
**THE
LSS PRIMER
SOLUTIONS TEXT**

© 2007 by Bill Wortman - All rights reserved

SECTION II

LEAN SIX SIGMA GOALS - SAMPLE QUESTIONS

- 2.1. Lean and six sigma share in common all of the following issues, EXCEPT:
- They both focus on continuous improvement
 - They both require top management commitment
 - They both focus on customer satisfaction
 - They both require long learning curves

Solution: Note that a negative response is requested. Lean and six sigma are not opposite or mutually exclusive. Answers **a** and **c** are reasons why lean and six sigma so naturally became a powerful hybrid approach for continuous improvement. Both approaches, separately or combined, require management commitment. Many of the lean tools have short learning curves.

Answer d is the correct, incorrect, choice.

Reference: *LSS Primer*, Section II - 2/3.

- 2.2. The most important element in lean six sigma deployment would be considered:
- Training
 - Organizational structure
 - Management support
 - Reward and recognition

Solution: All of the answer choices are key lean six sigma elements. However, the question states the "most important element." Management support is the most important element listed. Training, structure, and rewards can all be provided and/or adjusted if management support is present.

Answer c is correct.

Reference: *LSS Primer*, Section II - 39 (and logic).

- 2.3. Which of the following concepts is mostly associated with Taiichi Ohno?
- SPC
 - TOC
 - CTQ
 - TPS

Solution: Taiichi Ohno is the main contributor to the Toyota Production System (TPS).

Answer d is correct.

Reference: *LSS Primer*, Section II - 17/18.

SECTION II

LEAN SIX SIGMA GOALS - SAMPLE QUESTIONS

- 2.4. Which of the following is the LEAST acceptable reason for the deployment of lean six sigma projects?
- A focus on cost savings
 - A focus on customer satisfaction
 - A focus on internal problems
 - A focus on design improvements

Solution: It should be recognized that different organizations may have different priorities at different times. Harry states that answers **a**, **b**, and **c** are all valid. There are other ways to manage design improvements.

Answer d is the correct, incorrect, choice.

References: *LSS Primer*, Section II - 2/6 (and logic). Harry, M. & Schroeder, R. (2000). *Six Sigma*. New York: Currency, Doubleday.

- 2.5. Lean six sigma project benefits could include all of the following, EXCEPT:
- Increased profits
 - Improved process capability
 - Increased defects
 - Reduced warranty claims

Solution: Note that a negative response is requested. Some project benefits are easily expressed in dollar amounts, for example: increased sales, increased profits, reduced defects, reduced scrap, lowered warranty claims, improved process capability, increased up-time, reduced spare parts inventories, fewer customer cancellations or returned product. Other project benefits are worthwhile, but harder to equate to dollars: improved employee morale, increased skill levels through training, lower employee turnover, increased customer satisfaction, more aesthetically appealing product, organization's reputation enhanced, pride from a job well done, friendships, or political power. Of the four items listed, increased defects would not be considered a project benefit.

Answer c is the correct, incorrect, choice.

Reference: *LSS Primer*, Section II - 2/6.

- 2.6. Kaplan and Norton have outlined a business planning process that gives consideration to factors other than strictly financial ones. It provides a greater perspective for stakeholder interests. This approach is referred to as:
- Balanced scorecard
 - Strategic planning
 - Five forces of competitive strategy
 - Quality function deployment

Solution: The balanced scorecard focuses the planning process on: financial, internal business process, learning and growth, and customer perspectives. The answer, five forces of competitive strategy, is related to Michael Porter's work. Quality function deployment is sometimes referred to as the House of Quality.

Answer a is correct.

References: *LSS Primer*, Section II - 45. Kaplan, R.S., & Norton, D.P. (1996, January-February). "Using the Balanced Scorecard as a Strategic Management System." Harvard Business Review.

SECTION II

LEAN SIX SIGMA GOALS - SAMPLE QUESTIONS

- 2.7. Increasing performance in a lean six sigma corporation from 3 sigma to 4 sigma would reduce defects per million by a factor of:
- a. 2
 - b. 8
 - c. 10
 - d. 16

Solution: Since six sigma is referenced in the question, the assumption is that a ± 1.5 sigma must be included. Using the shift, the 4 sigma defect rate is 6,210 ppm and the 3 sigma defect rate is 66,810 ppm or a ratio of 1:10.76.

Answer c is correct.

Reference: *LSS Primer*, Section II - 8.

- 2.8. In a nutshell, lean six sigma is considered:
- a. A business improvement approach
 - b. A focus on critical customer items
 - c. An elimination of mistakes and defects
 - d. A concentrated focus on business outputs

Solution: All answers have some validity. The best choice is answer **a**. Answer choices **b**, **c**, and **d** are considered subsets of answer choice **a**.

Answer a is correct.

Reference: *LSS Primer*, Section II - 2/11 (and logic).

- 2.9. What guru is MOST widely associated with DOE?
- a. Shingo
 - b. Juran
 - c. Ishikawa
 - d. Taguchi

Solution: Certainly design of experiments is (was) not outside of the grasp of any of the four listed luminaries. However, Taguchi presented a cookbook approach for Japanese (and later American) engineers to use in the application of DOE.

Answer d is correct.

Reference: *LSS Primer*, Section II - 36/37.

SECTION II

LEAN SIX SIGMA GOALS - SAMPLE QUESTIONS

- 2.10. The term "metrics" most frequently refers to:
- A unit of measurement
 - The metric system
 - The science of weights and measurements
 - An evaluation method

Solution: This is a definition question. Answers **a** and **b** refer to a traditional form of measurement such as the metric system and are incorrect. Answer **c** is the definition for metrology. The modern definition of "metrics" is a form of measurement or evaluation (answer **d**).

Answer d is correct.

Reference: *LSS Primer*, Section II - 42.

- 2.11. If one chose to look at any business enterprise on a main level basis, which of the following categories would NOT have either KPIV (key process input variables) or KPOV (key process output variables)?
- Process
 - Operations
 - Business
 - Technological

Solution: Note that a negative response is requested. Although the variables themselves may differ, process, operations and business levels have key input and output variables. A technological level is not separately identified. It is integrated into the major three categories.

Answer d is the correct, incorrect, choice.

Reference: *LSS Primer*, Section II - 46/47.

- 2.12. What luminary is generally recognized as being the creator of the control chart?
- Deming
 - Shewhart
 - Harry
 - Ishikawa

Solution: The honor belongs to Dr. Walter Shewhart. In fact, some quality professionals still refer to them as Shewhart control charts.

Answer b is correct

Reference: *LSS Primer*, Section II - 34.