# *Operations and Supply Chain Management 11th edition Russell Test Bank*

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# Chapter 2
## Quality Management

Question type: True-False

1) The degree to which quality characteristics are designed into the product is known as quality of design.

Answer: True

Title: True False Question 01
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

2) The courtesy and competence of the repair person can be one aspect of serviceability.

Answer: False

Title: True False Question 02
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: comprehension

3) The probability that a product will operate properly within an expected time frame is known as quality of performance.

Answer: False

Title: True False Question 03
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

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4) In a general sense, the supplier makes the final judgment regarding quality.

Answer: False

Title: True False Question 04
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Comprehension

5) From the producer's perspective, quality is determined by what the consumer wants and willingness to pay.

Answer: False

Title: True False Question 05
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What is Quality?
Bloomcode: Comprehension

6) Deming emphasized final product inspection as a way to improve process quality.

Answer: False

Title: True False Question 06
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Comprehension

7) Deming emphasized the use of statistical quality control techniques to reduce variability in the output of a process.

Answer: True

Title: True False Question 07

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Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Comprehension

8) The Deming Wheel is also known as the plan-do-check-act (PDCA) cycle.

Answer: True

Title: True False Question 08
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

9) On the statistical process control chart, if the process goes above the upper control limit or below the lower control limit, it indicates problems.

Answer: True

Title: True False Question 09
Question ID:
Difficulty: Medium
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Analysis

10) Today, total quality management has been displaced by quality management systems.

Answer: True

Title: True False Question 10
Difficulty: Hard
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Evaluation

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11) Globalization and foreign competition began to change consumers' attitudes toward quality in the 1950s.

Answer: False

Title: True False Question 11
Difficulty: Easy
Learning Objective 2: Understand quality management systems and how they have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Comprehension

12) The training and education of all employees on quality improvement is a basic principle of total quality management.

Answer: True

Title: True False Question 12
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

13) One principle of total quality management (TQM) is that upper management is solely responsible for providing the leadership for quality.

Answer: False

Title: True False Question 13
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Comprehension

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14) To satisfy a customer's quality requirements, companies often require the commitment to quality of their suppliers.

Answer: True

Title: True False Question 14
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

15) Most members of a supply chain understand the importance of high quality because they are both customers and suppliers.

Answer: True

Title: True False Question 15
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

16) Some companies enter into long-term relationships with suppliers who, in return, commit to meeting delivery deadlines but NOT quality targets.

Answer: False

Title: True False Question 16
Difficulty: Easy
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Comprehension

17) Employees' role in quality management is becoming less important due to the implementation of supplier partnerships.

Answer: False

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Title: True False Question 17
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Analysis

18) Two team approaches to quality improvement are quality circles and process improvement teams.

Answer: True

Title: True False Question 18
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Analysis

19) Benchmarking involves comparing a company's quality to the best level of quality achieved by another company in the same industry.

Answer: True

Title: True False Question 19
Difficulty: Easy
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Knowledge

20) Service quality is more directly related to the interaction between customer and employee than is manufacturing quality.

Answer: True

Title: True False Question 20
Difficulty: Medium

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Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Analysis

21) McDonald's has a reputation for high-quality service resulting from the application of quality management principles.

Answer: True

Title: True False Question 21
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Analysis

22) Quality management principles often do NOT apply to services because the customer has lower quality expectations.

Answer: False

Title: True False Question 22
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and services in Quality Management
Bloomcode: Analysis

23) With Six Sigma, the project team leader is known as a Black Belt.

Answer: True

Title: True False Question 23
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

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24) Customer complaint costs are an example of external failure costs.

Answer: True

Title: True False Question 24
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

25) With Six Sigma, a teacher and mentor is known as a Green Belt.

Answer: False

Title: True False Question 25
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

26) Quality levels in the United States were generally measured in defects per hundred before Six Sigma.

Answer: True

Title: True False Question 26
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

27) Six Sigma is a recognized quality program based strictly on statistical process control.

Answer: False

Title: True False Question 27

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Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

28) Companies that have adopted Six Sigma view it as a short-term strategy for incremental quality improvement.

Answer: False

Title: True False Question 28
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

29) ISO 9000 certification is a major consideration for doing business within the United States and Europe Union.

Answer: True

Title: True False Question 29
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

Question type: Multiple-Choice

30) How well the product or service does what it is intended to do is known as
a) fitness for use.
b) reliability.
c) conformance.
d) performance

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Answer: a

Title: Multiple Choice Question 30
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

31) _____ relates to the basic operating characteristics of a product.
a) Quality of conformance
b) Quality of performance
c) Quality of features
d) Quality of design

Answer: b

Title: Multiple Choice Question 31
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

32) The degree to which a product meets pre-established standards is known as
a) quality of performance.
b) quality of design.
c) quality of conformance
d) quality of reliability.

Answer: c

Title: Multiple Choice Question 32
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

33) The dimension of quality related to the lifespan of a product before replacement is known as
a) aesthetics.
b) durability.

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c) reliability.
d) serviceability.

Answer: b

Title: Multiple Choice Question 33
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

34) Which of the following is NOT a dimension of quality for a manufactured good?
a) performance
b) reliability
c) courtesy
d) durability

Answer: c

Title: Multiple Choice Question 34
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

35) All of the following are dimensions of quality for manufactured products, EXCEPT
a) conformance.
b) reliability.
c) durability.
d) feasibility.

Answer: d

Title: Multiple Choice Question 35
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

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36) The probability that a product will operate properly within an expected timeframe is the dimension of quality known as
a) durability.
b) reliability.
c) performance.
d) serviceability.

Answer: b

Title: Multiple Choice Question 36
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

37) The degree to which a product meets pre-established standards is known as
a) conformance.
b) performance.
c) reliability.
d) None of these answer choices is correct.

Answer: a

Title: Multiple Choice Question 37
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: Knowledge

38) Making sure that the product meets the design specifications during production is referred to as
a) quality of design.
b) process capability.
c) fitness for use.
d) quality of conformance.

Answer: d

Title: Multiple Choice Question 38
Difficulty: Easy
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?

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Bloomcode: Knowledge

39) _____ is an important measure of service quality that is NOT difficult to measure.
a) Timeliness
b) Benchmarking
c) Kaizen
d) Participative problem solving

Answer: a

Title: Multiple Choice Question 39
Difficulty: Medium
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Bloomcode: analysis

40) _____ advocated continuous process improvement to reduce variability and achieve conformance to design specifications.
a) Juran
b) Crosby
c) Taguchi
d) Deming

Answer: d

Title: Multiple Choice Question 40
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

41) Deming believed that _____ define quality.
a) management
b) customers
c) suppliers
d) employees

Answer: b

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Title: Multiple Choice Question 41
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

42) _____ represents a set of management principles that focus on quality improvement in all the functional areas within a company.
a) Six Sigma
b) Total quality management
c) The Deming cycle
d) ISO 9000

Answer: b

Title: Multiple Choice Question 42
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

43) W. Edwards Deming believed that primary responsibility for quality improvement rested with
a) the firm's employees only.
b) the firm's management only.
c) research engineers and consulting statisticians only.
d) both the employees and management of the firm.

Answer: d

Title: Multiple Choice Question 43
Difficulty: Medium
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Analysis

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44) W. Edwards Deming's overall philosophy for achieving quality is embodied in
a) his 14 points.
b) his statement of purpose.
c) his use of statistical control.
d) None of these answer choices is correct.

Answer: a

Title: Multiple Choice Question 44
Difficulty: Easy
Learning Objective 2: Understand how quality management systems have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

45) Total quality management (TQM) was originated in the 1980s as a _____ management approach to improve quality.
a) Korean
b) American
c) Japanese
d) European

Answer: c

Title: Multiple Choice Question 45
Difficulty: Easy
Learning Objective 2: Understand quality management systems and how they have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Knowledge

46) Which of the following is NOT a basic principle of total quality management (TQM)?
a) Quality must be measured.
b) The quality standard is "no defects."
c) Quality can and must be managed.
d) The producer defines quality.

Answer: d

Title: Multiple Choice Question 46
Difficulty: Medium

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Learning Objective 2: Understand quality management systems and how they have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Analysis

47) A _____ is a system that achieves customer satisfaction and complements other company systems.
a) quality management system
b) total quality system
c) quality productivity system
d) None of these answer choices is correct.

Answer: a

Title: Multiple Choice Question 47
Difficulty: Medium
Learning Objective 2: Understand quality management systems and how they have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System
Bloomcode: Analysis

48) Which of the following quality tools display major causes of poor quality on a graph?
a) process flow chart
b) fishbone diagram
c) histogram
d) scatter diagram

Answer: b

Title: Multiple Choice Question 48
Difficulty: Medium
Learning Objective 3: Understand different quality tools used to measure and achieve quality improvement.
Section Reference 3: Quality Tools
Bloomcode: Analysis

49) Which of the following quality tools displays the frequency of data related to a quality problem?
a) fishbone diagram
b) histogram
c) scatter diagram

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d) process flow chart

Answer: b

Title: Multiple Choice Question 49
Difficulty: Medium
Learning Objective 3: Understand different quality tools used to measure and achieve quality improvement.
Section Reference 3: Quality Tools
Bloomcode: Analysis

50) Which of the following quality tools displays the relationship between two variables on a graph?
a) process flow chart
b) fishbone diagram
c) histogram
d) scatter diagram

Answer: d

Title: Multiple Choice Question 50
Difficulty: Medium
Learning Objective 3: Understand different quality tools used to measure and achieve quality improvement.
Section Reference 3: Quality Tools
Bloomcode: Analysis

51) Which of the following quality tools displays the steps in a process on a graph?
a) process flow chart
b) fishbone diagram
c) histogram
d) scatter diagram

Answer: a

Title: Multiple Choice Question 51
Difficulty: Medium
Learning Objective 3: Understand different quality tools used to measure and achieve quality improvement.
Section Reference 3: Quality Tools
Bloomcode: Analysis

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52) A relationship between a firm and its supplier where the supplier agrees to meet the firms' quality standards, and the firm enters into a long-term purchasing agreement with the supplier is known as
a) outsourcing.
b) vertical integration.
c) partnering.
d) conformance.

Answer: c

Title: Multiple Choice Question 52
Difficulty: Easy
Learning Objective 4: Understand the role of customers, employees and services in quality management.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Knowledge

53) Directly involving employees in the quality management process is referred to as
a) partnering.
b) a quality circle.
c) Six Sigma.
d) participative problem solving.

Answer: d

Title: Multiple Choice Question 53
Difficulty: Easy
Learning Objective 4: Understand the role of customers, employees and services in quality management.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Knowledge

54) Which of the following is true about customer satisfaction?
a) It costs more to keep an existing customer than to attract a new one.
b) Over 90% of dissatisfied customers file a complaint with a company.
c) A typical dissatisfied customer will tell 8 to 10 people about their problem.
d) None of these answer choices is correct.

Answer: c

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Title: Multiple Choice Question 54
Difficulty: Medium
Learning Objective 4: Understand the role of Customers, employees, and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

55) A relationship between a company and a supplier based on mutual quality standards is called
a) sourcing.
b) partnering.
c) sourcing and partnering.
d) None of these answer choices is correct.

Answer: b

Title: Multiple Choice Question 55
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees and services in quality management.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

56) The primary means for gathering information from customers and measuring customer satisfaction is
a) a sampling program.
b) a phone interview.
c) feedback from competitors.
d) a survey.

Answer: d

Title: Multiple Choice Question 56
Difficulty: Easy
Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Knowledge

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57) ACSI measures _____ the goods and services of seven economic sectors.
a) product quality of
b) customer satisfaction with
c) product demand for
d) market share for

Answer: b

Title: Multiple Choice Question 57
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

58) The customer of _____ firm(s) interacts directly with the production process.
a) a service
b) a manufacturing
c) both service and manufacturing
d) None of these answer choices is correct.

Answer: a

Title: Multiple Choice Question 58
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

59) A(n) _____ is the best level of quality achievement in one company that others seek to match or exceed.
a) attribute
b) target value
c) benchmark
d) variable

Answer: c

Title: Multiple Choice Question 59
Difficulty: Easy

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Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Knowledge

60) Kaizen is
a) another name for a lean system.
b) the Japanese term for continuous improvement.
c) the Japanese term for reengineering.
d) another name for a quality circle.

Answer: b

Title: Multiple Choice Question 60
Difficulty: Easy
Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Knowledge

61) Quality circles
a) were used in the 1970s but have been superseded by Six Sigma.
b) are small, mandatory groups of employees and their supervisor(s).
c) follow an established procedure for identifying, analyzing, and solving quality-related or other problems.
d) have no moderators to allow the spontaneous and free interaction of its members.

Answer: c

Title: Multiple Choice Question 61
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Bloomcode: Analysis

62) The cost of measuring, testing, and analyzing are collectively known as
a) appraisal costs.
b) prevention costs.
c) external failure costs.

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d) internal failure costs.

Answer: a

Title: Multiple Choice Question 62
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

63) A production process consists of the following four stages, with the average percentage of good quality at each stage as shown.

| Stage | Average Percentage of Good Quality |
|---|---|
| 1 | 0.92 |
| 2 | 0.95 |
| 3 | 0.96 |
| 4 | 0.93 |

What is the daily production yield for the company if daily input is 200 units?
a) 192 units
b) 188 units
c) 184 units
d) 156 units

Answer: d

Title: Multiple Choice Question 63
Difficulty: Hard

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Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: Yield = 0.92 × 0.95 × 0.96 × 0.93 × 200 = **156 units**.
Bloomcode: Evaluation

64) A production process consists of the following four stages, with the average percentage of good quality at each stage as shown

| Stage | Average Percentage of Good Quality |
|---|---|
| 1 | 0.98 |
| 2 | 0.97 |
| 3 | 0.96 |
| 4 | 0.92 |

How many units must the company put into production each day to achieve a daily yield of 100 good units?
a) approximately 119 units
b) approximately 108 units
c) approximately 106 units
d) approximately 104 units

Answer: a

Title: Multiple Choice Question 64
Difficulty: Hard
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: Input = 100/(0.98 × 0.97 × 0.96 × 0.92) = **119 units**
Bloomcode: Evaluation

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65) A production process consists of the following four stages, with the average percentage of good quality at each stage as shown.

| Stage | Average Percentage of Good Quality |
|---|---|
| 1 | 0.95 |
| 2 | 0.95 |
| 3 | 0.93 |
| 4 | 0.97 |

What is the daily production yield for the company if daily input is 500 units?
a) 485 units
b) 465 units
c) 407 units
d) 400 units

Answer: c

Title: Multiple Choice Question 65
Difficulty: Hard
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: Yield = 500 × (0.95 × 0.95 × 0.93 × 0.97) = **407 units**
Bloomcode: Evaluation

66) A production process consists of the following four stages, with the average percentage of good quality at each stage as shown.

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| Stage | Average Percentage of Good Quality |
|---|---|
| 1 | 0.95 |
| 2 | 0.95 |
| 3 | 0.93 |
| 4 | 0.97 |

How many units must the company put into production each day to achieve a daily yield of 350 good units?
a) approximately 430 units.
b) approximately 415 units.
c) approximately 468 units.
d) approximately 361 units.

Answer: a

Title: Multiple Choice Question 66
Difficulty: Hard
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: Input = 350/(0.95 × 0.95 × 0.93 × 0.97) = **430 units**
Bloomcode: Evaluation

67) The costs associated with developing a quality management system are known as
a) training costs.
b) design costs.
c) quality planning costs.
d) information costs.

Answer: c

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Title: Multiple Choice Question 67
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

68) _____ failure costs include scrap, rework, and downtime.
a) External
b) Internal
c) Process
d) System

Answer: b

Title: Multiple Choice Question 68
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

69) Modern Inc. manufactures low-cost tables at a processing cost of $80 per table. The company produces 100 units per day and averages 90% good quality resulting in 10% defective items. Fifty percent of the defective units are reworked prior to shipment to Modern's distribution center.

What is the product yield?
a) 80
b) 85
c) 90
d) 95

Answer: d

Title: Multiple Choice Question 69
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: Yield = 100 × 0.90 + 10 × 0.50 = **95**
Bloomcode: Application

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70) Modern Inc. manufactures low-cost tables at a processing cost of $80 per table. The company produces 100 units per day and averages 90% good quality resulting in 10% defective items. Fifty percent of the defective units are reworked prior to shipment to Modern's distribution center. The rework cost is $10 per unit.

The quality productivity ratio (QPR) is
a) approximately 1.00.
b) approximately 1.10.
c) approximately 1.20.
d) approximately 1.30.

Answer: c

Title: Multiple Choice Question 70
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: QPR = 95/($8,000 + $50) × 100 = **1.18**
Bloomcode: Application

71) Modern Inc. manufactures low-cost tables at a processing cost of $80 per table. The company produces 100 units per day and averages 90% good quality resulting in 10% defective items. Fifty percent of the defective units are reworked prior to shipment to Modern's distribution center. The rework cost is $10 per unit.

If production is increased to 200 units per day, the quality productivity ratio (QPR) is
a) approximately 1.00.
b) approximately 1.10.
c) approximately 1.20.
d) approximately 1.30.

Answer: c

Title: Multiple Choice Question 71
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: QPR = 190/($16,000 + $100) × 100 = **1.18**

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Bloomcode: Application

72) Modern Inc. manufactures low-cost tables at a processing cost of $80 per table. The company produces 100 units per day and averages 90% good quality resulting in 10% defective items. Fifty percent of the defective units are reworked prior to shipment to Modern's distribution center. The rework cost is $10 per unit.

If the percent good quality increases from 90% to 95%, the quality productivity ratio (QPR) is
a) approximately 1.20.
b) approximately 1.40.
c) approximately 1.60.
d) approximately 1.80.

Answer: a

Title: Multiple Choice Question 72
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: QPR = 97.5/($8,000 + $25) × 100 = **1.21**
Bloomcode: Application

73) Modern Inc. manufactures low-cost tables at a processing cost of $80 per table. The company produces 100 units per day and averages 90% good quality resulting in 10% defective items. Fifty percent of the defective units are reworked prior to shipment to Modern's distribution center. The rework cost is $10 per unit.

If the rework cost is increased to $50, the quality productivity ratio (QPR) is
a) approximately 1.10.
b) approximately 1.15.
c) approximately 1.20.
d) approximately 1.25.

Answer: b

Title: Multiple Choice Question 73
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO

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Solution: QPR = 95/($8,000 + $250) × 100 = **1.15**
Bloomcode: Application

74) Modern Inc. manufactures low-cost tables at a processing cost of $80 per table. The company produces 100 units per day and averages 90% good quality resulting in 10% defective items. Fifty percent of the defective units are reworked prior to shipment to Modern's distribution center. The rework cost is $10 per unit.

If the production cost is decreased to $70 the quality productivity ratio (QPR) is
a) approximately 1.15.
b) approximately 1.25.
c) approximately 1.35.
d) approximately 1.45.

Answer: c

Title: Multiple Choice Question 74
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Solution: QPR = 95/($7,000 + $50) × 100 = **1.35**
Bloomcode: Application

75) Quality costs include the cost of
a) achieving good quality.
b) poor quality.
c) both achieving good quality and generating poor quality.
d) None of these answer choices is correct.

Answer: c

Title: Multiple Choice Question 75
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Comprehension

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76) The cost of achieving good quality includes
a) prevention costs.
b) internal failure costs.
c) external failure costs.
d) None of these answer choices is correct.

Answer: a

Title: Multiple Choice Question 76
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

77) The cost of poor quality includes
a) prevention costs.
b) appraisal costs.
c) internal failure costs.
d) All of these answer choices are correct.

Answer: c

Title: Multiple Choice Question 77
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity Improvement, Quality Awards, and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvement: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

78) Six Sigma quality uses a statistical measure with a goal that equates to only
a) 3.4 defects.
b) 3.4 defects per thousand.
c) 3.4 defects per million.
d) 3.4 defects per billion.

Answer: c

Title: Multiple Choice Question 78
Difficulty: Easy

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Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

79) A *t*-test is
a) a statistical technique used in Six Sigma to collect, analyze, and interpret data.
b) a method to monitor a process over time to determine whether any variation in the process is the result of a cause or problem.
c) a statistical technique for analyzing potential reliability problems and weaknesses in a product or process.
d) a statistical measure to determine whether there is a statistical, not random, difference in the means of two groups of data.

Answer: d

Title: Multiple Choice Question 79
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

80) Designs of experiments (DOE) is
a) a statistical technique used in Six Sigma to collect, analyze, and interpret data.
b) a tool for analyzing potential reliability problems and weaknesses in a product or process.
c) a statistical measure used to determine whether there is a statistical, not random, difference in the means of two groups of data.
d) a structured, organized method for determining whether there is a statistical correlation between two variables.

Answer: a

Title: Multiple Choice Question 80
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

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81) External failure costs include the following costs EXCEPT _____ costs.
a) price-downgrading
b) product-return
c) warranty claims
d) lost sales

Answer: a

Title: Multiple Choice Question 81
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

82) A factory has a yield-to-input (Y/I) ratio of 0.94, and the percentage of poor-quality products that can be reworked (R) is 89.1%. If the percentage of good products produced each day (G) is doubled, but the yield-to-input ratio remains unchanged, then the percentage of poor-quality products that can be reworked must have
a) decreased to 44.6%.
b) decreased to 40%.
c) decreased to 37.81%.
d) There is not enough information to determine R.

Answer: b

Title: Multiple Choice Question 82
Difficulty: Hard
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: For the current yield: Y = 0.94 = G + (1-G)*0.891 = 0.891 + 0.109*G
Where G = percentage of good products manufactured.
From this equation, G = (0.94-0.891)/0.109 = 0.45
After doubling percentage of good products manufactured, new G = 0.9. Since the yield-to-input ratio did not change, to find the new percentage of poor-quality products that can be reworked R:
0.94 = 0.9 + (1-0.9)*R = 0.9+0.1*R
R = (0.94-0.9)/0.1 = 0.4 (40%)
Bloomcode: Synthesis

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83) A factory has a yield-to-input (Y/I) ratio of 0.94, and the percentage of poor-quality products that can be reworked (R) is 89.1%. A new production process will increase the percentage of good products produced each day (G) to 80%. What is the minimum value of R that must be achieved to improve the yield-to-input ratio to 0.95?
a) 85%
b) 79%
c) 77.8%
d) 75%

Answer: d

Title: Multiple Choice Question 83
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: For the target yield: Y = 0.95 = 0.8 + (1-0.8)*R = 0.8 + 0.2*R
R = (0.95-0.8)/0.2 = 0.75(75%)
Bloomcode: Synthesis

84) The quality-productivity ratio increases if
a) the production capacity is increased.
b) the rework cost increases.
c) the percentage of good products increases.
d) the production capacity is decreased.

Answer: c

Title: Multiple Choice Question 84
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

85) A production process has a percentage of good products produced each day (G) of 75% and a percentage of poor-quality products that can be reworked of 50%. The unit processing cost and the rework cost are both $1 per unit. Its quality-productivity ratio, QPR, is
a) 79.78.
b) 77.78.
c) 75.79.

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d) 73.79.

Answer: b

Title: Multiple Choice Question 85
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: Assuming 100 input units:
QPR = (75 + 25*0.5)/(100*$1 + 25*0.5*$1)*100 = 77.78
Bloomcode: Application

86) A production process has a percentage of good products produced each day (G) of 75%. The unit processing cost and the rework cost are both $1 per unit. What is the range of possible values for its quality-productivity ratio, QPR?
a) 75 to 80
b) 70 to 80
c) 70 to 75
d) There is not enough information to find out.

Answer: a

Title: Multiple Choice Question 86
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: Minimum QPR is achieved when the percentage reworked bad parts is R = 0%. Assuming 100 input units:
QPR = (75*100)/(100*$1 + 0*$1) = 75
Maximum QPR is achieved when rework R = 100%:
QPR = (75+25)*100/(100*$1 + 25*$1) = 80
Bloomcode: Application

87) The fundamental objective of Six Sigma is to focus on improvement by reducing
a) customer interactions.
b) waste.
c) process variation.
d) quality defects.

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Answer: c

Title: Multiple Choice Question 87
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

88) All of the following are parts of DMAIC EXCEPT
a) define.
b) measure.
c) analyze.
d) improvise.

Answer: d

Title: Multiple Choice Question 88
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

89) The Six Sigma quality goal is 3.4 defects per _____ opportunities.
a) hundred
b) thousand
c) million
d) billion

Answer: c

Title: Multiple Choice Question 89
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

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90) At the heart of Six Sigma is the _____ strategy, a five-step process applied to improvement projects.
a) continuous improvement
b) breakthrough
c) champion
d) None of these answer choices is correct.

Answer: b

Title: Multiple Choice Question 90
Difficulty: Easy
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Knowledge

91) ISO 9000 family of standards
a) provide detailed guidance for a company to develop and continually improve its quality management system.
b) was first established in the late 2000s as a response to the global recession of 2008.
c) place primary focus on the technology used by the company rather than the customer.
d) have never been changed since they are based on best production practices to achieve high quality.

Answer: a
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

92) The Baldridge Award was created in 1987 to _____ in the U.S.
a) stimulate the growth of quality management
b) stimulate economic growth
c) recognize the best quality gurus
d) None of these answer choices is correct.

Answer: a

Title: Multiple Choice Question 92
Difficulty: Medium

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Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000.
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Bloomcode: Analysis

Question type: Short Essay

93) What is quality of conformance from the producer's perspective, and how can it be achieved?

Title: Short Answer Question 93
Difficulty: Medium
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Solution: Once the product design has been determined, the producer perceives quality to be how effectively the production process is able to conform to the specifications required by the design. This is referred to as quality of conformance. What this means is that quality during production focuses on making sure that the product meets the specifications required by the design. From the producer's perspective, good-quality products conform to specifications—they are well-made. Achieving quality of conformance depends on a number of factors, including the design of the production process (distinct from product design), the performance level of machinery, equipment and technology, the materials used, the training and supervision of employees and the degree to which statistical quality control techniques are used.
Bloomcode: Analysis

94) Briefly discuss four dimensions of quality a consumer looks for in manufactured products.

Title: Short Answer Question 94
Difficulty: Medium
Learning Objective 1: Discuss and define the dimensions of quality.
Section Reference 1: What Is Quality?
Solution: Student answers will vary depending on the dimensions they select. Among the dimensions that could be discussed are:

| | |
|---|---|
| a. | Performance: the basic operating characteristics of a product. |

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| | |
|---|---|
| b. | Features: the extra items added to the basic features. |
| c. | Reliability: the probability that a product will operate properly within an expected time frame. |
| d. | Conformance: the degree to which a product meets pre-established standards. |
| e. | Durability: how long the product lasts before it must be replaced. |
| f. | Serviceability: the ease, speed, and facility of the repair process. |
| g. | Aesthetics: how the product looks, feels, smells, sounds, or tastes. |
| h. | Safety: assurance that the customer will not suffer injury or harm from a product. |
| i. | Other: subjective perceptions based on brand name, advertising, etc. |

Bloomcode: Analysis

95) Briefly discuss the principles associated with total quality management (TQM).

Title: Short Answer Question 95
Difficulty: Medium
Learning Objective 2: Understand quality management systems and how they have evolved and be able to assess the stage of quality evolution a particular company exhibits.
Section Reference 2: Quality Management System

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Solution: Total quality management represents a set of management principles that focus on quality improvement as the driving force in all functional areas and at all levels of a company. These principles are

| | |
|---|---|
| a. | the customer defines quality and customer satisfaction as the top priority; |
| b. | top management must provide the leadership for quality; |
| c. | quality is a strategic issue and requires a strategic plan; |
| d. | quality is the responsibility of all employees in the organization; |
| e. | quality can and must be managed; |
| f. | quality problems are found in processes, and problems must be prevented, not solved; |
| g. | quality must be measured, and improvement requires the use of quality tools; and |
| h. | the quality standard is “no defects.” |

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96) What is kaizen, and what role do employees play in Kaizen?

Title: Short Answer Question 96
Difficulty: Medium
Learning Objective 4: Understand the role of customers, employees and services in quality management systems.
Section Reference 4: Customers, Employees, and Services in Quality Management
Solution: Kaizen is the Japanese word for continuous improvement, not only in the workplace but also in one's personal life. In the workplace, kaizen means involving everyone in a process of gradual, organized, and continuous improvement. Every employee in the organization should be involved in working together to make improvements. If an improvement is not a part of a continuous, ongoing process, it is not considered kaizen. Employees are most directly involved in kaizen when they are determining solutions to their own problems. Employees are the real experts in their immediate workspace. In its most basic form, kaizen is a system in which employees identify many small improvements on a continual basis and implement these improvements themselves. Every employee is encouraged to be involved in the improvement process so that all employees feel that they are participating in quality improvements and remain excited about their jobs. All Six Sigma and TQM programs need this level of involvement to be successful.
Bloomcode: Analysis

97) What is a Six Sigma quality program?

Title: Short Answer Question 97
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: A Six Sigma program is fundamentally a very organized and detailed process for improving quality. There is little doubt that Six Sigma is a direct descendant of the philosophy and principles of TQM. In its simplest form, Six Sigma is based on Deming's PDCA cycle and Juran's assertion that "all quality improvement occurs on a project-by-project" basis. Six Sigma is a process for developing and delivering near-perfect products and services. The main idea is that if the number of defects in a process can be measured, then it can be systematically determined how to eliminate them and get as close to zero defects as possible. In Six Sigma, "as close to zero as possible" translates into a statistically-based numerical goal of 3.4 defects per million opportunities (DPMO), which means defects have been nearly eliminated. Through the reduction of variation in all processes, the overall performance of the company will be improved, and significant cost savings will be realized.
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98) Briefly describe various Six Sigma tools and give an example of the use of each.

Title: Short Answer Question 98
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: Six Sigma tools include: Quality Function Deployment (QFD), Cause and Effect (C&E) Matrix, Failure Modes and Effects Analysis (FMEA), Statistical Process Control Charts (SPC), T-Tests, and Design of Experiments (DOE). QFD is a system and set of procedures for understanding customer needs and translating this information into the design of a product or service. The C&E Matrix helps identify and prioritize causes of a problem found in a process. FEMA helps analyze potential reliability problems and weaknesses during the development stage. The t-test is used to validate test results from small sample sizes. SPC charts are used to monitor a process over time to determine is any variation is the result of a problem. Lastly, a DOE helps determine the relationship between factors affecting a process and the output of that process.
Bloomcode: Analysis

99) Briefly discuss the costs that are associated with achieving good quality.

Title: Short Answer Question 99
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000
Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: The costs of a quality management program are prevention costs and appraisal costs. Prevention costs are the costs of trying to prevent poor-quality products from reaching the customer. Prevention reflects the quality philosophy of “do it right the first time,” the goal of a quality management program. Examples of prevention costs include quality planning costs, product design costs, process costs, training costs, and information costs. Appraisal costs are the costs of measuring, testing, and analyzing materials, parts, products, and the production process to ensure that product quality specifications are being met. Examples of appraisal costs include inspection and testing, test equipment costs, and operator costs.
Bloomcode: Analysis

100) Briefly discuss the cost of poor quality.

Title: Short Answer Question 100
Difficulty: Medium
Learning Objective 5: Understand different methodologies companies follow to achieve quality improvement including Six Sigma, productivity improvement, quality awards and ISO 9000

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Section Reference 5: Roadmaps to Quality Improvements: Six Sigma, Productivity, Awards, and ISO
Solution: Costs associated with poor quality are also referred to as the cost of nonconformance or failure costs. The cost of poor quality can be categorized as internal failure costs or external failure costs. Internal failure costs are incurred when poor-quality products are discovered before they are delivered to the customer. Examples of internal failure costs include scrap costs, rework costs, process failure costs, process downtime costs, and price-downgrading costs. External failure costs are incurred after the customer has received a poor-quality product and are primarily related to customer service. Examples of external failure costs include customer complaint costs, product return costs, warranty claims costs, product liability costs, and lost sales costs.
Bloomcode: Analysis

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