan step of the Deming (PDCA) cycle? (Choose two.)

- ☒ A Establish objectives and processes necessary to deliver results
- ☐ B Implement the planned processes
- ☒ C Develop a plan to test the proposed change
- ☐ D Analyze the results of the test against the objectives

ANSWER A - C

WHY In the Plan step, the team establishes objectives and develops a plan (including how to test the change). Implementing the plan is the Do step, and analyzing results of the test against the objectives is the Check step.