Glass fibers have a long history. The Egyptians made coarse fibers by 1600 B.C., and fibers survive as decorations on Egyptian pottery dating back to 1375 B.C. During the Renaissance (fifteenth and sixteenth centuries A.D.), glassmakers from Venice used glass fibers to decorate the surfaces of plain glass vessels. However, glassmakers guarded their secrets so carefully that no one wrote about glass fiber production until the early seventeenth century.

The eighteenth century brought the invention of "spun glass" fibers. René-Antoine de Réaumur, a French scientist, tried to make artificial feathers from glass. He made fibers by rotating a wheel through a pool of molten glass, pulling threads of glass where the hot thick liquid stuck to the wheel. His fibers were short and fragile, but he predicted that spun glass fibers as thin as spider silk would be flexible and could be woven into fabric.

By the start of the nineteenth century, glassmakers learned how to make longer, stronger fibers by pulling them from molten glass with a hot glass tube. Inventors wound the cooling end of the thread around a yarn reel, then turned the reel rapidly to pull more fiber from the molten glass. Wandering tradespeople began to spin glass fibers at fairs, making decorations and ornaments as novelties for collectors, but this material was of little practical use; the fibers were brittle, ragged, and no longer than ten feet, the circumference of the largest reels. By the mid-1870's, however, the best glass fibers were finer than silk and could be woven into fabrics or assembled into imitation ostrich feathers to decorate hats. Cloth of white spun glass resembled silver; fibers drawn from yellow-orange glass looked golden.

Glass fibers were little more than a novelty until the 1930's, when their thermal and electrical insulating properties were appreciated and methods for producing continuous filaments were developed. In the modern manufacturing process, liquid glass is fed directly from a glass-melting furnace into a bushing, a receptacle pierced with hundreds of fine nozzles, from which the liquid issues in fine streams. As they solidify, the streams of glass are gathered into a single strand and wound onto a reel.

Which of the following aspects of glass fiber does the passage mainly discuss?

(A) The major developments in its production

(B) Its relationship with pottery making

(C) Important inventors in its long history

(D) The variety of its uses in modern industry

The word "coarse" in line 1 is closest in meaning to

(A) decorative

(B) natural

(C) crude

(D) weak

Why was there nothing written about the making of Renaissance glass fibers until the seventeenth century?

(A) Glassmakers were unhappy with the quality of the fibers they could make.

(B) Glassmakers did not want to reveal the methods they used.

(C) Few people were interested in the Renaissance style of glass fibers.

(D) Production methods had been well known for a long time.

According to the passage, using a hot glass tube rather than a wheel to pull fibers from molten glass made the fibers

(A) quicker to cool

(B) harder to bend

(C) shorter and more easily broken

(D) longer and more durable

The phrase "this material" in line 16 refers to

(A) glass fibers

(B) decorations

(C) ornaments

(D) novelties for collectors

The word "brittle" in line 17 is closest in meaning to

(A) easily broken

(B) roughly made

(C) hairy

(D) shiny

The production of glass fibers was improved in the nineteenth century by which of the following'

(A) Adding silver to the molten glass

(B) Increasing the circumference of the glass tubes

(C) Putting silk thread in the center of the fibers

(D) Using yarn reels

The word "appreciated" in line 23 is closest in meaning to

(A) experienced

(B) recognized

(C) explored

(D) increased

Which of the following terms is defined in the passage?

(A) invention (line 7)

(B) circumference (line 17)

(C) manufacturing process (line 24)

(D) bushing (line25)

In 1903 the members of the governing board of the University of Washington, in Seattle, engaged a firm of landscape architects, specialists in the design of outdoor environments--Olmsted Brothers of Brookline, Massachusetts--to advise them on an appropriate layout for the university grounds. The plan impressed the university officials, and in time many of its recommendations were implemented. City officials in Seattle, the largest city in the northwestern United States, were also impressed, for they employed the same organization to study Seattle's public park needs. John Olmsted did the investigation and subsequent report on Seattle's parks. He and his brothers believed that parks should be adapted to the local topography, utilize the area's trees and shrubs, and be available to the entire community. They especially emphasized the need for natural, serene settings where hurried urban dwellers could periodically escape from the city. The essence of the Olmsted park plan was to develop a continuous driveway, twenty miles long, that would tie together a whole series of parks, playgrounds, and parkways. There would be local parks and squares, too, but all of this was meant to supplement the major driveway, which was to remain the unifying factor for the entire system.

In November of 1903 the city council of Seattle adopted the Olmsted Report, and it automatically became the master plan for the city's park system. Prior to this report, Seattle's park development was very limited and funding meager. All this changed after the report. Between 1907 and 1913, city voters approved special funding measures amounting to $4,000,000. With such unparalleled sums at their disposal, with the Olmsted guidelines to follow, and with the added incentive of wanting to have the city at its best for the Alaska-Yukon-Pacific Exposition of 1909, the Parks Board bought aggressively. By 1913 Seattle had 25 parks amounting to 1,400 acres, as well as 400 acres in playgrounds, pathways, boulevards, and triangles. More lands would be added in the future, but for all practical purposes it was the great land surge of 1907-1913 that established Seattle's park system.

What does the passage mainly discuss?
(A) The planned development of Seattle's public park system
(B) The organization of the Seattle city government
(C) The history of the Olmsted Brothers architectural firm
(D) The design and building of the University of Washington campus

The word "engaged" in line 2 is closest in meaning to
(A) trained
(B) hired
(C) described
(D) evaluated

The word "subsequent" in line 8 is closest in meaning to
(A) complicated
(B) alternate
(C) later
(D) detailed

Which of the following statements about parks does NOT reflect the views of the Olmsted Brothers firm?
(A) They should be planted with trees that grow locally.
(B) They should provide a quiet, restful environment.
(C) They should be protected by limiting the number of visitors from the community.
(D) They should be designed to conform to the topography of the area.

Why does the author mention "local parks and squares" in lines 13-14 when talking about the Olmsted plan?
(A) To emphasize the difficulties facing adoption of the plan
(B) To illustrate the comprehensive nature of the plan
(C) To demonstrate an omission in the plan
(D) To describe Seattle's landscape prior to implementation of the plan

Which of the following can be inferred from the passage about how citizens of Seattle received the Olmsted Report?
(A) They were hostile to the report's conclusions.
(B) They ignored the Olmsteds' findings.
(C) They supported the Olmsteds' plans.
(D) They favored the city council's seeking advice from another firm.

According to the passage, when was the Olmsted Report officially accepted as the master plan for the Seattle public park system?
(A) 1903
(B) 1907
(C) 1909
(D) 1913

The word "sums" in line 20 is closest in meaning to
(A) problems
(B) amounts
(C) services
(D) debts

According to the passage, which of the following was most directly influenced by the Alaska-Yukon- Pacific Exposition?
(A) The University of Washington
(B) Brookline, Massachusetts
(C) The mayor of Seattle
(D) The Seattle Parks Board

Damascus University

The most thoroughly studied cases of deception strategies employed by ground-nesting birds involve plovers, small birds that typically nest on beaches or in open fields, their nests merely scrapes in the sand or earth. Plovers also have an effective repertoire of tricks for distracting potential nest predators from their exposed and defenseless eggs or chicks.

The ever-watchful plover can detect a possible threat at a considerable distance. When she does, the nesting bird moves inconspicuously off the nest to a spot well away from eggs or chicks. At this point she may use one of several ploys. One technique involves first moving quietly toward an approaching animal and then setting off noisily through the grass or brush in a low, crouching run away from the nest, while emitting rodentlike squeaks. The effect mimics a scurrying mouse or vole, and the behavior rivets the attention of the type of predators that would also be interested in eggs and chicks.

Another deception begins with quiet movement to an exposed and visible location well away from the nest. Once there, the bird pretends to incubate a brood. When the predator approaches, the parent flees, leaving the false nest to be searched. The direction in which the plover "escapes" is such that if the predator chooses to follow, it will be led still further away from the true nest.

The plover's most famous stratagem is the broken-wing display, actually a continuum of injury-mimicking behaviors spanning the range from slight disability to near-complete helplessness. One or both wings are held in an abnormal position, suggesting injury. The bird appears to be attempting escape along an irregular route that indicates panic. In the most extreme version of the display, the bird flaps one wing in an apparent attempt to take to the air, flops over helplessly, struggles back to its feet, runs away a short distance, seemingly attempts once more to take off, flops over again as the "useless" wing fails to provide any lift, and so on. Few predators fail to pursue such obviously vulnerable prey. Needless to say, each short run between "flight attempts" is directed away from the nest.

What does the passage mainly discuss?
(A) The nest-building techniques of plovers
(B) How predators search for plovers
(C) The strategies used by plovers to deceive predators
(D) Why plovers are vulnerable to predators

The word "merely" in line 3 is closest in meaning to
(A) often
(B) only
(C) usually
(D) at first

Which of the following is mentioned in the passage about plovers?
(A) Their eggs and chicks are difficult to find.
(B) They are generally defenseless when away From their nests.
(C) They are slow to react in dangerous situations.
(D) Their nests are on the surface of the ground.

The word "emitting" in line 9 is closest in meaning to
(A) bringing
(B) attracting
(C) producing
(D) minimizing

In the deception technique described in paragraph 2, the plover tries to
(A) stay close to her nest
(B) attract the predator's attention
(C) warn other plovers of danger
(D) frighten the approaching predator

The word "spanning" in line 18 is closest in meaning to
(A) covering
(B) selecting
(C) developing
(D) explaining

According to paragraph 4, which of the following aspects of the plover's behavior gives the appearance that it is frightened?
(A) Abnormal body position
(B) Irregular escape route
(C) Unnatural wing movement
(D) Unusual amount of time away from the nest

The word "pursue" in line 24 is closest in meaning to
(A) catch
(B) notice
(C) defend
(D) chase

According to the passage, a female plover utilizes all of the following deception techniques EXCEPT
(A) appearing to be injured
(B) sounding like another animal
(C) pretending to search for prey
(D) pretending to sit on her eggs

Which of the following best describes the organization of the passage?
(A) A description of the sequence of steps involved in plovers nest building
(B) A generalization about plover behavior followed by specific examples
(C) A comparison and contrast of the nesting behavior of plovers and other ground nesting birds
(D) A cause-and-effect analysis of the relationship between a prey and a predator

Damascus University

No two comets ever look identical, but they have basic features in common, one of the most obvious of which is a coma. A coma looks like a misty patch of light with one or more tails often streaming from it in the direction away from the Sun.

At the heart of a comet's coma lies a nucleus of solid material, typically no more than 10 kilometers across. The visible coma is a huge cloud of gas and dust that has escaped from the nucleus, which it then surrounds like an extended atmosphere. The coma can extend as far as a million kilometers outward from the nucleus. Around the coma there is often an even larger invisible envelope of hydrogen gas.

The most graphic proof that the grand spectacle of a comet develops from a relatively small and inconspicuous chunk of ice and dust was the close-up image obtained in 1986 by the European *Giotto* probe of the nucleus of Halley's Comet. It turned out to be a bit like a very dark asteroid, measuring 16 by 8 kilometers. Ices have evaporated from its outer layers to leave a crust of nearly black dust all over the surface. Bright jets of gas from evaporating ice burst out on the side facing the Sun, where the surface gets heated up, carrying dust with them. This is how the coma and the tails are created.

Comets grow tails only when they get warm enough for ice and dust to boil off. As a comet's orbit brings it closer to the Sun, first the coma grows, then two distinct tails usually form. One, the less common kind, contains electrically charged (i.e., ionized) atoms of gas, which are blown off directly in the direction away from the Sun by the magnetic field of the solar wind. The other tail is made of neutral dust particles, which get gently pushed back by the pressure of the sunlight itself. Unlike the ion tail, which is straight, the dust tail becomes curved as the particles follow their own orbits around the Sun.

The passage focuses on comets primarily in terms of their
(A) orbital patterns
(B) coma and tails
(C) brightness
(D) size

The word "identical" in line 1 is closest in meaning to
(A) equally fast
(B) exactly alike
(C) near each other
(D) invisible

The word "heart" in line 4 is closest in meaning to
(A) center
(B) edge
(C) tail
(D) beginning

Why does the author mention the *Giotto* probe in paragraph 3 ?
(A) It had a relatively small and inconspicuous nucleus.
(B) It was very similar to an asteroid.
(C) It was covered with an unusual black dust.
(D) It provided visual evidence of the makeup of a comet's nucleus.

It can be inferred from the passage that the nucleus of a comet is made up of
(A) dust and gas
(B) ice and dust
(C) hydrogen gas
(D) electrically charged atoms

The word "graphic" in line 9 is closest in meaning to
(A) mathematical
(B) popular
(C) unusual
(D) vivid

Which of the following occurred as the ices from Halley's Comet evaporated?
(A) Black dust was left on the comet's surface.
(B) The nucleus of the comet expanded.
(C) The tail of the comet straightened out.
(D) Jets of gas caused the comet to increase its speed.

All of the following statements about the tails of comets are true EXCEPT:
(A) They can contain electrically charged or neutral particles.
(B) They can be formed only when there is sufficient heat.
(C) They are formed before the coma expands.
(D) They always point in the direction away from the Sun.

The word "distinct" in line 17 is closest in meaning to
(A) visible
(B) gaseous
(C) separate
(D) new

Compared to the tail of electrically charged atoms, the tail of neutral dust particles is relatively
(A) long
(B) curved
(C) unpredictable
(D) bright

Damascus University

The interrelationship of science, technology, and industry is taken for granted today--summed up, not altogether accurately, as "research and development." Yet historically this widespread faith in the economic virtues of science is a relatively recent phenomenon, dating back in the United States about 150 years, and in the Western world as a whole not over 300 years at most. Even in this current era of large scale, intensive research and development, the interrelationships involved in this process are frequently misunderstood. Until the coming of the Industrial Revolution, science and technology evolved for the most part independently of each other. Then as industrialization became increasingly complicated, the craft techniques of preindustrial society gradually gave way to a technology based on the systematic application of scientific knowledge and scientific methods. This changeover started slowly and progressed unevenly. Until late in the nineteenth century, only a few industries could use scientific techniques or cared about using them. The list expanded noticeably after 1870, but even then much of what passed for the application of science was "engineering science" rather than basic science.

Nevertheless, by the middle of the nineteenth century, the rapid expansion of scientific knowledge and of public awareness--if not understanding--of it had created a belief that the advance of science would in some unspecified manner automatically generate economic benefits. The widespread and usually uncritical acceptance of this thesis led in turn to the assumption that the application of science to industrial purposes was a linear process, starting with fundamental science, then proceeding to applied science or technology, and through them to industrial use. This is probably the most common pattern, but it is not invariable. New areas of science have been opened up and fundamental discoveries made as a result of attempts to solve a specific technical or economic problem. Conversely, scientists who mainly do basic research also serve as consultants on projects that apply research in practical ways. In sum, the science-technology-industry relationship may flow in several different ways, and the particular channel it will follow depends on the individual situation. It may at times even be multidirectional.

What is the author's main purpose in the passage?

(A) To show how technology influenced basic science
(B) To describe the scientific base of nineteenth-century American industries
(C) To correct misunderstandings about the connections between science, technology, and industry
(D) To argue that basic science has no practical application

The word "altogether" in line 2 is closest in meaning to

(A) completely
(B) realistically
(C) individually
(D) understandably

The word "intensive" in line 5 is closest in meaning to

(A) decreased
(B) concentrated
(C) creative
(D) advanced

The "list" mentioned in line 13 refers to
(A) types of scientific knowledge
(B) changes brought by technology
(C) industries that used scientific techniques
(D) applications of engineering science

The understanding of research and development in the late nineteenth century is based on which of the following?
(A) Engineering science is not very important.
(B) Fundamental science naturally leads to economic benefits.
(C) The relationship between research and development should be criticized.
(D) Industrial needs should determine what areas fundamental science focuses on.

The word "it" in line 16 refers to
(A) understanding
(B) public awareness
(C) scientific knowledge
(D) expansion

The word "assumption" in line 19 is closest in meaning to
(A) regulation
(B) belief
(C) contract
(D) confusion

Why does the author mention "consultants" in line 24 ?
(A) To show how new areas of science have given rise to new professions
(B) To distinguish between scientists who work in industry and those who do not
(C) To explain the ways in which scientists find financial support for their work
(D) To show how scientists who work in basic research contribute to applied science

Which of the following statements does the passage support?
(A) The development of science and of industry is now interdependent.
(B) Basic scientific research cannot generate practical applications.
(C) Industries should spend less money on research and development.
(D) Science and technology are becoming more separate.

Damascus University

Many prehistoric people subsisted as hunters and gatherers. Undoubtedly, game animals, including some very large species, provided major components of human diets. An important controversy centering on the question of human effects on prehistoric wildlife concerns the sudden disappearance of so many species of large animals at or near the end of the Pleistocene epoch. Most paleontologists suspect that abrupt changes in climate led to the mass extinctions. Others, however, have concluded that prehistoric people drove many of those species to extinction through overhunting. In their "Pleistocene overkill hypothesis," they cite what seems to be a remarkable coincidence between the arrival of prehistoric peoples in North and South America and the time during which mammoths, giant ground sloths, the giant bison, and numerous other large mammals became extinct. Perhaps the human species was driving others to extinction long before the dawn of history.

Hunter-gatherers may have contributed to Pleistocene extinctions in more indirect ways. Besides overhunting, at least three other kinds of effects have been suggested: direct competition, imbalances between competing species of game animals, and early agricultural practices. Direct competition may have brought about the demise of large carnivores such as the saber-toothed cats. These animals simply may have been unable to compete with the increasingly sophisticated hunting skills of Pleistocene people.

Human hunters could have caused imbalances among game animals, leading to the extinctions of species less able to compete. When other predators such as the gray wolf prey upon large mammals, they generally take high proportions of each year' s crop of young. Some human hunters, in contrast, tend to take the various age-groups of large animals in proportion to their actual occurrence. If such hunters first competed with the larger predators and then replaced them, they may have allowed more young to survive each year, gradually increasing the populations of favored species As these populations expanded, they in turn may have competed with other game species for the same environmental niche, forcing the less hunted species into extinction. This theory suggests that human hunters played an indirect role in Pleistocene extinctions by hunting one species more than another.

What does the passage mainly discuss?
(A) The effects of human activities on prehistoric wildlife
(B) The origins of the hunter-gatherer way of life
(C) The diets of large animals of the Pleistocene epoch
(D) The change in climate at the end of the Pleistocene epoch

The word "Undoubtedly" in line 1 is closest in meaning to
(A) occasionally
(B) unexpectedly
(C) previously
(D) certainly

The word "components" in line 2 is closest in meaning to
(A) parts
(B) problems
(C) changes
(D) varieties

Which of the following is mentioned as supporting the Pleistocene overkill hypothesis?
(A) Many of the animals that became extinct were quite large.
(B) Humans migrated into certain regions around the time that major extinctions occurred.
(C) There is evidence that new species were arriving in areas inhabited by humans.
(D) Humans began to keep and care for certain animals.

The word "Besides" in line 13 is closest in meaning to
(A) caused by
(B) whereas
(C) in addition to
(D) in favor of

The author mentions saber-toothed cats in line 16 as an example of a carnivore that
(A) became extinct before the Pleistocene epoch
(B) was unusually large for its time
(C) was not able to compete with humans
(D) caused the extinction of several species

The word "they" in line 20 refers to
(A) human hunters
(B) game animals
(C) other predators
(D) large mammals

According to the passage, what is one difference between the hunting done by some humans and the hunting done by gray wolves?
(A) Some humans hunt more frequently than gray wolves.
(B) Gray wolves hunt in larger groups than some humans.
(C) Some humans can hunt larger animals than gray wolves can hunt.
(D) Some humans prey on animals of all ages, but gray wolves concentrate their efforts on young animals.

The word "favored" in line 24 is closest in meaning to
(A) large
(B) escaping
(C) preferred
(D) local

According to the passage, the imbalances discussed in paragraph 3 may have resulted from
(A) the effect of climate changes on large game animals
(B) large animals moving into a new environment
(C) humans hunting some species more than others
(D) older animals not being able to compete with younger animals

Damascus University

The economic depression in the late-nineteenth-century United States contributed significantly to a growing movement in literature toward realism and naturalism. After the 1870' s, a number of important authors began to reject the romanticism that had prevailed immediately following the Civil War of 1861-1865 and turned instead to realism. Determined to portray life as it was, with fidelity to real life and accurate representation without idealization, they studied local dialects, wrote stories which focused on life in specific regions of the country, and emphasized the "true" relationships between people. In doing so, they reflected broader trends in the society, such as industrialization, evolutionary theory which emphasized the effect of the environment on humans, and the influence of science.

Realists such as Joel Chandler Harris and Ellen Glasgow depicted life in the South; Hamlin Garland described life on the Great Plains; and Sarah Orne Jewett wrote about everyday life in rural New England. Another realist, Bret Harte, achieved fame with stories that portrayed local life in the California mining camps.

Samuel Clemens, who adopted the pen name Mark Twain, became the country's most outstanding realist author, observing life around him with a humorous and skeptical eye. In his stories and novels, Twain drew on his own experiences and used dialect and common speech instead of literary language, touching off a major change in American prose style.

Other writers became impatient even with realism. Pushing evolutionary theory to its limits, they wrote of a world in which a cruel and merciless environment determined human fate. These writers, called naturalists, often focused on economic hardship, studying people struggling with poverty, and other aspects of urban and industrial life. Naturalists brought to their writing a passion for direct and honest experience.

Theodore Dreiser, the foremost naturalist writer, in novels such as *Sister Carrie*, grimly portrayed a dark world in which human beings were tossed about by forces beyond their understanding or control. Dreiser thought that writers should tell the truth about human affairs, not fabricate romance, and *Sister Carrie*, he said, was "not intended as a piece of literary craftsmanship, but was a picture of conditions."

Which aspect of late-nineteenth-century United States literature does the passage mainly discuss?

(A) The influence of science on literature
(B) The importance of dialects for realist writers
(C) The emergence of realism and naturalism
(D) The effects of industrialization on romanticism

The word "prevailed" in line 3 is closest in meaning to

(A) dominated
(B) transformed
(C) entered
(D) generalized

The word "they" in line 8 refers to

(A) authors
(B) dialects
(C) stories
(D) relationships

According to the passage, a highly significant factor in the development of realist and naturalist literature was
(A) the Civil War
(B) a recognition that romanticism was unpopular
(C) an increased interest in the study of common speech
(D) an economic depression

Realist writers took an interest in all of the following EXCEPT
(A) human relationships
(B) characteristics of different regions
(C) the idealization of life
(D) social and historical theories

The word "depicted" in line 11 is closest in meaning to
(A) emphasized
(B) described
(C) criticized
(D) classified

Why does the author mention mining camps in line 14 ?
(A) To contrast the themes of realist and naturalist writers
(B) To illustrate how Bret Harte differed from other authors
(C) As an example of a topic taken up by realist writers
(D) As an example of how setting can influence literary style

Which of the following wrote about life in rural New England?
(A) Ellen Glasgow
(B) Sarah Orne Jewett
(C) Hamlin Garland
(D) Mark Twain

Mark Twain is considered an important literary figure because he
(A) was the first realist writer in the United States
(B) rejected romanticism as a literary approach
(C) wrote humorous stories and novels
(D) influenced American prose style through his use of common speech

The word "foremost" in line 24 is closest in meaning to
(A) most difficult
(B) interesting
(C) most focused
(D) leading

Which of the following statements about Theodore Dreiser is supported by the passage?
(A) He mainly wrote about historical subjects such as the Civil War.
(B) His novels often contained elements of humor.
(C) He viewed himself more as a social commentator than as a literary artist.
(D) He believed writers should emphasize the positive aspects of life.

Damascus University

Tulips are Old World, rather than New World, plants, with the origins of the species lying in Central Asia. They became an integral part of the gardens of the Ottoman Empire from the sixteenth century onward, and, soon after, part of European life as well. Holland, in particular, became famous for its cultivation of the flower.

A tenuous line marked the advance of the tulip to the New World, where it was unknown in the wild. The first Dutch colonies in North America had been established in New Netherland by the Dutch West India Company in 1624, and one individual who settled in New Amsterdam (today's Manhattan section of New York City) in 1642 described the flowers that bravely colonized the settlers' gardens. They were the same flowers seen in Dutch still-life paintings of the time: crown imperials, roses, carnations, and of course tulips. They flourished in Pennsylvania too, where in 1698 William Penn received a report of John Tateham's "Great and Stately Palace," its garden full of tulips. By 1760, Boston newspapers were advertising 50 different kinds of mixed tulip "roots.' But the length of the journey between Europe and North America created many difficulties. Thomas Hancock, an English settler, wrote thanking his plant supplier for a gift of some tulip bulbs from England, but his letter the following year grumbled that they were all dead.

Tulips arrived in Holland, Michigan, with a later wave of early nineteenth-century Dutch immigrants who quickly colonized the plains of Michigan. Together with many other Dutch settlements, such as the one at Pella, Iowa, they established a regular demand for European plants. The demand was bravely met by a new kind of tulip entrepreneur, the traveling salesperson. One Dutchman, Hendrick van der Schoot, spent six months in 1849 traveling through the United States taking orders for tulip bulbs. While tulip bulbs were traveling from Europe to the United States to satisfy the nostalgic longings of homesick English and Dutch settlers, North American plants were traveling in the opposite direction. In England, the enthusiasm for American plants was one reason why tulips dropped out of fashion in the gardens of the rich and famous.

Which of the following questions does the passage mainly answer?
(A) What is the difference between an Old World and a New World plant?
(B) Why are tulips grown in many different parts of the world?
(C) How did tulips become popular in North America?
(D) Where were the first Dutch colonies in North America located?

The word "integral" in line 2 is closest in meaning to
(A) interesting
(B) fundamental
(C) ornamental
(D) overlooked

The passage mentions that tulips were first found in which of the following regions?
(A) Central Asia
(B) Western Europe
(C) India
(D) North America

The word "flourished" in line 11 is closest in meaning to
(A) were discovered
(B) were marketed
(C) combined
(D) thrived

The author mentions tulip growing in New Netherland, Pennsylvania, and Michigan in order to illustrate how
(A) imported tulips were considered more valuable than locally grown tulips
(B) tulips were commonly passed as gifts from one family to another
(C) tulips grew progressively more popular in North America
(D) attitudes toward tulips varied from one location to another

The word "grumbled" in line 16 is closest in meaning to
(A) denied
(B) warned
(C) complained
(D) explained

The passage mentions that one reason English and Dutch settlers planted tulips in their gardens was that tulips
(A) were easy to grow
(B) had become readily available
(C) made them appear fashionable
(D) reminded them of home

The word "they" in line 20 refers to
(A) tulips
(B) plains
(C) immigrants
(D) plants

According to the passage, which of the following changes occurred in English gardens during the European settlement of North America?
(A) They grew in size in order to provide enough plants to export to the New World.
(B) They contained a wider variety of tulips than ever before.
(C) They contained many new types of North American plants.
(D) They decreased in size on the estates of wealthy people.

The passage mentions which of the following as a problem associated with the importation of tulips into North America?
(A) They were no longer fashionable by the time they arrived.
(B) They often failed to survive the journey.
(C) Orders often took six months or longer to fill.
(D) Settlers knew little about how to cultivate them.

Damascus University

In 1900 the United States had only three cities with more than a million residents--New York, Chicago, and Philadelphia. By 1930, it had ten giant metropolises. The newer ones experienced remarkable growth, which reflected basic changes in the economy.

The population of Los Angeles (114,000 in 1900) rose spectacularly in the early decades of the twentieth century, increasing a dramatic 1,400 percent from 1900 to 1930. A number of circumstances contributed to the meteoric rise of Los Angeles. The agricultural potential of the area was enormous if water for irrigation could be found, and the city founders had the vision and dating to obtain it by constructing a 225-mile aqueduct, completed in 1913, to tap the water of the Owens River. The city had a superb natural harbor, as well as excellent rail connections. The climate made it possible to shoot motion pictures year –round; hence Hollywood. Hollywood not only supplied jobs; it disseminated an image of the good life in Southern California on screens all across the nation. The most important single industry powering the growth of Los Angeles, however, was directly linked to the automobile. The demand for petroleum to fuel gasoline engines led to the opening of the Southern California oil fields, and made Los Angeles North America' s greatest refining center.

Los Angeles was a product of the auto age in another sense as well: its distinctive spatial organization depended on widespread private ownership of automobiles. Los Angeles was a decentralized metropolis, sprawling across the desert landscape over an area of 400 square miles. It was a city without a real center. The downtown business district did not grow apace with the city as a whole, and the rapid transit system designed to link the center with outlying areas withered away from disuse. Approximately 800,000 cars were registered in Los Angeles County in 1930, one per 2.7 residents. Some visitors from the east coast were dismayed at the endless urban sprawl and dismissed Los Angeles as a mere collection of suburbs in search of a city. But the freedom and mobility of a city built on wheels attracted floods of migrants to the city.

What is the passage mainly about?
(A) The growth of cities in the United States in the early 1900's
(B) The development of the Southern California oil fields
(C) Factors contributing to the growth of Los Angeles
(D) Industry and city planning in Los Angeles

The author characterizes the growth of new large cities in the United States after 1900 as resulting primarily from
(A) new economic conditions
(B) images of cities shown in movies
(C) new agricultural techniques
(D) a large migrant population

The word "meteoric" in line 6 is closest in meaning to
(A) rapid
(B) famous
(C) controversial
(D) methodical

The word "it" in line 8 refers to
(A) aqueduct
(B) vision
(C) water
(D) agricultural potential

According to the passage, the most important factor in the development of agriculture around Los Angeles was the
(A) influx of new residents to agricultural areas near the city
(B) construction of an aqueduct
(C) expansion of transportation facilities
(D) development of new connections to the city's natural harbor

According to the passage, the initial success of Hollywood' s motion picture industry was due largely to the
(A) availability of many skilled workers
(B) beauty of the countryside
(C) region's reputation for luxurious lifestyles
(D) region's climate and good weather

It can be inferred from the passage that in 1930 the greatest number of people in the Los Angeles area were employed in
(A) farming
(B) oil refining
(C) automobile manufacturing
(D) the motion picture industry

According to the passage, the Southern California oil fields were initially exploited due to
(A) the fuel requirements of Los Angeles' rail system
(B) an increase in the use of gasoline engines in North America
(C) a desire to put unproductive desert land to good use
(D) innovative planning on the part of the city founders

The phrase "apace with" in line 21 is closest in meaning to
(A) anew with
(B) apart from
(C) as fast as
(D) at the middle of

It can be inferred from the passage that the spatial organization of Los Angeles contributed to the relative decline there of
(A) public transportation
(B) industrial areas
(C) suburban neighborhoods
(D) oil fields

The visitors from the east coast mentioned in the passage thought that Los Angeles
(A) was not accurately portrayed by Hollywood images
(B) lacked good suburban areas in which to live
(C) had an excessively large population
(D) was not really a single city

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Pheromones are substances that serve as chemical signals between members of the same species. They are secreted to the outside of the body and cause other individuals of the species to have specific reactions. Pheromones, which are sometimes called "social hormones," affect a group of individuals somewhat like hormones do an individual animal. Pheromones are the predominant medium of communication among insects (but rarely the sole method). Some species have simple pheromone systems and produce only a few pheromones, but others produce many with various functions. Pheromone systems are the most complex in some of the so-called social insects, insects that live in organized groups.

Chemical communication differs from that by sight or sound in several ways. Transmission is relatively slow (the chemical signals are usually airborne), but the signal can be persistent, depending upon the volatility of the chemical, and is sometimes effective over a very long range. Localization of the signal is generally poorer than localization of a sound or visual stimulus and is usually effected by the animal's moving upwind in response to the stimulus. The ability to modulate a chemical signal is limited, compared with communication by visual or acoustic means, but some pheromones may convey different meanings and consequently result in different behavioral or physiological responses, depending on their concentration or when presented in combination. The modulation of chemical signals occurs via the elaboration of the number of exocrine glands that produce pheromones. Some species, such as ants, seem to be very articulate creatures, but their medium of communication is difficult for humans to study and appreciate because of our own olfactory insensitivity and the technological difficulties in detecting and analyzing these pheromones.

Pheromones play numerous roles in the activities of insects. They may act as alarm substances, play a role in individual and group recognition, serve as attractants between sexes, mediate the formation of aggregations, identify foraging trails, and be involved in caste determination. For example, pheromones involved in caste determination include the "queen substance" produced by queen honey bees. Aphids, which are particularly vulnerable to predators because of their gregarious habits and sedentary nature, secrete an alarm pheromone when attacked that causes nearby aphids to respond by moving away.

What does the passage mainly discuss?

(A) How insects use pheromones to communicate
(B) How pheromones are produced by insects
(C) Why analyzing insect pheromones is difficult
(D) The different uses of pheromones among various insect species

The word "serve" in line 1 is closest in meaning to

(A) improve
(B) function
(C) begin
(D) rely

The purpose of the second mention of "hormones" in line 4 is to point out
(A) chemical signals that are common among insects
(B) specific responses of various species to chemical signals
(C) similarities between two chemical substances
(D) how insects produce different chemical substances

The word "sole" in line 6 is closest in meaning to
(A) obvious
(B) best
(C) only
(D) final

The passage suggests that the speed at which communication through pheromones occurs is dependent on how quickly they
(A) lose their effectiveness
(B) evaporate in the air
(C) travel through the air
(D) are produced by the body

According to the passage, the meaning of a message communicated through a pheromone may vary when the
(A) chemical structure of the pheromone is changed
(B) pheromone is excreted while other pheromones are also being excreted
(C) exocrine glands do not produce the pheromone
(D) pheromone is released near certain specific organisms

The word "detecting" in line 23 is closest in meaning to
(A) controlling
(B) storing
(C) questioning
(D) finding

According to paragraph 2, which of the following has made the study of pheromones difficult?
(A) Pheromones cannot be easily reproduced in chemical laboratories.
(B) Existing technology cannot fully explore the properties of pheromones.
(C) Pheromones are highly volatile.
(D) Pheromone signals are constantly changing.

The word "They" in line 24 refers to
(A) pheromones
(B) roles
(C) activities
(D) insects

The word "sedentary" in line 29 is closest in meaning to
(A) inactive
(B) inefficient
(C) unchangeable
(D) unbalanced

Pheromone systems are relatively complex in insects that
(A) also communicate using sight and sound
(B) live underground
(C) prey on other insects
(D) live in organized groups

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In the early 1800's, over 80 percent of the United States labor force was engaged n agriculture. Sophisticated technology and machinery were virtually nonexistent. People who lived in the cities and were not directly involved in trade often participated in small cottage industries making handcrafted goods. Others cured meats, silversmiths, candle or otherwise produced needed goods and commodities. Blacksmiths, silversmiths, candle makers, and other artisans worked in their homes or barns, relying on help of family

Perhaps no single phenomenon brought more widespread and lasting change to the United States society than the rise of industrialization. Industrial growth hinged on several economic factors. First, industry requires an abundance of natural resources, especially coal, iron ore, water, petroleum, and timber-all readily available on the North American continent. Second, factories demand a large labor supply. Between the 1870's and the First World War (1914-1918), approximately 23 million immigrants streamed to the United States, settled in cities, and went to work in factories and mines. They also helped build the vast network of canals and railroads that crisscrossed the continent and linked important trade centers essential to industrial growth.

Factories also offered a reprieve from the backbreaking work and financial unpredictability associated with farming. Many adults, poor and disillusioned with farm life, were lured to the cities by promises of steady employment, regular paychecks, increased access to goods and services, and expanded social opportunities. Others were pushed there when new technologies made their labor cheap or expendable; inventions such as steel plows and mechanized harvesters allowed one farmhand to perform work that previously had required several, thus making farming capital-intensive rather than labor-intensive.

The United States economy underwent a massive transition and the nature of work was permanently altered. Whereas cottage industries relied on a few highly skilled craft workers who slowly and carefully converted raw materials into finished products from start to finish, factories relied on specialization. While factory work was less creative and more monotonous, it was also more efficient and allowed mass production of goods at less expense.

What aspect of life in the United States does the passage mainly discuss?

(A) The transition from an agricultural to an industrial economy
(B) The inventions that transformed life in the nineteenth century
(C) The problems associated with the earliest factories
(D) The difficulty of farm life in the nineteenth century

Blacksmiths, silversmiths, and candle makers are mentioned in lines 5-6 as examples of artisans who

(A) maintained their businesses at home
(B) were eventually able to use sophisticated technology
(C) produced unusual goods and commodities
(D) would employ only family members

The phrase "hinged on" in line 9 is closest in

meaning to
(A) recovered from
(B) depended on
(C) started on
(D) contributed to

Which of the following is mentioned in the passage as a reason for the industrial growth that occurred in the United States before 1914?
(A)The availability of natural resources found only in the United States
(B) The decrease in number of farms resulting from technological advances
(C) The replacement of canals and railroads by other forms of transportation
(D) The availability of a large immigrant work force

The word "lured" in line 19 is closest in meaning to
(A) attracted
(B) assigned
(C) restricted
(D) attached

The word "Others" in line 20 refers to other
(A) adults
(B) promises
(C) goods and services
(D) social opportunities

The word "expendable" in line 21 is closest in meaning to
(A) nonproductive
(B) unacceptable
(C) nonessential
(D) unprofitable

It can be inferred from the passage that industrialization affected farming in that industrialization
(A) increased the price of farm products
(B) limited the need for new farm machinery
(C) created new and interesting jobs on farms
(D) reduced the number of people willing to do farm work

What does the author mean when stating that certain inventions made farming "capital-intensive rather than labor-intensive" (lines 23-24)?
(A) Workers had to be trained to operate the new machines.
(B) Mechanized farming required more capital and fewer laborers.
(C) The new inventions were not helpful for all farming activities.
(D) Human labor could still accomplish as much work as the first machines.

According to the passage, factory workers differed from craft workers in that factory workers
(A) were required to be more creative
(B) worked extensively with raw materials
(C) changed jobs frequently
(D) specialized in one aspect of the finished product only

Molting is one of the most involved processes of a bird's annual life cycle. Notwithstanding preening and constant care, the marvelously intricate structure of a bird's Feather inevitably wears out. All adult birds molt their feathers at least once a year, and upon close observation, one can recognize the frayed, ragged appearance of feathers that are nearing the end of their useful life. Two distinct processes are involved in molting. The first step is when the old, worn feather is dropped, or shed. The second is when a new feather grows in its place. When each feather has been shed and replaced, then the molt can be said to be complete. This, however, is an abstraction that often does not happen: incomplete, overlapping, and arrested molts are quite common.

Molt requires that a bird find and process enough protein to rebuild approximately one-third of its body weight. It is not surprising that a bird in heavy molt often seems listless and unwell. But far from being random, molt is controlled by strong evolutionary forces that have established an optimal time and duration. Generally, molt occurs at the time of least stress on the bird. Many songbirds, for instance, molt in late summer, when the hard work of breeding is done but the weather is still warm and food still plentiful. This is why the woods in late summer often seem so quiet, when compared with the Exuberant choruses of spring.

Molt of the flight feathers is the most highly organized part of the process. Some species, for example, begin by dropping the outermost primary feathers on each side (to retain balance in the air) and wait until the replacement feathers are about one-third grown before shedding the next outermost, and so on. Others always start with the innermost primary feathers and work outward. Yet other species begin in the middle and work outward on both weeks while the replacement feathers grow.

The passage mainly discusses how
(A) birds prepare for breeding
(B) bird feathers differ from species
(C) birds shed and replace their feathers
(D) birds are affected by seasonal changes

The word "Notwithstanding" in line 2 is closest in meaning to
(A) despite
(B) because of
(C) instead of
(D) regarding

The word "intricate" in line 2 is closest in meaning to
(A) regular
(B) complex
(C) interesting
(D) important

The word "random" in line 12 is closest in meaning to
(A) unfortunate
(B) unusual
(C) unobservable
(D) unpredictable

The word "optimal" in line 13 is closest in meaning to
(A) slow
(B) frequent
(C) best

(D) early

Which of the following is NOT mentioned as a reason that songbirds molt in the late summer?

(A) Fewer predators are in the woods.
(B) The weathers is still warm.
(C) The songbirds have finished breeding.
(D) Food is still available.

Some birds that are molting maintain balance during flight by

(A) constantly preening and caring for their remaining feathers
(B) dropping flight feathers on both sides at the same time
(C) adjusting the angle of their flight to compensate for lost feathers
(D) only losing one-third of their feathers

The word "Others" in line 21 refers to

(A) ducks
(B) sides
(C) species
(D) flight feathers

The author discusses ducks in order to provide an example of birds that

(A) grow replacement feathers that are very long
(B) shed all their wing feathers at one time
(C) keep their innermost feathers
(D) shed their outermost feathers first

It can inferred from the discussion about ducks that the molting of their flight feathers takes.

(A) a year
(B) a season
(C) several months
(D) a few weeks

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