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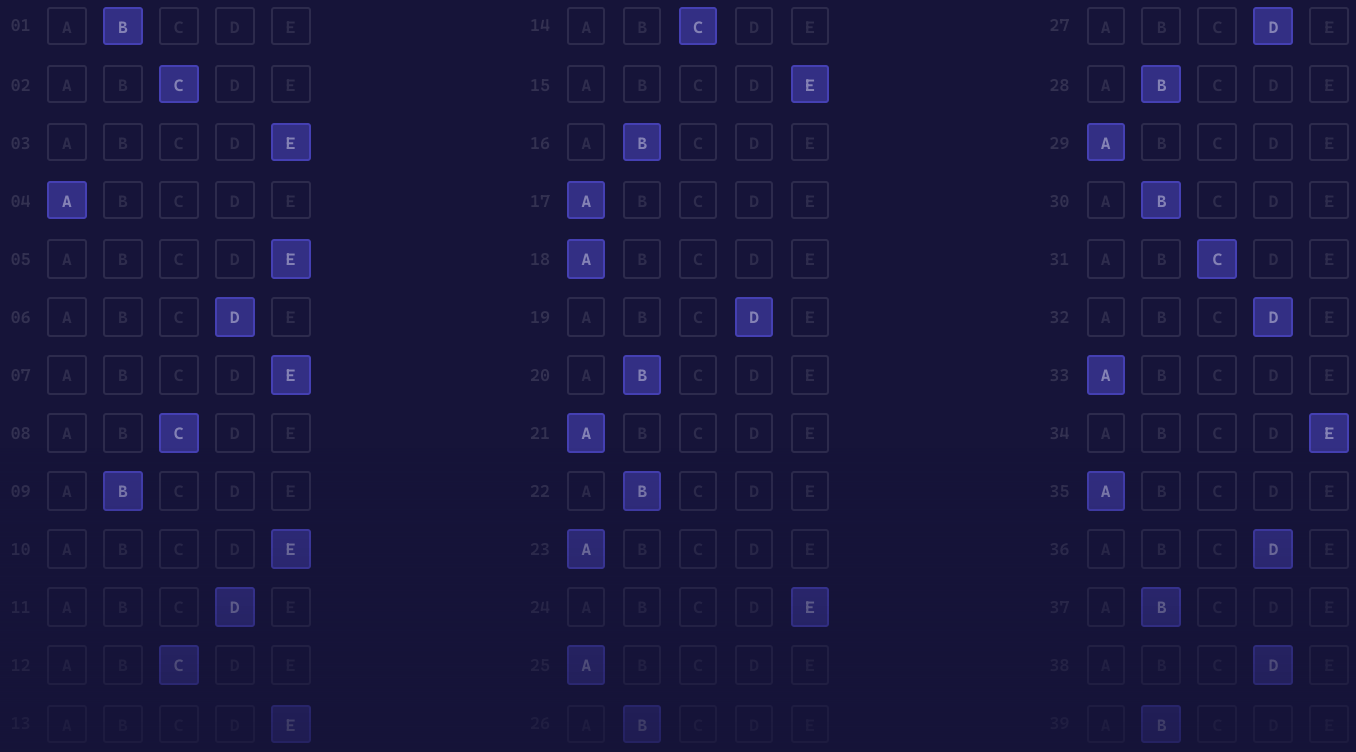

PRACTICE QUESTIONS

American Society For Quality (ASQ)

CQESK2

Certified Quality Engineer

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

Before you begin

What this is

9 practice questions for American Society For Quality (ASQ) `CQESK2`, 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, `CQESK2`
- the question number
- the email address on your order

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

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QUESTION 1 SINGLE CHOICE

A quality engineer is asked to classify costs of quality. Which of the following is the BEST example of an external failure cost?

A Cost of inspecting incoming raw materials

B Cost of warranty claims processed after product is shipped to the customer

C Cost of scrap generated during in-process manufacturing

D Cost of training employees on statistical process control methods

ANSWER B

WHY External failure costs are incurred after the product reaches the customer. Warranty claims are a classic example because the defect has been discovered in the field. Inspection (A) is an appraisal cost, scrap (C) is an internal failure cost, and training (D) is a prevention cost.

QUESTION 2 SINGLE CHOICE

Under ISO 9001, which of the following is a documented information requirement that an organization MUST maintain as part of its quality management system?

A A list of all competitors in the market

B The scope of the quality management system

C Employee personal performance reviews

D Vendor pricing agreements

ANSWER B

WHY ISO 9001:2015 requires the organization to determine and maintain the scope of its QMS as documented information. Competitor lists, individual performance reviews, and vendor pricing are not mandated QMS documented information.

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QUESTION 3 SINGLE CHOICE

In a full factorial design with three factors, each at two levels, how many experimental runs are required?

A 4

B 6

C 8

D 9

ANSWER C

WHY A full factorial design with k factors at 2 levels requires 2^k runs. With k = 3, the required runs are 2^3 = 8.

QUESTION 4 SINGLE CHOICE

A quality engineer collects paired data to compare two production methods. Which hypothesis test is MOST appropriate?

A Two-sample t-test assuming equal variances

B Paired t-test

C Chi-square test of independence

D Simple linear regression t-test on the slope

ANSWER B

WHY When data are collected in pairs from the same item or matched units (e.g., before/after measurements on each specimen), the paired t-test is the correct choice because it accounts for the within-pair correlation.

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QUESTION 5 SINGLE CHOICE

The weight of a packaged product is modeled by a normal distribution with mean 500 g and standard deviation 10 g. What is the probability that a randomly selected package weighs less than 485 g?

A **0.0668**

B 0.1587

C 0.2257

D 0.4332

ANSWER **A**

WHY $Z = (485 - 500)/10 = -1.5$. From the standard normal table, $P(Z < -1.5) \approx 0.0668$. The value 0.1587 corresponds to $Z = -1$, 0.2257 is the area below the mean to $Z = -0.75$, and 0.4332 is $P(Z < -0.17)$.

QUESTION 6 SINGLE CHOICE

A process produces subgroups of size 5. Which control chart is MOST appropriate for monitoring the process variability?

A X-bar chart

B p chart

C **R chart**

D c chart

ANSWER **C**

WHY For variable data with subgroup size n = 5, the R (range) chart is used to monitor process variability/spread. The X-bar chart monitors the process mean, p is for attribute data with variable subgroup sizes in proportion form, and c is for attribute count data (defects per unit with constant opportunity).

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QUESTION 7 SINGLE CHOICE

A call center receives an average of 4 calls per hour. Calls follow a Poisson distribution. What is the probability of receiving exactly 2 calls in a given hour?

A e^(−4) · 4^2 / 2

B e^(−4) · 4^2 / 2!

C 4^2 / 2!

D 1 − e^(−4)

ANSWER B

WHY The Poisson probability mass function is P(X = k) = (λ^k · e^(−λ)) / k!. With λ = 4 and k = 2, this becomes (4^2 · e^(−4)) / 2!.

QUESTION 8 SINGLE CHOICE

In a simple linear regression analysis, the coefficient of determination R^2 is found to be 0.64. What does this value indicate?

A The correlation coefficient r is 0.36

B 64% of the variation in the dependent variable is explained by the independent variable

C The slope of the regression line is 0.64

D There is a 64% probability that the relationship is linear

ANSWER B

WHY R^2 represents the proportion of variation in the response variable explained by the predictor. An R^2 of 0.64 means 64% of the variation in Y is explained by X. The correlation r would be ±0.8 (sign matches the slope), not 0.36, and R^2 is not the slope.

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QUESTION 9 MULTIPLE CHOICE

A quality engineer is reviewing the cost-of-quality (COQ) report for a manufactured product line. Which of the following items should be classified as prevention costs? (Choose two.)

A **Salaries of design engineers developing poka-yoke fixtures for a new assembly process**

B Warranty claims paid to customers for defective products returned from the field

C **Cost of training inspectors on the use of a new coordinate measuring machine**

D Scrap generated when a stamping press produces out-of-tolerance parts

E Downtime charges on customer production lines caused by shipped defects

ANSWER **A · C**

WHY Prevention costs are incurred to keep defects from occurring in the first place. Designing poka-yoke fixtures (A) and training inspectors on new measurement equipment (C) both prevent defects, so they are prevention costs. Warranty claims (B) and customer downtime (E) are external failure costs, while scrap from the stamping press (D) is an internal failure cost.

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