A Social History of American Technology

Ruth Schwartz Cowan and Matthew H. Hersch

Chapter 1 Quiz Questions

Multiple Choice

1. In which of the following regions did Native peoples cultivate cotton and weave it into cloth for clothing?
   a. Southwest
   b. Northwest
   c. Eastern coastal plains
   d. Arctic
   Answer: a (p. 7)

2. In which of the following regions did Native Americans create agricultural systems?
   a. Southwest
   b. Northwest
   c. Eastern coastal plains
   d. Arctic
   Answer: c (p. 8)

3. Which of the following technological systems did Native Americans have before European colonization?
   a. writing
   b. metalwork
   c. agriculture
   d. land ownership
   Answer: c (p. 8)

4. Which of the following was *not* a valuable commodity that the North American colonies sent to Europe?
   a. tobacco
   b. wood
   c. potash
   d. gold
   Answer: d (pp. 18–19)

5. For a mercantilist economy, the best kind of trade was trade with
   a. a rival nation.
   b. your own colony.
   c. your own people.
   d. someone else's colony.
   Answer: b (p. 23)

6. When industry flourishes, it encourages
   a. technological advancement.
   b. technological stagnation.
   c. intellectual development.
   d. all of the above
   Answer: a (p. 24)

Fill in the Blank

7. Native Americans in Arctic regions of North America survived by focusing their technological systems on the _____.
   Answer: sea (p. 7)

8. The main natural resource that Native Americans did not exploit before colonization was _____.
   Answer: metal (p. 10)

9. European technology had created a society based on _____.
   Answer: differentiation or specialization (p. 14)

10. The colonial economy was based on _____.
    Answer: trade (p. 17)

11. Mercantilism's function was to make _____ rich.
    Answer: the king (p. 22)

12. The expansion of colonial trade created wealth for _____.
    Answer: the mother country (p. 23)

True/False

13. Technological change in North America has always been rapid.
    Answer: F (p. 10)

14. Native Americans created towns and cities in North America.
    Answer: T (p. 5)

15. Differences in geography created different technological systems.
    Answer: T (p. 5)

16. European settlers easily transported European technological systems to North America.
    Answer: F (p. 16)

17. Early European settlers were forced to learn the technological skills of Native Americans to survive.
    Answer: T (p.16)

18. Capitalist economics dominated Europe in the 17th and 18th centuries.
Answer: F (p. 22)

Matching

19. Match the following regions to their Native inhabitants' primary food source.

Arctic	Buffalo
Pacific Northwest	Whales and sea lions
Plains	Agricultural crops
Eastern coastal plains	Fish

20. Match the following regions to their Native inhabitants' main source of clothing.

Arctic	Deer hides
Plains	Buffalo hides
Southwest	Seal hides
Eastern coastal plains	Cotton cloth

Chapter 2 Quiz Questions

Multiple Choice

1. A technological system links _____ to get work done.
   a. people
   b. computers
   c. tools
   d. experts
   Answer: c (p. 28)

2. The majority of colonial artisans lived in cities because
   a. cost of living was cheaper.
   b. they were scared of bears.
   c. they didn't want to have to farm.
   d. transportation costs were cheaper.
   Answer: d (p. 38)

3. Apprentices worked hard to learn a trade and were paid
   a. nothing.
   b. fairly well.
   c. minimum wage.
   d. in goods rather than money.
   Answer: a (p. 39)

4. The wives and children of colonial craftsmen
   a. lived lives of leisure.

b. worked in the family business.
c. generally had jobs of their own.
d. didn't interact with his business.
Answer: b (p. 44)

5. Iron plantations were generally owned by
a. a master craftsman.
b. groups of entrepreneurs.
c. worker collectives.
d. overseas investors.
Answer: b (p. 46)

6. The pace of technological change was slow in colonial America because
a. of government interference.
b. there were too many artisans.
c. colonists didn't need for technology.
d. the government didn't encourage it.
Answer: d (p. 51)

Fill in the Blank

7. Cooperation between neighboring farms developed a(n) _____ economy.
Answer: barter (p. 37)

8. Only _____ farms could truly be self-sufficient in the colonial era.
Answer: wealthy (p. 37)

9. Artisans made up _____ percent of the colonial population.
Answer: 10 (p. 38)

10. Printing required a(n) _____ workforce.
Answer: literate (p. 42)

11. Iron was processed in a giant _____ furnace.
Answer: blast (p. 46)

12. Craft enterprises where the workers labored for _____ provided the model for 19th century industrialization.
Answer: wages (p. 50)

True/False

13. The culture founded by European colonists on the Atlantic seaboard is the primary foundational culture of North America.
Answer: F (p. 28)

14. The majority of the farms in the North American colonies were large, wealthy plantations.
Answer: F (p. 30)

15. Tasks on colonial farms were divided by gender.
Answer: T (p. 36)

16. Before the 18th century, the vast majority of colonial artisans lived in cities.
Answer: F (p. 38)

17. Apprentices lived at home and commuted to work daily.
Answer: F (p. 39)

18. It was difficult to get artisans to emigrate to North America because they were well paid in Europe.
Answer: T (p. 38)

Matching

19. Select the gender that usually performed each farm task in colonial North America.

_____ Plowing	
_____ Weaving	A. Male
_____ Butchering	B. Female
_____ Preserving	
_____ Spinning	

20. Match the technology to the craft.

Press	Farming
Forge	Weaving
Plowshare	Iron working
Loom	Printing

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Chapter 3 Quiz Questions

Multiple Choice

[1.] Oliver Evans's "hopper boy," which raked grain, is named after
a. the young boys who did that job.
b. Evans's young son.
c. the look of the machine.
d. a character from a popular play.
Answer: a (p. 55)

2. Evans wanted to build lighter steam engines so that they could be used for
a. children's toys.
b. taller factories.
c. powering transportation.
d. only lightweight uses like textiles.
Answer: c (p. 57)

3. Eli Whitney summed up the American system of manufacture by saying that its goals were to produce machines that created parts with expedition, uniformity, and exactness. What does expedition mean?
a. on a trip
b. in the forest
c. accuracy
d. speed
Answer: d (p. 63)

4. Manufacturing using special purpose machines, division of labor, and an unskilled workforce was called
a. armory practice.

b. textile manufacture.
c. immigrant labor.
d. the German system.
Answer: a (p. 65)

5. A permanent industrial workforce was slow to develop in the United States because of
a. labor laws.
b. the availability of land.
c. the independence of the workers.
d. poor wages.
Answer: b (p. 76)

6. American geography played a role in factory development because of
a. the many mill sites.
b. the many ports.
c. the population was spread out.
d. many large cities.
Answer: a (p. 76)

Fill in the Blank

7. Machines as a substitute for manual labor is called _____.
Answer: mechanization (p. 55)

8. The first U.S. patent law was passed in _____.
Answer: 1790 (p. 56)

9. Oliver Evans hired and trained men to build and work on his steam engines and other machines in workplaces called _____.
Answer: machine shops (p. 58)

10. Evans's lightweight steam engines were used in _____ and _____.
Answer: steamboats; locomotives (pp. 58–59)

11. Eli Whitney invented the system of _____.
Answer: interchangeable parts (p. 62)

12. Lowell mills employed primarily _____.
Answer: unmarried young women (p. 72)

True/False

13. American industrialization began around 1820.
Answer: F (p. 54)

14. Evans, Whitney, and other inventors always got rich off their inventions.

Answer: F (p. 57)

15. The steam engine was originally invented in England.
Answer: T (p. 57)

16. Eli Whitney invented the first revolver.
Answer: F (p. 65)

17. Samuel Slater invented the idea of factories.
Answer: F (p. 67)

18. The factory system quickly spread to other industries.
Answer: T (p. 72)

Matching

19. Match the inventor to the invention.

Steam engine	Samuel Colt
Cotton gin	Eli Whitney
Grain elevator	Oliver Evans
Repeating revolver	James Watt

20. Select the mill system for each mill characteristic.

_____ Mill-owned housing
_____ Mill-owned boarding house

_____ Patriarchal system	A. Slater system
_____ Owner-operated	B. Lowell system

_____ Corporation
_____ Family labor system
_____ Integrated production

Chapter 4 Quiz Questions

Multiple Choice

[1.] Which of the following was *not* a benefit of a unified transportation system to the early United States?
a. easier military movement
b. greater state government control
c. increased economic growth
d. national unity
Answer: b (p. 79)

2. The earliest turnpike roads were built by
a. state governments.

b. the federal government.
c. the British government.
d. private entrepreneurs.
Answer: d (p. 83)

3. The federal government's role in building infrastructure was controversial because
a. it might make mistakes.
b. it might spend too much money.
c. it was unconstitutional.
d. that might give it too much power.
Answer: d (p. 84)

4. The first major canal to be built with state funds was the
a. Santee.
b. Middlesex.
c. Hudson.
d. Erie.
Answer: d (p. 88)

5. The steamboat era in the United States was inaugurated on which river?
a. Hudson
b. Delaware
c. Potomac
d. Charles
Answer: a (p. 92)

6. The court case *Gibbons v. Ogden* set the precedent that only the federal government could regulate
a. construction of infrastructure.
b. interstate commerce.
c. monopolies.
d. technological advancements.
Answer: b (p. 95)

7. The first functional railroad in the United States was the
a. Granite Railroad.
b. Delaware and Hudson.
c. Baltimore and Ohio.
d. Charleston and Hamburg.
Answer: d (p. 98)

Fill in the Blank

8. In the early United States, roads were commonly the responsibility of _____.
Answer: local governments (p. 80)

9. The first state to charter a turnpike company was _____.
Answer: Pennsylvania (p. 83)

10. The power source that allowed the creation of new forms of transportation was _____.
Answer: steam power (p. 91)

11. Monopolies over _____ were so valuable they were challenged in court.
Answer: steamboat routes (p. 95)

12. Most early railroads were owned by _____.
Answer: joint stock companies (p. 98)

13. The Transcontinental Railroad was completed in _____.
Answer: 1869 (p. 102)

14. Railroads were eventually supplanted by _____.
Answer: the automobiles (p. 100)

True/False

15. Most commerce in the 18th century moved by water.
Answer: T (p. 81)

16. By 1800, most roads in the United States were paved.
Answer: F (p. 80)

17. Roads were the most important form of transportation throughout the 19th century.
Answer: F (p. 85)

18. Canals were an important part of American infrastructure throughout the 19th century.
Answer: F (p. 90)

19. Canal building created economic growth.
Answer: T (p. 89)

20. Robert Fulton is the unquestioned inventor of the steamboat.
Answer: F (p. 91)

21. Early railroad transportation was extremely undependable.
Answer: T (p. 99)

Section I Essay Questions

[1.] How did Native American inhabitants of the Atlantic seaboard create an agricultural system? How did the agricultural system of European settlers differ from theirs? How did Europeans adopt Native American systems to survive?

[2.] How did industrialization begin in America? What factors made American industry different from European industrial systems?

[3.] How did steam power revolutionize American industry and systems of transportation?

Chapter 5 Quiz Questions

Multiple Choice

[1.] People in agricultural societies are primarily dependent on
a. each other.
b. nature.
c. government.
d. trade.
Answer: b (p. 108)

[2.] Samuel F. B. Morse invented
a. electricity.
b. the telegraph.
c. the telephone.
d. Morse code.
Answer: d (p. 09)

[3.] The integration of the railroad system was pioneered by
a. government.
b. private companies.
c. investors.
d. the military.
Answer: c (p. 112)

[4.] One of the earliest uses of oil was
a. making gas for cars.
b. lubrication of machinery.
c. powering locomotives.
d. running the telegraph system.
Answer: b (p. 115)

[5.] Congress passed the Sherman Anti-Trust Act in 1890 because it was worried about
a. inventions run wild.
b. the rapid pace of industrialization.
c. the growth of monopolies.

d. the division of wealth.
Answer: c (p. 117)

[6.] Thomas Edison invented
a. safety bulbs.
b. electricity.
c. streetcars.
d. lightbulbs.
Answer: a (p. 121)

Fill in the Blank

7. Industrialization makes people (more/less) _____ dependent on each other.
Answer: more (p. 107)

8. John D. Rockefeller took over the oil industry by gaining a monopoly over _____.
Answer: transportation (p. 116)

9. Alexander Graham Bell invented the _____.
Answer: telephone (p. 118)

10. Bell Telephone Company created a(n) _____ system of telephones.
Answer: integrated, (p. 118)

11. Industrialization created a new kind of society, characterized by new social and economic _____.
Answer: relationships, (p. 125)

12. Industrialization caused people to move to cities, creating _____.
Answer: overcrowding (p. 127)

True/False

13. Technological systems in an industrial society are no more complex than those in an agricultural society.
Answer: F (p. 108)

14. At first, telegraph lines were used only by the government.
Answer: F (p. 109)

15. Time zones were invented by railroad companies.
Answer: T (p. 114)

16. Independent telephone companies worked their way into the market because the Bell Company had not considered that telephones would be used for personal purposes.
Answer: T (p. 119)

17. Edison's company outsources most of the development of the infrastructure of the electrical system.
Answer: F (p. 122)

18. Edison's electrical system eventually powered thousands of new inventions.
Answer: T (p. 125)

Matching

19. Match the inventor to the technological system.

Thomas Edison	telegraph
Samuel F. B. Morse	electricity
Alexander Graham Bell	telephone

20. Match the businessman to the business that made him wealthy.

Leland Stanford	Finance
John D. Rockefeller	Electricity
Thomas Edison	Oil
Alexander Graham Bell	Railroads
J. P. Morgan	Telephones

Chapter 6 Quiz Questions

Multiple Choice

[1.] Farmers in the 19th century United States were
a. wealthy plantation owners.
b. sharecroppers.
c. small family farmers.
d. all of the above
Answer: d (p. 133)

2. Mechanization allowed farmers to increase yields, which resulted in
a. higher prices.
b. lower prices.
c. no change in price.
d. none of the above
Answer: b (p. 137)

3. Mechanization in industry meant that craftsmen who had done highly skilled jobs were replaced by machines. This process is called
a. mechanization.
b. capitalism.
c. deskilling.

d. nationalism.
Answer: c (p. 139)

4. Even unskilled factory jobs were filled because they were considered
a. well-paid.
b. easy.
c. good training.
d. a stepping stone to something else.
Answer: d (p. 149)

5. The largest single group of workers in the United States during the Industrial Revolution did
a. household labor.
b. farm work.
c. industrial work.
d. unskilled labor.
Answer: a (p. 153)

6. Most labor-saving devices invented during the industrial revolution reduced _____ work.
a. women's
b. men's
c. children's
d. all
Answer: b (p. 156)

Fill in the Blank

7. The type of farming that focused primarily on raising one crop for sale in the marketplace is called _____.
Answer: monocropping (p. 133)

8. The Grange was a _____.
Answer: farmer's organization (p. 137)

9. Workers who did jobs that required little training are called _____ workers.
Answer: unskilled (p. 147)

10. Labor-saving devices _____ the amount of domestic work done by women.
Answer: did not change (p. 156)

11. To maintain a middle-class lifestyle, families required _____.
Answer: domestic servants (p. 157)

12. It is _____ to generalize about the changes that industrialization made to Americans.
Answer: impossible (p. 158)

True/False

13. Industrialization's impact on Americans was the same no matter who you were.
Answer: F (p. 133)

14. Wheat farming was completely changed by mechanization.
Answer: T (p. 134)

15. Farm tenancy increased thanks to mechanization.
Answer: T (p. 136)

16. Mechanization replaced old skilled jobs without creating new ones.
Answer: F (p. 144)

17. Injuries and illnesses were common in factory jobs.
Answer: T (p. 151)

18. Many workers preferred factory work to domestic service.
Answer: T (p. 156)

19. Domestic work was divided by gender in the 19th century.
Answer: T (p. 154)

Matching

20. Select the gender that corresponds to each task performed in 19th-century America:
_____ cooking
_____ gathering fuel
_____ making shoes A. Men
_____ butchering animals B. Women
_____ tending vegetable gardens
_____ sewing clothing

Chapter 7 Quiz Questions

Multiple Choice

[1.] The first U.S. patent law was passed in
a. 1790.
b. 1776.
c. 1890.
d. 1865.
Answer: a (p. 163)

2. By 1920, most inventors worked for

a. themselves.
b. the government.
c. corporations.
d. nonprofits.
Answer: c (p. 171)

3. To have significant social and economic impact, inventions must be
a. good.
b. diffused throughout society.
c. profitable.
d. widely needed.
Answer: b (p. 177)

4. The Morrill Act provided federal land to encourage the building of
a. factories.
b. cities.
c. railroads.
d. technical schools.
Answer: d (p. 181)

5. Polytechnic institutes were created to train
a. entrepreneurs.
b. engineers.
c. inventors.
d. financiers.
Answer: b (p. 181)

6. Early professional organizations of engineering found a place because they
a. promoted continuing education.
b. debated questions of ethics.
c. maintained professional standards.
d. all of the above
Answer: d (p. 184)

Fill in the Blank

7. People who create things that have never been created before are called _____.
Answer: inventors (p. 161)

8. People who provide funds or skills to turn an invention into an innovation are called _____.
Answer: entrepreneurs (p. 161)

9. People who complete the projects that inventors create are called _____.
Answer: engineers (p. 161)

10. A temporary monopoly on making money from an invention is called a(n) _____.
Answer: patent (p. 162)

11. The patent process made inventions public and made some inventors _____.
Answer: famous (p. 165)

12. The first professional organization of engineers was the _____.
Answer: Franklin Institute (p. 183)

True/False

13. Inventors were the primary people responsible for the massive changes of industrialization in the 19th century.
Answer: F (p. 161)

14. All inventors also had to be entrepreneurs to sell their ideas.
Answer: F (p. 169)

15. Most early inventors were poor students in school.
Answer: T (p. 166)

16. The federal government played an important role in promoting workers' rights in the early 20th century.
Answer: F (p. 173)

17. The federal government played an important role in assisting the development of industry.
Answer: T (p. 173)

18. Early engineers were trained in technical schools.
Answer: F (p. 180)

19. As engineers became employees rather than employers, they increasingly struggled with ethical questions.
Answer: T (p. 188)

20. By 1920, the American economy was still struggling to industrialize.
Answer: F (p. 188)

Section II Essay Questions

1. How did technological systems develop in the United States during the Industrial Revolution? Pick one system and describe its impact on both society and the economy.

2. How did new industrial systems change daily labor for American farmers? What impact did these changes have on their lives? On the larger economy?

3. How were inventors, entrepreneurs, and engineers each key to the development of new technological systems? Pick one system and describe its development from invention to system.

Chapter 8 Quiz Questions

Multiple Choice

[1.] The internal combustion engine was invented by
a. Karl Benz.
b. Nicholas Otto.
c. Etienne Lenoir.
d. all of the above
Answer: d (p. 195)

2. Mass production of cars was invented by
a. Gottlieb Daimler.
b. William Chrysler.
c. Henry Ford.
d. Karl Benz.
Answer: c (p. 197)

3. Mass marketing of automobiles was pioneered by
a. Alfred P. Sloan.
b. William Chrysler.
c. Henry Ford.
d. Karl Benz.
Answer: a (p. 200)

4. Automobile ownership became a necessity for most Americans because of the expansion of
a. industrial jobs.
b. jobs requiring travel.
c. suburban housing.
d. widely spread cities.
Answer: c (p. 208)

5. The growing dependence on automobiles created _____ issues.
a. safety
b. health
c. environmental
d. both a and c
Answer: d (p. 209)

6. The National Highway Traffic Safety Administration began setting safety standards for new cars in
   a. 1968.
   b. 1963.
   c. 1980.
   d. 1938.
   Answer: a (p. 210)

7. The decline of the American automobile industry began with the
   a. fall of the Berlin Wall.
   b. Great Depression.
   c. end of World War II.
   d. Oil Embargo of 1973.
   Answer: d (p. 216)

Fill in the Blank

8. _____ resulted in lower priced cars, which increased demand.
   Answer: Rapid assembly (p. 199)

9. _____ began the practice of annual model changes for cars.
   Answer: Alfred P. Sloan (p. 201)

10. Some of the first highways were built during the Great Depression, with money from the _____.
    Answer: Works Progress Administration (p. 204)

11. The first federal law allocating money to building high speed roads was _____.
    Answer: Defense Highway Act (p. 208)

12. The word "smog" was invented by residents of _____.
    Answer: Los Angeles (p. 211)

13. _____ pioneered emissions control standards for cars.
    Answer: California (p. 212)

14. The Oil Embargo of 1973 caused gasoline prices to _____.
    Answer: rise (p. 215)

True/False

15. American Henry Ford invented the internal combustion engine.
    Answer: F (p. 194)

16. European automobile technology was the precursor for American automobiles.
    Answer: T (p. 196)

17. The development of assembly lines benefited skilled workers by making their jobs more secure.
Answer: F (p. 200)

18. In the early 20th century, people thought that cars would ease congestion and make roads safer.
Answer: T (p. 204)

19. Automobile sales increased significantly after World War II.
Answer: T (p. 206)

20. Larger, faster cars were less profitable for manufacturers but more popular.
Answer: F (p. 206)

Chapter 9 Quiz Questions

Multiple Choice

[1.] What event created new and unprecedented links between government, industry, and technology?
a. World War II
b. the Great Depression
c. the Cold War
d. the fall of the Berlin Wall
Answer: a (p. 225)

2. What event showed that aircraft would be a military necessity?
a. the Civil War
b. World War I
c. World War II
d. the Cold War
Answer: b (p. 228)

3. Which of the following was *not* invented during World War II?
a. jet fighters
b. bombers
c. rockets
d. helicopters
Answer: b (p. 233)

4. The primary purpose behind the Apollo program, which landed the first men on the moon, was
a. scientific research.
b. defense.

c. to beat the Russians there.
d. to colonize the moon.
Answer: c (p. 243)

5. Most of the work done by NASA since the moon landing has been oriented toward
a. defense.
b. beating the Russians.
c. ownership of the moon.
d. research and exploration.
Answer: d (p. 245)

6. Which of the following is *not* a civilian spin-off of military technology?
a. GPS
b. Television
c. Lasers
d. Jet airplanes
Answer: b (p. 248)

Fill in the Blank

7. The close relationship between the military and the industries that develop weapons for them is called the _____.
Answer: military-industrial complex (p. 225)

8. The first manmade object to orbit the earth was _____.
Answer: Sputnik (p. 237)

9. Cold War tensions _____ the importance of research and development in aerospace technologies.
Answer: increased (p. 236)

10. NASA was created to be a civilian agency to avoid _____ from the military.
Answer: politicking (p. 242)

11. Precision-guided weapons were meant to minimize _____.
Answer: casualties (p. 247)

12. Reagan's Strategic Defense Initiative, a missile system meant to defend the continental United States, was nicknamed _____.
Answer: Star Wars (p. 247)

True/False

13. The aerospace industry became critical to both defense and the economy in the 20th century.
Answer: T (p. 226)

14. The development of the internal combustion engine made powered flight possible.
Answer: T (p. 226)

15. Orville and Wilbur Wright's first airplane customers were private corporations.
Answer: F (p. 227)

16. Government funded both industry and academia to do research and development during World War II.
Answer: T (p. 232)

17. Academia was never an important part of the military-industrial complex.
Answer: F (p. 235)

18. Wars like Korea and Vietnam showed how unsuited nuclear technology was to fight conventional wars.
Answer: T (p. 246)

19. The needs of the military have dominated American technological development since 1945.
Answer: T (p. 248)

20. The close relationship between military and technology has been nothing but beneficial to the American people.
Answer: F (p. 248)

Chapter 10 Quiz Questions

Multiple Choice

[1.] Marconi first marketed his wireless telegraph system to
a. wealthy investors.
b. the British Navy.
c. the Italian government.
d. ordinary middle class consumers.
Answer: b (p. 253)

2. The event that spurred the passage of the Radio Licensing Act of 1912 was the
a. outbreak of World War I.
b. Great Depression.
c. sinking of the *Titanic*.
d. sinking of the *Lusitania*.
Answer: c (p. 258)

3. RCA was created to take over the facilities of the Marconi company because the U.S. government was worried about
a. Marconi spying on them.

b. foreign company controlling radio.
c. a monopoly over radio.
d. aliens.
Answer: b (p. 260)

4. The first broadcasting corporation was
a. NBC.
b. ABC.
c. CBS.
d. Fox.
Answer: a (p. 267)

5. Westinghouse began broadcasting election results and baseball scores to
a. control the radio market.
b. control the news.
c. experiment with its technology.
d. advertise radios for home use.
Answer: a (p. 263)

6. The commercialization of television was delayed by
a. the Cold War.
b. World War I.
c. World War II.
d. federal regulations.
Answer: c (p. 269)

Fill in the Blank

7. Wireless transmission was created by _____.
Answer: Guglielmo Marconi (p. 253)

8. Wireless telephony is the transmission of _____ without wires.
Answer: voices (p. 254)

9. Lee De Forest's Audion was the ancestor of _____.
Answer: vacuum tube technology (p. 255)

10. The Radio Licensing Act divided up radio frequencies by _____.
Answer: function (p. 258)

11. _____ was the main force behind turning radio into a mass-marketed product.
Answer: Westinghouse Corporation (p. 263)

12. The Radio Act of 1927 created the _____ to enforce laws on broadcasters.
Answer: Federal Radio Commission (p. 267)

True/False

13. The development of electronic communication created profound social change.
Answer: T (p. 252)

14. Radio was the first medium of mass communication.
Answer: F (p. 252)

15. Reginald Fessenden invented radio alone.
Answer: F (p. 254)

16. The Radio Licensing Act asserted government control over the airwaves.
Answer: T (p. 258)

17. The National Broadcasting Corporation was given a government monopoly over broadcasting in the United States.
Answer: F (p. 267)

18. The driving force behind the creation of television was private inventors.
Answer: F (p. 267)

19. By the 1950s television had become the primary means of mass communication.
Answer: T (p. 267)

20. Mass electronic communication played a role in creating more homogenous national and international culture.
Answer: T (p. 272)

Chapter 11 Quiz Questions

Multiple Choice

[1.] The first computers emerged in the
a. 1920s.
b. 1940s.
c. 1970s.
d. 1990s.
Answer: b (p. 275)

2. Which of the following is *not* a precursor to the modern personal computer?
a. mimeograph machine
b. typewriter
c. file cabinet
d. GPS unit
Answer: d (p. 277)

3. One of the earliest real-time computers was SAGE, which was developed to run
   a. financial systems.
   b. artillery.
   c. national air defense.
   d. the Internet.
   Answer: c (p. 283)

4. Which company dominated the mainframe computer market?
   a. IBM
   b. Apple
   c. Dell
   d. Amazon
   Answer: a (p. 286)

5. The earliest, rudimentary personal computers were built by
   a. IBM.
   b. Apple.
   c. hobbyists.
   d. government.
   Answer: c (p. 290)

6. Modems, which allowed computers to connect via telephone lines, were invented by
   a. IBM.
   b. Apple.
   c. hobbyists.
   d. the government.
   Answer: c (p. 293)

Fill in the Blank

7. The earliest computers were _____.
   Answer: women (p. 276)

8. The earliest computers were _____, meaning that they had to be specially built to perform a specific calculation.
   Answer: analog (p. 277)

9. The secret to making computers work rapidly was using a _____ number system.
   Answer: binary (p. 278)

10. _____ used a semiconductor crystal to run computers.
    Answer: Transistors (p. 284)

11. Browsers, which made the World Wide Web possible, were created by _____.
    Answer: CERN (p. 293)

12. _____ of technology allowed cell phones to become smartphones.
Answer: Miniaturization (p. 294)

True/False

13. Both personal computers and the internet were spin-offs of military technology.
Answer: T (p. 276)

14. The first digital electronic calculator was created to break German codes in World War II.
Answer: F (p. 279)

15. SAGE was developed and run entirely by the federal government.
Answer: F (p. 284)

16. Transistors are the basis of electronic chips.
Answer: F (p. 285)

17. One of the main factors allowing the development of personal computers was the decline in the price of their component parts.
Answer: T (p. 288)

18. Most of the innovations in personal computers were developed by government funded projects.
Answer: F (p. 289)

19. The Internet began as a project of the Department of Defense.
Answer: T (p. 292)

20. Amateurs have played a significant role in the development of electronic communication technology.
Answer: T (p. 296)

Chapter 12 Quiz Questions

Multiple Choice

[1.] Technoscience applies to
a. any field of science.
b. only certain fields like chemistry.
c. only certain fields like medicine.
d. only technology, not pure science.
Answer: c (p. 299)

2. Humans have been genetically modifying plants and animals for

a. about 200 years.
b. about 100 years.
c. thousands of years.
d. less than 30 years.
Answer: c (p. 301)

3. Hybrid corn was created by
a. scientists working in a lab.
b. farmers.
c. seed corporations.
d. all of the above
Answer: d (p. 303)

4. The driving force behind the development of penicillin was
a. World War II.
b. desire for profit.
c. the Great Depression.
d. desire to win a Nobel prize.
Answer: a (p. 307)

5. The impact of hormones was first discovered in the _____ century.
a. 20th
b. 19th
c. 5th
d. 21st
Answer: a (p. 314)

6. Margaret Sanger, one of the driving forces behind the invention of oral birth control, was famous as the
a. first female senator.
b. founder of planned parenthood.
c. founder of Montessori.
d. first woman to burn a bra.
Answer: b (p. 316)

7. Crick and Watson discovered
a. hormones.
b. birth control.
c. penicillin.
d. the structure of DNA.
Answer: d (p. 322)

Fill in the Blank

8. Scientists began promoting practical application of their work because they needed more _____.

Answer: funding (p. 327)

9. Both scientists in a lab and engineers and others doing practical, applied science were doing _____.
Answer: technoscience (p. 326)

10. The development of bacteriology was a result of the discovery of _____.
Answer: germ theory (p. 307)

11. The discovery of penicillin lowered death rates in some parts of the world so much that it resulted in _____.
Answer: overpopulation (p. 313)

12. Scientists research _____in an attempt to solve problems like infertility.
Answer: progesterone (p. 315)

13. The massive international effort to map the human gene is called _____.
Answer: the Human Genome Project (p. 322)

True/False

14. Foodstuffs can be considered technology.
Answer: T (p. 299)

15. Advances in medicine have only positive impacts on society.
Answer: F (p. 300)

16. All domesticated animals and plants are hybrids.
Answer: T (p. 300)

17. The development of hybrid corn aided the downfall of the family farm.
Answer: T (p. 306)

18. The benefit of hybrid corn was that it could be grown from natural seed.
Answer: F (p. 306)

19. The approval of the first birth control pill in 1960 had huge social consequences.
Answer: T (p. 322)

20. All new technology has both positive and negative consequences.
Answer: T (p. 322)

Chapter 13 Quiz Questions

Multiple Choice

[1.] Biotechnology is a science that explores
a. diseases.
b. foodstuffs.
c. DNA.
d. chemistry.
Answer: c (p. 325)

2. Biotechnology is
a. a pure science.
b. applied science.
c. technoscience.
d. all of the above
Answer: c (p. 325)

3. Genetic engineering was the result of the discovery of
a. the structure of DNA.
b. nuclear fission.
c. string theory.
d. laser technology.
Answer: a (p. 329)

4. Genentech was an example of
a. a for-profit biotech start-up.
b. government funded research.
c. a nonprofit company.
d. an academic institution.
Answer: a (p. 331)

5. The first reports of scientists' ability to play with genes and innovate in new ways resulted in
a. universal rejoicing.
b. public protests.
c. disastrous accidents.
d. disinterest.
Answer: b (p. 337)

6. Monsanto's flagship product is Roundup, which is
a. a genetically modified tomato.
b. seed for hybrid corn.
c. insecticide.
d. herbicide.
Answer: d (p. 342)

7. Debates over genetically modified food have a great resonance with many people because they are more _____ than many genetically modified products.
a. controversial

b. emotional
c. difficult
d. well-known
Answer: b (p. 345)

Fill in the Blank

8. _____ began when companies started their own research labs, hiring both scientists and engineers.
Answer: Technoscience (p. 326)

9. Academic scientists are judged on the basis of the number of their _____.
Answer: publications (p. 327)

10. Scientists turned _____ into an applied science while trying to figure out how to fight viruses and bacteria.
Answer: biotechnology (p. 329)

11. The first human protein created by genetic engineering was _____.
Answer: insulin (p. 332)

12. Some people were horrified by the idea of genetic manipulation, accusing scientists of _____.
Answer: "playing God" (p. 336)

13. The NIH created _____ because of the worries about scientists manipulating viruses and bacteria.
Answer: safety regulations (p. 337)

True/False

14. Research and development was the province of academic scientists throughout the 20th century.
Answer: F (p. 326)

15. During World War II, government funding went primarily to academic scientists.
Answer: F (p. 327)

16. During the Cold War, top-secret military research and development thrived at the expense of innovation for the consumer market.
Answer: T (p. 328)

17. Recombinant DNA is a combination of strands of DNA from at least two different organisms.
Answer: T (p. 331)

18. New guidelines were created for genetic experimentation, nevertheless, several accidents resulted in deaths of scientists.
Answer: F (p. 337)

19. The Flavr Savr tomato was the first genetically modified food.
Answer: T (p. 338)

20. Consumers have always been wary of genetically modified food.
Answer: T (p. 342)

Section III Essay Questions

[1.] What are some of the positive and negative consequences of 20th-century technological advances? Give at least two specific examples of technology with consequences.

[2.] How and why did government come to play a significant role in technological development in the 20th century? Give specific examples.

[3.] Describe the impact of the development of the personal computer, the Internet, and social networking on society.