CHAPTER 3 STUDY GUIDE
TOOLS AND TECHNIQUES FOR QUALITY DESIGN AND CONTROL

MULTIPLE CHOICE QUESTIONS

1. Design for Six Sigma consists of four principal activities. Which of the following is not one of them?
   a. Concept development
   b. Design development
   c. Design maximization
   d. Design verification
   Answer: C
   AACSB: Reflective Thinking
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2. In the set of matrices is used to relate the voice of the customer to technical features and production planning and control requirements the following symbols • and Δ are used to denote _____ and _____ respectively.
   a. a weak relationship; a strong relationship
   b. a very strong relationship; a weak relationship
   c. a strong relationship; a weak relationship
   d. a very strong relationship; a strong relationship
   Answer: B
   AACSB: Analytic
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3. Which of the following is not a type of house of quality?
   a. Technical features deployment matrix
   b. Process plan and quality control charts
   c. BCG matrix
   d. Operating instructions
   Answer: C
   AACSB: Analytic
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4. DFMEA stands for:
   a. design failure mode and effects analysis.
   b. design function mode and effects analysis
   c. design failure mode and efficiency analysis
   d. design feature methods and efficiency analysis
   Answer: A
   AACSB: Analytic
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5. The purpose of DFMEA is all of the following except:
   a. to recommend corrective design actions.
   b. to estimate the effect and seriousness of the failure.
c. to identify all the ways in which a failure can occur.
d. to act as the “voice of the customer” in product design.
Answer: D
AACSB: Reflective Thinking
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Which of the following statements is true about various service components: degree of customer contact and interaction, the degree of labor intensity, and the degree of customization?
a. A railroad is high in labor intensity but low on the other two dimensions.
b. An interior design service would be low in all three dimensions.
c. A hair-stylist would be high in all three dimensions.
d. A fast-food restaurant would be high in customization and customer contact, but low in labor intensity.
Answer: C
AACSB: Reflective Thinking
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_____ is a term that is commonly used to characterize flexibility and short cycle times.
a. Customer-driven
b. Proactiveness
c. Agility
d. Customer-readiness
Answer: C
AACSB: Analytic
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_____ is an approach for mistake-proofing processes using automatic devices or methods to avoid simple human error.
a. Poka-yoke
b. QFD
c. Quality circles
d. Fail secure
Answer: A
AACSB: Analytic
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_____ errors arise in the contact between the server and the customer.
a. Treatment
b. Contact
c. Common
d. System
Answer: A
AACSB: Analytic
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_____ errors result from the task, treatment, or tangibles of the service.
a. System
b. Server
c. Process
d. Common
Doing work incorrectly, in the wrong order, or too slowly, as well as doing work not requested are examples of:

a. treatment errors.
b. task errors.
c. tangible errors.
d. preparation errors.

Answer: B

Which of the following is not an example of customer errors during an encounter?

a. Inattention
b. A memory lapse
c. Learning from experience.
d. Failure to remember steps

Answer: C

Customer errors at the resolution stage of a service encounter include all of the following except:

a. failure to signal service inadequacies.
b. follow instructions.
c. learn from experience.
d. execute appropriate postencounter actions.

Answer: B

Which of the following is not a component of a control system?

a. A standard
b. A flow of authority to enforce the standards
c. A means of measuring accomplishment
d. A comparison of actual results with the standard

Answer: B

The responsibility for control can be determined by checking the three components of control systems. If any of these criteria is not met, then the process is the responsibility of:

a. management.
b. quality control team.
c. the process owner.
d. the supervisor.

Answer: A
Which of the following is not one of the principles of statistical thinking?

a. Processes have quantifiable and nonquantifiable variations.
b. All work occurs in a system of interconnected processes.
c. Variation exists in all processes.
d. Understanding and reducing variation are keys to success.

Answer: A

The phenomenon that occurs when small changes in demand occur, the variation in production and inventory levels becomes increasingly amplified upstream at distribution centers, factories, and suppliers, that results in unnecessary costs and difficulties in managing material flow is known as:

a. upstream variation.
b. flagellation.
c. bullwhip effect.
d. quality dilemma.

Answer: C

Which of the following is not an operational problem created by excessive variation?

a. Variation increases unpredictability.
b. Variation increases capacity utilization.
c. Variation makes it difficult to find root causes.
d. Variation makes it difficult to detect potential problems early.

Answer: B

____ is a methodology for monitoring a process to identify special causes of variation and signaling the need to take corrective action when it is appropriate.

a. Quality function deployment
b. Statistical process control
c. Process management
d. Variation mapping

Answer: B

If the variation in the process is due to _____ alone, the process is said to be in statistical control.

a. random causes
b. common causes
c. special causes
d. environmental causes

Answer: B

When _____ causes are present, the process is deemed to be out of control.
In a control chart, the sample values will fall within upper control limit (UCL) and the lower control limit (LCL) if the process is affected only by _____ causes of variation.

a. common
b. random
c. special
d. cumulative

Answer: A

The Joint Commission Accreditation of Health Care Organizations (JCAHO) requires that health care providers should establish _____, which are levels at which special investigation of problems should occur.

a. critical care levels
b. healthcare indicators
c. thresholds for evaluation
d. upper limits for health indicators

Answer: C

Which of the following is not an example of a quality control parameter for the post office?

a. Response time
b. Sorting accuracy
c. Time of delivery
d. Percentage of express mail delivered on time

Answer: A

By viewing processes as interconnected components of a system, we avoid:

a. root causes.
b. capacity utilization.
c. process variance.
d. suboptimization.

Answer: D