Chapter 6 *Rapid* Review

Main Heading	Review Material	MyOMLab
QUALITY AND STRATEGY (pp. 216–217)	Managing quality helps build successful strategies of differentiation, low cost, and *response.* Two ways that quality improves profitability are: ■ *Sales gains* via improved response, price flexibility, increased market share, and/or improved reputation ■ *Reduced costs* via increased productivity, lower rework and scrap costs, and/or lower warranty costs	Concept Questions: 1.1–1.4 **VIDEO 6.1** The Culture and Quality at Arnold Palmer Hospital
DEFINING QUALITY (pp. 217–219)	An operations manager's objective is to build a total quality management system that identifies and satisfies customer needs. ■ **Quality**—The ability of a product or service to meet customer needs. The American Society for Quality (ASQ) defines quality as "the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs." The two most well-known quality awards are: ■ *U.S.*: Malcolm Baldrige National Quality Award, named after a former secretary of commerce ■ *Japan*: Deming Prize, named after an American, Dr. W. Edwards Deming ■ **ISO 9000**—A set of quality standards developed by the International Organization for Standardization (ISO). ISO 9000 is the only quality standard with international recognition. To do business globally, being listed in the ISO directory is critical. ■ **Cost of quality (COQ)**—The cost of doing things wrong; that is, the price of nonconformance. The four major categories of costs associated with quality are *prevention costs, appraisal costs, internal failure costs,* and *external failure costs.* Four leaders in the field of quality management are W. Edwards Deming, Joseph M. Juran, Armand Feigenbaum, and Philip B. Crosby.	Concept Questions: 2.1–2.4
TOTAL QUALITY MANAGEMENT (pp. 219–226)	■ **Total quality management (TQM)**—Management of an entire organization so that it excels in all aspects of products and services that are important to the customer. Seven concepts for an effective TQM program are (1) continuous improvement, (2) Six Sigma, (3) employee empowerment, (4) benchmarking, (5) just-in-time (JIT), (6) Taguchi concepts, and (7) knowledge of TQM tools. ■ **PDCA**—A continuous improvement model that involves four stages: plan, do, check, and act. The Japanese use the word *kaizen* to describe the ongoing process of unending improvement—the setting and achieving of ever-higher goals. ■ **Six Sigma**—A program to save time, improve quality, and lower costs. In a statistical sense, Six Sigma describes a process, product, or service with an extremely high capability—99.9997% accuracy, or 3.4 defects per million. ■ **Employee empowerment**—Enlarging employee jobs so that the added responsibility and authority are moved to the lowest level possible in the organization. Business literature suggests that some 85% of quality problems have to do with materials and processes, not with employee performance. ■ **Quality circle**—A group of employees meeting regularly with a facilitator to solve work-related problems in their work area. ■ **Benchmarking**—Selecting a demonstrated standard of performance that represents the very best performance for a process or an activity. The philosophy behind just-in-time (JIT) involves continuing improvement and enforced problem solving. JIT systems are designed to produce or deliver goods just as they are needed. ■ **Quality robust**—Products that are consistently built to meet customer needs, despite adverse conditions in the production process. ■ **Target-oriented quality**—A philosophy of continuous improvement to bring the product exactly on target. ■ **Quality loss function (QLF)**—A mathematical function that identifies all costs connected with poor quality and shows how these costs increase as output moves away from the target value.	Concept Questions: 3.1–3.4

Chapter 6 *Rapid* Review *continued*

Main Heading	Review Material	MyOMLab
TOOLS OF TQM (pp. 226–230)	TQM tools that generate ideas include the *check sheet* (organized method of recording data), *scatter diagram* (graph of the value of one variable vs. another variable), and *cause-and-effect diagram*. Tools for organizing the data are the *Pareto chart* and *flowchart*. Tools for identifying problems are the *histogram* (distribution showing the frequency of occurrences of a variable) and *statistical process control chart*. ■ **Cause-and-effect diagram**—A schematic technique used to discover possible locations of quality problems. (Also called an Ishikawa diagram or a fish-bone chart.) The 4 *M*s (material, machinery/equipment, manpower, and methods) may be broad "causes." ■ **Pareto chart**—A graphic that identifies the few critical items as opposed to many less important ones. ■ **Flowchart**—A block diagram that graphically describes a process or system. ■ **Statistical process control (SPC)**—A process used to monitor standards, make measurements, and take corrective action as a product or service is being produced. ■ **Control chart**—A graphic presentation of process data over time, with predetermined control limits.	Concept Questions: 4.1–4.4 Problems: 6.1, 6.3, 6.5, 6.8–6.14, 6.16–6.20 **ACTIVE MODEL 6.1** Virtual Office Hours for Solved Problem: 6.1
THE ROLE OF INSPECTION (pp. 230–233)	■ **Inspection**—A means of ensuring that an operation is producing at the quality level expected. ■ **Source inspection**—Controlling or monitoring at the point of production or purchase: at the source. ■ **Poka-yoke**—Literally translated, "mistake proofing"; it has come to mean a device or technique that ensures the production of a good unit every time. ■ **Checklist**—A type of poka-yoke that lists the steps needed to ensure consistency and completeness in a task. ■ **Attribute inspection**—An inspection that classifies items as being either good or defective. ■ **Variable inspection**—Classifications of inspected items as falling on a continuum scale, such as dimension, size, or strength.	Concept Questions: 5.1–5.4 **VIDEO 6.2** Quality Counts at Alaska Airlines
TQM IN SERVICES (pp. 233–235)	Determinants of service quality: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles. ■ **Service recovery**—Training and empowering frontline workers to solve a problem immediately. ■ **SERVQUAL**—A popular measurement scale for service quality that compares service expectations with service performance.	Concept Questions: 6.1–6.4 Problem: 6.21 **VIDEO 6.3** TQM at Ritz-Carlton Hotels

Self Test

■ **Before taking the self-test,** refer to the learning objectives listed at the beginning of the chapter and the key terms listed at the end of the chapter.

LO 6.1 In this chapter, *quality* is defined as:
- **a)** the degree of excellence at an acceptable price and the control of variability at an acceptable cost.
- **b)** how well a product fits patterns of consumer preferences.
- **c)** the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs.
- **d)** being impossible to define, but you know what it is.

LO 6.2 ISO 9000 is an international standard that addresses _____.

LO 6.3 If 1 million passengers pass through the Jacksonville Airport with checked baggage each year, a successful Six Sigma program for baggage handling would result in how many passengers with misplaced luggage?
- **a)** 3.4
- **b)** 6.0
- **c)** 34
- **d)** 2,700
- **e)** 6 times the monthly standard deviation of passengers

LO 6.4 The process of identifying other organizations that are best at some facet of your operations and then modeling your organization after them is known as:
- **a)** continuous improvement.
- **b)** employee empowerment.
- **c)** benchmarking.
- **d)** copycatting.
- **e)** patent infringement.

LO 6.5 The Taguchi method includes all except which of the following major concepts?
- **a)** Employee involvement
- **b)** Remove the effects of adverse conditions
- **c)** Quality loss function
- **d)** Target specifications

LO 6.6 The seven tools of total quality management are _____, _____, _____, _____, _____, _____, and _____.

Answers: LO 6.1. c; LO 6.2. quality management systems; LO 6.3. a; LO 6.4. c; LO 6.5. a; LO 6.6. check sheets, scatter diagrams, cause-and-effect diagrams, Pareto charts, flowcharts, histograms, SPC charts.