1 HISTORICAL PERSPECTIVES

ANSWERS—QUIZ 1

1. b
2. a
3. a
4. b
5. b
6. a
7. a
8. c
9. c
10. b
11. b
12. a
13. Student will list one of the following: spinning jenny, 1764; power loom, 1784; cotton gin, 1792.
14. Student will list two of the following: Substitution of mechanical energy for animal sources of power, particularly steam power through the combustion of coal. Substitution of machines for human skills and strength. Invention of new methods for transforming raw materials into finished goods, particularly in iron and steel production and industrial chemicals. Organization of work into large units, such as factories or forges or mills. This made direct supervision of the manufacturing process possible, as well as an efficient division of labor.
15. The lag between the emergence of new working methods and the creation of health and safety standards was probably inevitable. The tools of mass production had to be invented and applied before anyone could begin to imagine the problems they might create. In turn, the problems had to be known before corrective measures could be considered, tested, and proved. Thus, for some time, deaths and injuries were accepted as part of industrial progress—one of the costs of doing business.
16. Possible answers include: Clean Air and Clean Water Acts, Toxic Substance Control Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act, Superfund Amendments, and Reauthorization Act.
17. Failure to comply with health and safety requirements can mean citations, which at the least create administrative costs but could also lead to serious monetary penalties. The federal government can also institute criminal sanctions against employers and even against individual managers who ignore or disregard the law.
18. Correct use of machinery; correct use of protective equipment; the need to report defects in equipment, defects in procedures, and potentially dangerous situations such as near-miss accidents.
19. Taking the measures necessary for the safety and health of workers, bearing in mind technical progress; evaluating hazards and instructing workers accordingly; setting up protection and prevention services within the workplace, possibly by enlisting competent external services or persons; organization of first aid; evacuation of workers in the event of serious damage.
20. In summary, here are six reasons for working hard to prevent accidents and occupational illnesses: Needless destruction of life and health is morally unjustified. Failure to take necessary precautions against predictable accidents and occupational illnesses makes management and workers morally responsible for those accidents and occupational illnesses. Accidents and occupational illnesses severely limit efficiency and productivity. Accidents and occupational illnesses produce far-reaching social harm. The safety movement has demonstrated that its techniques are effective in reducing accident rates and promoting efficiency. Recent state and federal legislation mandates management responsibility to provide a safe, healthful workplace.

ANSWERS—QUIZ 2

1. b
2. a
3. a
4. a
5. b
6. c
7. a
8. c
9. d
10. b
11. Possible answers include: Emerging global markets have intensified the need for international standardization. Worldwide technological innovations result

in changes to industrial methods and organizations that threaten worker and consumer safety. The rapid pace of change in science and technology is outstripping standards development in most countries. Developing countries' efforts to industrialize means they may downplay safety and health regulations in favor of rapid economic growth.

12. ISO 9000 provides general guidelines for applying ISO 9001-9003. ISO 9001 provides a quality system model for quality assurance in design, development, production, installation, and servicing. ISO 9002 provides a quality systems model for quality assurance in production and installation. ISO 9003 offers a quality systems model for quality assurances in final inspection and testing. ISO 9004 provides guidelines for quality management and quality system elements.
13. The basic goal of the ISO 9000 series is to give companies guidelines for achieving consistency and uniformity of products or services through the supply chain from primary supplier to the final customers. Companies can use ISO 9000 as an international benchmark against which they can measure their own performance.
14. This post-Industrial Revolution era is called the Information Age.
15. The Three E's of Safety are engineering, education, and enforcement. Their effect on industry today is as follows: engineering can prevent accidents, employees could be reached through education, and safety rules can be established and enforced.
16. The death calendar showed that in Allegheny County, Pennsylvania, in 1906 industrial accidents accounted for an average of nearly two deaths per day throughout the year. The number of crippling injuries was far higher.
17. The underlying objective of the National Safety Council was standardization by providing an avenue of communication, an exchange of views, and various solutions to common problems in accident prevention.
18. The student's answer should provide a general understanding of the key points in this chapter, and may provide specific examples such as the decrease in death/injury rates. Other factors might include decline of several high-risk industries and a shift toward the economy's service sector.

ANSWERS—CASE STUDY

1. Substitution of mechanical energy for animal sources of power, particularly steam power through the combustion of coal; substitution of machines for human skills and strength; invention of new methods for transforming raw materials into finished goods, particularly in iron and steel production and industrial chemicals; organization of work into large units, such as factories or gorges or mills. This made possible direct supervision of the manufacturing process and an efficient division of labor. Paralleling these production changes were the altered technologies employed in agriculture and transportation.
2. Fellow servant rule—employer was not liable for injury to an employee that resulted from negligence of a fellow employee; contributory negligence—employer was not liable if the employee was injured due to his own negligence; assumption of risks—employer was not liable because the employee took the job with full knowledge of the risks and hazards involved.
3. Union and management should have an equal number of members serving on the committee; the union should elect or select the members who will serve as their representatives on the committee; the role of the committee chairperson should be rotated between labor and management or the committee may choose to have co-chairs; management should consider appointing committee representatives who have enough authority to make real decisions about projects or about spending money to avoid creating delays or unnecessary interference; the committee should be able to recommend corrections or request assistance with any occupational safety and health concern or issue; union and management should have an equal voice in the decision-making process and in planning committee actions and agendas; there should be a method or procedure established to monitor and evaluate the effectiveness of the joint committee activities.
4. Management should issue a policy statement directly related to safety and health. Usually these statements cover issues like implementing committee decisions or responding quickly to employee concerns or complaints; the committee should be funded by the employer with committee members being compensated at their normal rate of pay for time spent

on committee activities or projects; the committee should have the right to request assistance, such as environmental monitoring, from qualified specialized personnel; the committee should have access to useful information in company files, such as monitoring or exposure records, accident and injury reports, and records of lists of chemicals used in the workplace.