
**THE
QUALITY IMPROVEMENT ASSOCIATE
SOLUTION TEXT**

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A Note to Fellow Quality Professionals

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If the student feels that additional questions would be of benefit, QCI offers a CD with 600 additional questions. These questions can be taken as a simulated test or in a variety of different formats. The tests are timed and are summarized by category upon completion. An explanation of the correct answer is provided.

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SECTION II

QUALITY CONCEPTS - TEST QUESTIONS

2.1. The input component in the SIPOC system would typically include:

- a. Raw materials, electrical power, and human resources
- b. Manpower, machines, materials, and methods
- c. Specifications, money, and data
- d. Kanban cards, takt time, and kaizen methods

Solution: The input component would typically include data, opinions, ideas, orders, specifications, money, customer needs, etc. Answer choices **a**, **b**, and **d** are items used in the process component.

Answer c is correct.

Reference: *CQIA Primer*, Section II - 27 and 29.

2.2. Without prior approval, an employee spent \$500 of company money to purchase a device that simplifies work flow in his area. This is an example of:

- a. Management lack of control
- b. Worker waste
- c. Employee empowerment
- d. Employee involvement

Solution: When employees are empowered, they are given the authority to make decisions, exert influence and to be responsible. This requires commitment and support by management, and removing barriers to the employees.

Answer c is correct.

Reference: *CQIA Primer*, Section II - 22/26.

2.3. Which of the following concepts most clearly would focus on efficiency and workplace organization?

- a. ISO 9001
- b. Six sigma tools
- c. Baldrige criteria
- d. Lean tools

Solution: Items like cycle time reduction, human factors, workplace organization, and work flow efficiency are lean concepts.

Answer d is correct.

Reference: *CQIA Primer*, Sections II - 21.

SECTION II

QUALITY CONCEPTS - TEST QUESTIONS

2.4. Which of the following best describes machine capability?

- a. The total variation of all cavities of a mold, or spindles of an automatic assembly line
- b. The inherent variation of the machine
- c. The total variation over a shift
- d. The variation in a short run of consecutively produced parts

Solution: Answers **a** and **c** may or may not be good indicators of machine capability. They could have assignable cause variation. Answer **d** is a good choice, but it is not the best definition of machine capability listed. Inherent variation implies that only chance or random variation is present, and is the best answer choice.

Answer b is correct.

References: *CQIA Primer*, Section II - 38/39. *A T & T Statistical Quality Control Handbook*, pages 35 and 202. This question has been modified from old published CQE exams.

2.5. The first and most important quality planning step is:

- a. Securing resources
- b. Defining the objective
- c. Defining the specifications
- d. Creating the flow chart

Solution: The first and most important quality planning step is to define of the objective. In many cases, the objective is determined by upper management. If the objective is poorly defined, the resources and specifications will not mean much.

Answer b is correct.

Reference: *CQIA Primer*, Section II - 18/19.

2.6. Involvement of the quality function during strategic management planning is usually:

- a. Beneficial to the planning process
- b. Counterproductive to efficient production
- c. Not important in small organizations
- d. Advantageous in minimizing the need for audits

Solution: Input from many functional groups, including quality, is beneficial during strategic management planning. The benefits include incorporation of factors from all disciplines at a time when those factors can be used as inputs to improve the planning process. It has the resultant benefit of "buy-in" by the various departments to support the project.

Answer a is correct.

Reference: *CQIA Primer*, Section II - 9/13.

SECTION II

QUALITY CONCEPTS - TEST QUESTIONS

2.7. The "quality function" of a company is best described as:

- a. The degree to which the company product conforms to a design or specification
- b. That collection of activities through which "fitness for use" is achieved
- c. The degree to which a class or category of product possesses satisfaction for people generally
- d. Where the quality department fits in the organizational chart

Solution: The key elements to this question are "quality function" and "best described." Answers **a** and **c** are limited definitions of quality. However, neither of these two answers embraces the broader quality function definition. Answer **d** is a distracter choice. Answer **b** is the best choice. Another example might be "all activities through which product and service quality are achieved."

Answer b is correct.

References: *CQIA Primer*, Section II - 2/3 and 10/11. This question has been modified from an old published CQE exam.

2.8. The best evidence of acceptable quality is:

- a. Complete compliance to design requirements
- b. A low rejection rate
- c. A satisfied customer
- d. Long-term usefulness

Solution: The key question phrase is "best evidence." The customer's perception of quality is the single most important factor for market share and profitability. Answers **a**, **b**, and **d** could all be true, and the customer may still be dissatisfied.

Answer c is correct.

Reference: *CQIA Primer*, Section II - 2/3 and Section IX (several locations).

2.9. The purpose of a quality manual is to:

- a. Provide a basis for every quality decision
- b. Standardize the methods and decisions of a department
- c. Optimize company performance and the effectiveness of the quality department
- d. Make it possible to handle every situation in exactly the same manner

Solution: Answers **a** and **d** are too specific and are basically untrue statements. Answer **b** is not a bad choice, but it is somewhat narrow in scope. The quality manual may apply for many departments. It may standardize the policies and systems, but it might not standardize all decisions. Answer **c** is a broader and more appropriate definition of the purpose of a quality manual.

Answer c is correct.

References: *CQIA Primer*, Section II - 8 and 44. This question has been modified from an old published CQE exam.

SECTION II

QUALITY CONCEPTS - TEST QUESTIONS

- 2.10. A thorough cause-and-effect analysis of quality problems will usually indicate that a major percentage of the basic factors affecting poor quality performance are:
- Operator controllable
 - Management controllable
 - Union controllable
 - Customer controllable

Solution: This question requires a general understanding of common versus assignable cause variation. W. Edwards Deming and others have estimated that approximately 85% - 94% of existing problems are part of the system and are, therefore, management controllable.

Answer b is correct.

Reference: *CQIA Primer*, Section II - 35/40 and Section III - 23. This question has been modified from an old published CQE exam.

- 2.11. The principal purpose of a policy statement concerning quality is:
- It defines the company's interest in the quality of products and services
 - It assigns major quality responsibilities
 - It clarifies most quality related words and phrases
 - It describes basic quality oriented operating procedures

Solution: The key question phrase is "principal purpose." Answers **b**, **c**, and **d** are somewhat restrictive and tend to address the objectives of lower level quality procedures. A quality policy statement details the company's interest, support, and commitment to quality.

Answer a is correct.

Reference: *CQIA Primer*, Section II - 9/12.

- 2.12. Establishing the quality policy for the company is typically the responsibility of:
- The marketing department
 - Top management
 - The customer
 - The quality manager

Solution: The key question phrase is "typically the responsibility." Although the quality manager, marketing department and the customer may have input, the quality policy is ultimately the responsibility of top management.

Answer b is correct.

References: *CQIA Primer*, Section II - 12. This question has been modified from an old published CQE exam.
